

# KRAMER



## USER MANUAL

**MODEL:**

**VSM-4x4HFS**

4x4 Seamless Matrix Switcher/Multi-Scaler



# VSM-4x4HFS Quick Start Guide

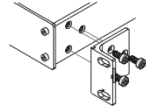
This guide helps you install and use your product for the first time. For more detailed information, go to <http://www.kramerav.com/downloads/VSM-4x4HFS> to download the latest manual (or scan the QR code) and check if firmware upgrades are available.

## Step 1: Check what's in the box

- The VSM-4x4HFS 4x4 Seamless Matrix Switcher / Multi-Scaler
- 1 Power cord
- 1 Set of ear racks
- IR remote control transmitter with batteries
- 1 Quick start guide
- 4 Rubber feet

## Step 2: Install the VSM-4x4HFS

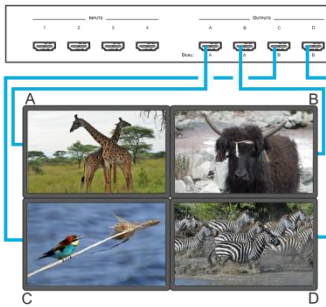
To rack mount the machine attach both ear brackets to the machine (by removing the three screws from each side of the machine and replacing those screws through the ear brackets) or place the machine on a table.



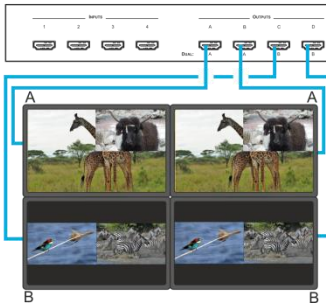
## Step 3: Connect one of the four operation modes

Always switch OFF the power on each device before connecting it to your VSM-4x4HFS. For best results, we recommend that you always use Kramer high-performance cables to connect AV equipment to the VSM-4x4HFS.

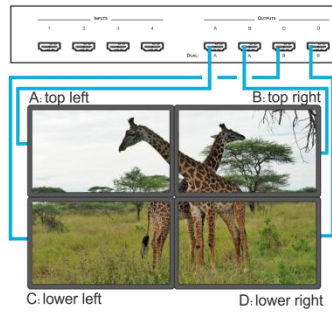
### MATRIX Mode



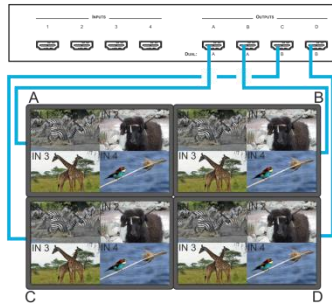
### DUAL Mode



### VIDEO WALL Mode



### QUAD Mode



## Step 4: Connect the power

Connect AC power to the rear of the **VSM-4x4HFS**, switch on its power and then switch on the power on each device.

## Step 5: Set operation parameters via OSD menu

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

Note: By default the output resolution is set to Native, the **VSM-4x4HFS** is triggered to read the EDID of OUTPUT A and change the output resolution value according to the native resolution of the display.

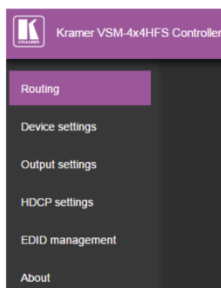
If you cannot see any images, verify that the display, TV, or projector is in good working order and is connected to the **VSM-4x4HFS**. If you still do not see an image, press and hold the RESET TO XGA/720P button for about 4 seconds to reset the outputs to XGA or 720p resolution.

## Step 6: Operate via the front panel buttons and via the:

### IR Remote



### Embedded Web Page



### RS-232 and Ethernet

RS-232	
Baud Rate:	115,200
Data Bits:	8
Stop Bits:	1
Parity:	None
Ethernet	
To reset the IP settings to the factory reset values go to : Menu-> Factory-> RESET->Change the option to YES and press Enter	
IP Address:	192.168.1.39
Subnet mask:	255.255.255.0
Default gateway:	192.168.1.254
TCP Port #:	Not supported
Default UDP Port #:	50000
Maximum UDP Ports:	4
Full Factory Reset	
OSD	Go to : Menu-> FACTORY DEFAULT -> Change the option to YES and press Enter
P3000	Use "FACTORY" command
Front panel buttons	Press the MENU Button while plugging the power to reset the machine
RS-232/Ethernet (UDP) Command Protocol	
Command Format:	ASCII
Example (Route the video from the HDMI2 input to the HDMI A output port in the Matrix mode):	#ROUTE 0,1,2<cr>

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# 1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront video, audio, presentation, and broadcasting professionals 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 and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters; GROUP 11: Sierra Video Products; GROUP 12: Digital Signage; GROUP 13: Audio; and GROUP 14: Collaboration.

Congratulations on purchasing your Kramer **VSM-4x4HFS** 4x4 Seamless Matrix Switcher/Multi-Scaler.

The **VSM-4x4HFS**, which incorporates HDMI™ technology, is ideal for:

- Conference room presentations
- Advertising applications, shopping malls and museums
- Post production applications
- Rental and staging
- Security applications
- Video-wall scaling
- Applications with multiple inputs and outputs
- Applications where quick, sleek, seamless switching is required
- Any application requiring 4 scalers in a single 1RU rack space

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## 2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual



Go to <http://www.kramerav.com/downloads/VSM-4x4HFS> to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

### 2.1 Achieving the Best Performance

To achieve 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 **VSM-4x4HFS** away from moisture, excessive sunlight and dust



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

## 2.2 Safety Instructions



**Caution:** There are no operator serviceable parts inside the unit

**Warning:** Use only the power cord that is supplied with the unit

**Warning:** Do not open the unit. High voltages can cause electrical shock! Servicing by qualified personnel only

**Warning:** Disconnect the power and unplug the unit from the wall before installing

## 2.3 Recycling Kramer Products

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



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## 3 Overview

The **VSM-4x4HFS** is a high-performance 4x4 Seamless Matrix Switcher/Multi-Scaler that allows switching between inputs via a clean video CUT (frame-to-frame switching with no glitches). The **VSM-4x4HFS** can perform as a matrix switcher, a 2x2 video wall, and also features dual and quad multi-viewing options.

It supports HDMI resolutions with deep color and up to 8 channels of audio, and supports per-port HDCP and EDID settings.

The **VSM-4x4HFS** features:

- PixPerfect™ scaling technology – Kramer’s precision pixel mapping and high quality scaling technology
- HDTV compatibility
- HDCP compliance – The HDCP (High Definition Content Protection) license agreement allows copy-protected data on the HDMI input to pass only to the HDMI outputs
- 4 HDMI inputs and four scaled HDMI outputs
- Selectable operation modes – seamless matrix switcher, video wall, dual display (Split/PIP/POP) or quad display
- Bezel correction options – in the video wall mode
- HDMI support for Deep Color, Dolby Digital Plus, DTS, DTS-HD®, LPCM 2CH/6CH/8CH, AC3
- HDCP and EDID settings per port
- VGA to WUXGA and 480i to 1080p Input resolution range
- 480p to 1080p Output resolution range
- Multiple aspect ratio selections - full, 4:3, 16:9 and best fit
- Built-in ProcAmp - color, hue, sharpness, noise, contrast and brightness
- Front panel control – operation mode, TAKE button, and menu buttons
- 4 preset memory locations for each operation mode for quick access to common IN-OUT configurations

- Front panel lockout
- Non-volatile memory – saves final settings
- Program mini USB connector for firmware upgrade

Control your **VSM-4x4HFS**:

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

The **VSM-4x4HFS** is housed in a 19" 1U rack mountable enclosure, with rack "ears" included, and is fed from a 100-240 VAC universal switching power supply.

### 3.1 Defining the **VSM-4x4HFS**

This section defines the **VSM-4x4HFS**.

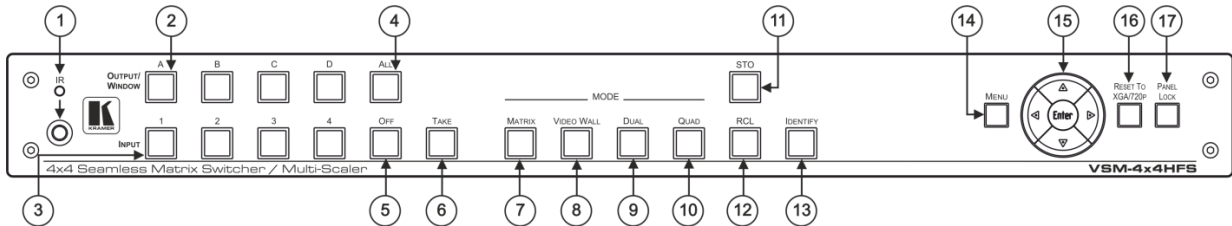


Figure 1: VSM-4x4HFS 4x4 Seamless Matrix Switcher/Multi-Scaler Front Panel

#	Feature	Function	
1	IR LED	Lights when the unit accepts IR remote commands	
	IR Receiver	Receives signals from the remote control transmitter	
2	OUTPUT/WINDOW Selector Buttons	In the MATRIX mode: select the output to which the input is switched (A, B, C or D) In the VIDEO WALL mode: not used In the DUAL mode: select one of the two DUAL windows: A or B for DUAL A; C or D for DUAL B (see <a href="#">Section 5.3</a> ) In the QUAD mode: not used	
3	INPUT Selector Buttons	Press to select an HDMI input (from 1 to 4) to switch to the output	
4	ALL Button	Press ALL followed by an INPUT button to connect that input to all the outputs (not available for the video wall mode)	
5	OFF Button	Press after pressing an output button to disconnect the selected output from the inputs. To disconnect all the outputs, press ALL followed by OFF	
6	TAKE Button	Press to toggle between the Confirm mode (when in the Confirm mode, the TAKE button lights ) and the At Once mode. When in TAKE mode, front panel buttons actions are implemented after pressing the TAKE button (see <a href="#">Section 6.1.2</a> )	
7	MODE Buttons	MATRIX	Press to operate the system as a matrix switcher (see <a href="#">Section 5.1</a> )
		VIDEO WALL	Press to operate as a 2x2 video wall (see <a href="#">Section 5.2</a> )
		DUAL	Press to operate as a 4x2 switcher with PIP capabilities (see <a href="#">Section 5.3</a> )
		QUAD	Press to display all four inputs on each of the outputs (see <a href="#">Section 5.4</a> )
11	STO Button	Press to store a configuration (see <a href="#">Section 6.1.3</a> )	
12	RCL Button	Press to recall a configuration (see <a href="#">Section 6.1.3</a> )	
13	IDENTIFY Button	Press to indicate on each output, which input is displayed on the output. The display time is set via the OSD menu (see <a href="#">Section 6.2.1</a> )	
14	MENU	Press to access the OSD menu, exit the OSD menu and, when in the OSD menu, move to the previous level in the OSD screen (see <a href="#">Section 6.1.2</a> )	
15	Navigation Buttons	ENTER	Press to access sub-menu items and select from several settings (see <a href="#">Section 6.1.2</a> )
		◀	Press to decrease numerical values or select from several definitions
		▲	Press to move up the menu list values (see <a href="#">Section 6.1.2</a> )

#	Feature	Function
	▶	Press to increase numerical values or select from several definitions
	▼	Press to move down the menu list (see <a href="#">Section 6.1.2</a> )
16	RESET TO XGA/720p Button	Press and hold for about 4 seconds to toggle resetting the video resolution to XGA or 720p I
17	PANEL LOCK Button	Press and hold for about 2 seconds to lock/unlock the front panel buttons

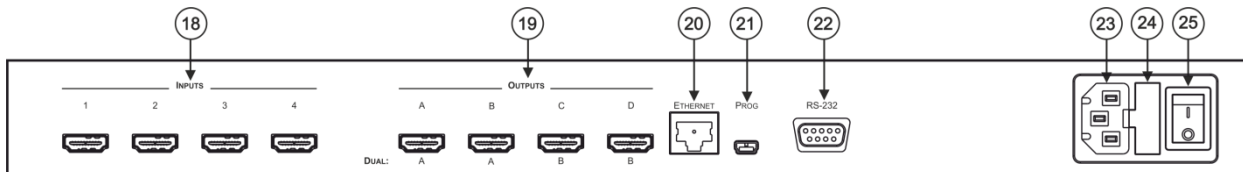


Figure 2: VSM-4x4HFS 4x4 Seamless Matrix Switcher/Multi-Scaler Rear Panel

#	Feature	Function
18	INPUT HDMI Connectors	Connect to the HDMI sources (from 1 to 4)
19	OUTPUT HDMI Connectors	Connect to the HDMI acceptors (from A to D); DUAL: when in the dual operation mode, A, A and B, B
20	ETHERNET Connector	Connects to the PC or other Serial Controller through computer networking
21	PROG USB Connector	Connect to upgrade the unit
22	RS-232 9-pin D-sub Port	Connect to the PC or a remote controller
23	Mains Socket	Connect the mains power cord
24	Mains Fuse Holder	Fuse for protecting the device
25	Power Switch	Switch for turning the unit ON or OFF

## 4 Installing in a Rack

This section provides instructions for rack mounting the unit.

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

OPERATING TEMPERATURE:	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



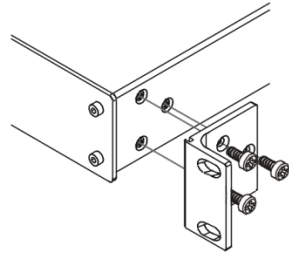
### CAUTION!

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

1. It is located within the recommended environmental conditions, as the operating ambient temperature of a closed or multi unit rack assembly may exceed the room ambient temperature.
2. Once rack mounted, enough air will still flow around the machine.
3. The machine is placed straight in the correct horizontal position.
4. You do not overload the circuit(s). When connecting the machine to the supply circuit, overloading the circuits might have a detrimental effect on overcurrent protection and supply wiring. Refer to the appropriate nameplate ratings for information. For example, for fuse replacement, see the value printed on the product label.
5. The machine is earthed (grounded) in a reliable way and is connected only to an electricity socket with grounding. Pay particular attention to situations where electricity is supplied indirectly (when the power cord is not plugged directly into the socket in the wall), for example, when using an extension cable or a power strip, and that you use only the power cord that is supplied with the machine.

### To rack-mount a machine:

1. Attach both ear brackets to the machine. To do so, remove the screws from each side of the machine (3 on each side), and replace those screws through the ear brackets.



2. Place the ears of the machine against the rack rails, and insert the proper screws (not provided) through each of the four holes in the rack ears.

#### Note:

- In some models, the front panel may feature built-in rack ears
- Detachable rack ears can be removed for desktop use
- Always mount the machine in the rack before you attach any cables or connect the machine to the power
- If you are using a Kramer rack adapter kit (for a machine that is not 19"), see the Rack Adapters user manual for installation instructions available from our Web site

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# 5 Connecting and Operating the VSM-4x4HFS

The **VSM-4x4HFS** is a four-in-one-box device. It can operate as a:

- Matrix switcher
- Video wall
- Dual switcher
- Quad switcher

You can select the different operation modes via front panel buttons, the IR remote control transmitter, the OSD menu or via the Web pages.

This section describes how to connect and operate the **VSM-4x4HFS** for operating in each of the four operation modes (see [Section 5](#)).



Always switch off the power to each device before connecting it to your **VSM-4x4HFS**. After connecting your **VSM-4x4HFS**, connect its power and then switch on the power to each device.



You do not have to connect all the inputs and outputs, connect only those that are required.

## 5.1 The Matrix Mode

The **VSM-4x4HFS** matrix switcher mode is the default operation mode. Any of the four inputs can be switched to any of the four outputs. Switching is immediate and seamless.

### 5.1.1 Connecting the VSM-4x4HFS in the Matrix Operation Mode

To connect the **VSM-4x4HFS** in the MATRIX mode, as illustrated in the example in [Figure 3](#), do the following:

1. Connect up to four HDMI sources (for example, laptops and/or Blu-ray disk players) to the HDMI INPUT connectors (from INPUT 1 to INPUT 4).

2. Connect the four HDMI OUTPUT connectors (from OUTPUT A to OUTPUT D) to up to four HDMI acceptors (for example, LCD displays and/or projectors).
3. Connect the power cord (not shown in [Figure 3](#)).
4. If required, connect:
  - A PC via RS-232, see [Section 6.3](#)
  - The ETHERNET port, see [Section 6.4](#)

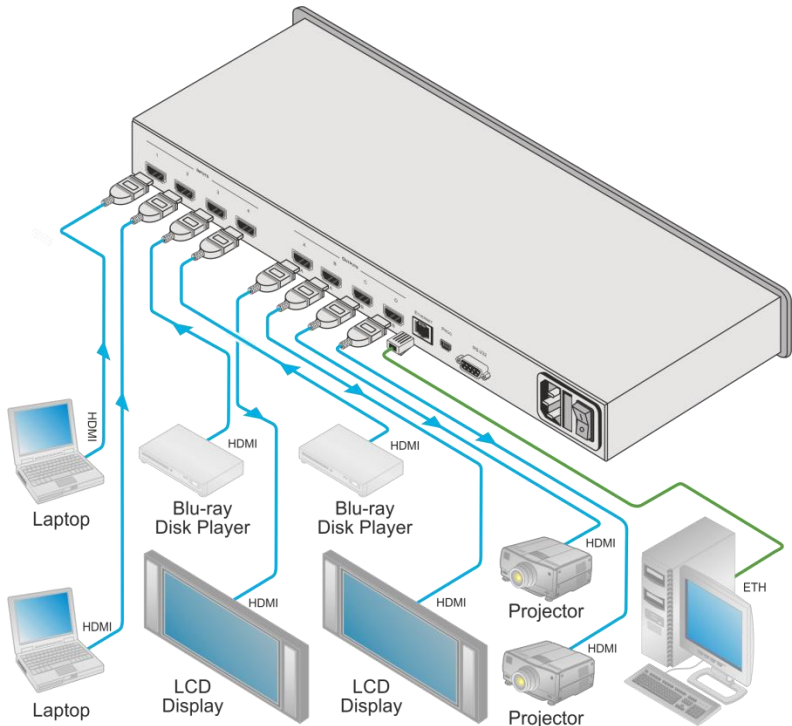


Figure 3: Connecting the VSM-4x4HFS Presentation Switcher / Scaler

## 5.1.2 Operating in the Matrix Mode

To select the inputs via the front panel buttons/IR remote control transmitter:

1. Select the Matrix operation mode.
2. Press an output and then an input to switch to the selected output.

You can also switch several inputs and outputs using the TAKE button (see [Section 6.1.2](#)).

## 5.2 The Video Wall Mode

The video wall mode lets you display the output on a set of four monitors / projectors / TV sets that are tiled together in a 2x2 setting to form one large display. Each output shows one quarter of the image as shown in the example in [Figure 4](#). In the video wall mode the audio of the selected input is routed to one of the outputs.

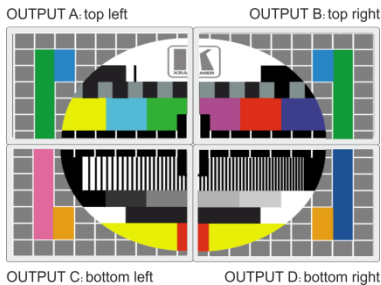


Figure 4: The VSM-4x4HFS Video Wall Operation Mode

### 5.2.1 Connecting the VSM-4x4HFS in the Video Wall Operation Mode

To connect the video wall as illustrated in [Figure 5](#), do the following:

1. Connect an HDMI source (for example, a Blu-ray disk player) to the INPUT 1 connector (you can connect up to four input connectors), not shown in [Figure 5](#).
2. Connect the HDMI output connectors to the video wall screens. Connect the:
  - OUTPUT A connector to the top left screen
  - OUTPUT B connector to the top right screen



- OUTPUT C connector to the bottom left screen
  - OUTPUT D connector to the bottom right screen
3. Connect the power cord (not shown in [Figure 5](#)).
  4. If required, connect:
    - A PC via RS-232, see [Section 6.3](#)
    - The ETHERNET port, see [Section 6.4](#)

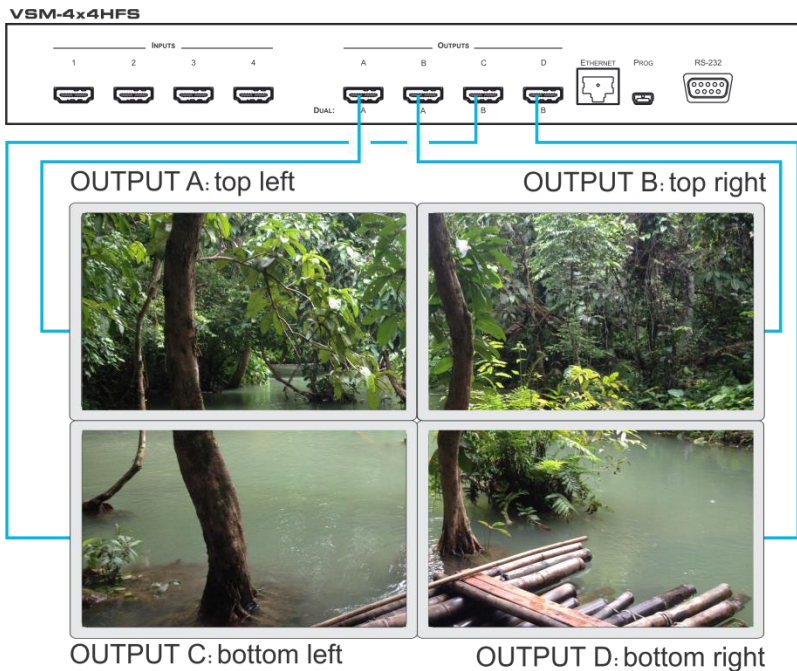


Figure 5: Connecting the VSM-4x4HFS in the Video Wall Operation Mode

## 5.2.2 Operating in the Video Wall Mode

To select the inputs via the front panel buttons/IR remote control transmitter:

1. Select the Video Wall operation mode.
2. Press an input to switch to the output.

### 5.2.3 Bezel Correction

You can use bezel correction via the OUTPUT menu (see [Section 6.2.1](#)) to make up for the rims around the displays used for creating the video wall, thus creating one smooth picture. In the example in [Figure 6](#) the top photo shows the video wall before bezel connection and the lower photo shows the corrected image on the video wall.

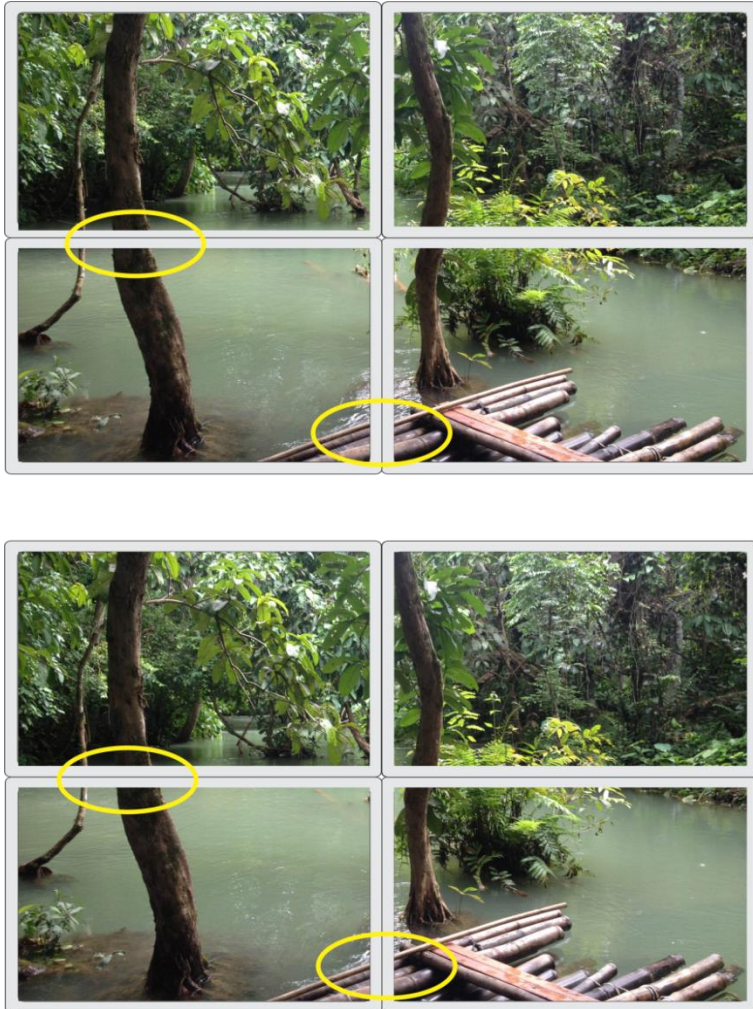


Figure 6: VSM-4x4HFS Bezel Correction

## 5.3 The Dual Mode

In the Dual operation mode the **VSM-4x4HFS** is set as a 4x2 switcher with picture-in-picture capabilities that outputs two identical A outputs and two identical B outputs (see [Figure 7](#)).

The dual outputs display any two selected input signals together on one screen. The OSD/IR remote control transmitter/Web pages lets you set the DUAL mode to the POP (side-by-side) or PIP (picture-in-picture) mode.

### 5.3.1 Connecting the VSM-4x4HFS in the Dual Operation Mode

To connect in the Dual mode as illustrated in [Figure 7](#), do the following:

1. Connect an HDMI source (for example, a Blu-ray disk player) to the INPUT 1 connector (from 1 to 4), not shown in [Figure 7](#).
2. Connect the HDMI output connectors as follows. Connect the:
  - DUAL A connector to an HDMI acceptor (for example, an LCD display)
  - DUAL A connector to an HDMI acceptor (for example, an LCD display)
  - DUAL B connector to an HDMI acceptor (for example, an LCD display)
  - DUAL B connector to an HDMI acceptor (for example, an LCD display)

Note that you do not have to connect all the outputs.

3. Connect the power cord (not shown in [Figure 7](#)).
4. Setup the system (see [Section 5.3](#))
5. If required, connect:
  - A PC via RS-232, see [Section 6.3](#)
  - The ETHERNET port, see [Section 6.4](#)

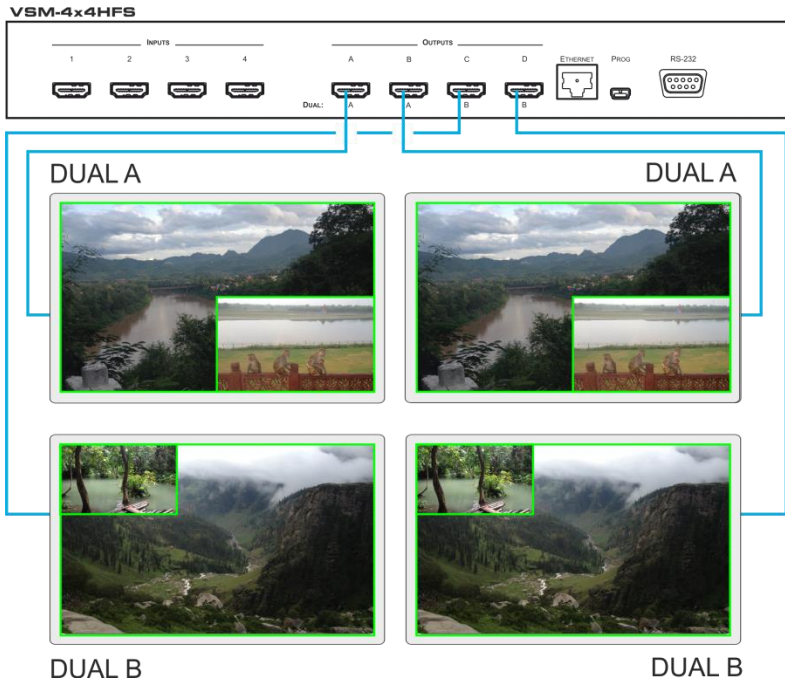


Figure 7: Connecting the VSM-4x4HFS in the Dual Operation Mode

Note that in this example “Show” is selected in the BORDER menu item (see [Section 6.2.1](#)) to display all the borders.

### 5.3.2 Operating in the Dual Mode

To select the inputs via the front panel buttons/IR remote control transmitter:

1. Select the DUAL operation mode.
2. Select one of the dual outputs (A: A or B; B: C or D).
3. Select any two inputs: the first selection would be the LEFT (POP mode) or the MAIN (PIP mode) image and the second would be the RIGHT (POP mode) or the PIP (PIP mode) image.

To select the inputs via the OSD, use the SOURCE menu item (see [Section 6.2.1](#)).

To select the inputs via the IR remote control transmitter, see [Section 6.6](#).

## 5.4 The QUAD Mode

The QUAD view shows any four inputs on one screen (each quarter of a screen can show any selected input) and outputs it identically to all four outputs (OUTPUT A to OUTPUT D). [Figure 8](#) shows the order in which the outputs are set in the QUAD mode (this order cannot be configured):

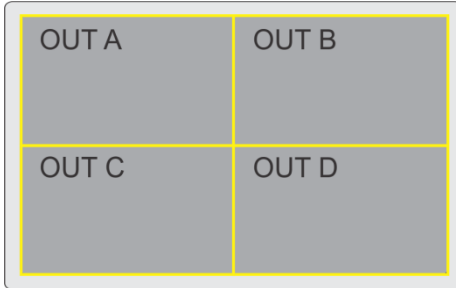


Figure 8: the VSM-4x4HFS QUAD Operation Mode Input Orientation

### 5.4.1 Connecting the VSM-4x4HFS in the Quad Operation Mode

To connect the **VSM-4x4HFS** in the QUAD mode as illustrated in [Figure 9](#), do the following:

1. Connect an HDMI source to up to four inputs (for example, a Blu-ray disk player) to the INPUT 1 connector (from 1 to 4), not shown in [Figure 9](#).
2. Connect the HDMI output connectors OUTPUT A, OUTPUT B, OUTPUT C and OUTPUT D to an HDMI acceptor (for example, to LCD displays).  
*Note that you do not have to connect all the outputs*
3. Connect the power cord (not shown in [Figure 9](#)).
4. If required, connect:
  - A PC via RS-232, see [Section 6.3](#)
  - The ETHERNET port, see [Section 6.4](#)

All four inputs are displayed on each output.

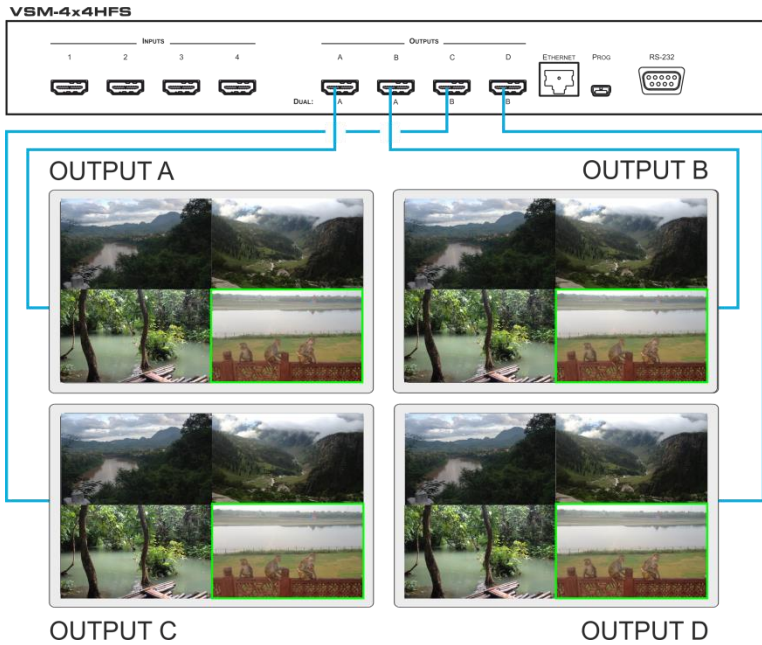


Figure 9: Connecting the VSM-4x4HFS in the Quad Operation Mode

Note that in this example “Only Selected” is selected in the BORDER menu item (see [Section 6.2.1](#)) to display only the border of the selected output.

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## 6 Controlling the VSM-4x4HFS

The **VSM-4x4HFS** can be controlled via:

- The front panel buttons (see [Section 6.1](#))
- The OSD menu (see [Section 6.2](#))
- RS-232 serial commands transmitted by a touch screen system, PC, or other serial controller (see [Section 6.3](#))
- The ETHERNET (see [Section 6.4](#)), via the Web Pages
- The infrared remote control transmitter (see [Section 6.5](#))

### 6.1 Controlling via the Front Panel Buttons

The **VSM-4x4HFS** includes the following front panel buttons:

- Input selector buttons for selecting the required INPUT, HDMI (1 to 4) and OUTPUT/WINDOW selector buttons (A to D)
- ALL (to connect a selected input to all the outputs) and OFF (to disconnect a selected output from the inputs) buttons
- MODE buttons: MATRIX, VIDEO WALL, DUAL and QUAD
- STO and RCL buttons
- A TAKE button
- An IDENTIFY button to identify the inputs connected to the outputs
- MENU, ENTER, and up, down, left and right arrow buttons to for the OSD menu
- RESET TO XGA/720p and PANEL LOCK buttons

## 6.1.1 Switching Inputs to Outputs

The switching procedures are different for each of the four operation modes. Note that incomplete operations on the **VSM-4x4HFS** timeout after 15 seconds.

### Matrix Mode

To switch an input to an output in the Matrix mode:

1. Press the required OUTPUT/WINDOW button.  
The selected button illuminates.
2. Press an INPUT button to select the input to switch to the output.

You can also switch several inputs and outputs using the TAKE button (see [Section 6.1.2](#)).

### Video Wall Mode

To switch an input to the output, press an input button (from 1 to 4). The selected image appears on the video wall.

The audio input signal is routed to one of the four displays.

### Dual Mode

**POP Mode:** select the inputs to switch to the LEFT and RIGHT images for each of the two dual groups (two A outputs and two B outputs).

**PIP Mode:** select the inputs to switch to the MAIN and PIP images for each of the two dual groups (two A outputs and two B outputs).

To select the images for group A (POP/PIP) using the front panel buttons:

1. Press OUTPUT A (or OUTPUT B).  
The selected button illuminates.
2. Press an INPUT button (from 1 to 4) to select the left/main image on the output.
3. Press an INPUT button (from 1 to 4) to select the right/PIP image on the output.



To select the images for group B (POP/PIP) using the front panel buttons:

1. Press OUTPUT C (or OUTPUT D).  
The selected button illuminates.
2. Press an INPUT button (from 1 to 4) to select the left/main image on the output.
3. Press an INPUT button (from 1 to 4) to select the right/PIP image on the output.

The audio signal of the input selected first (the left/main image) will be routed to the output.

### **QUAD Mode**

In the QUAD mode there are no input/output switching operations since all the inputs appear on each output in a preset order.

#### **6.1.1.1 Switching an Input to all Outputs**

This feature is available for all operation modes except the video wall mode

To switch an input to all the outputs:

1. Press the ALL button.
2. Press an INPUT button to select the input to switch to all outputs.  
The selected input is switched to all outputs.

#### **6.1.1.2 Disconnecting an Input from an Output**

To disconnect an input from an output:

1. Press the required OUTPUT button.  
The selected output illuminates.
2. Press the OFF button.  
The selected output is disconnected.

### 6.1.1.3 Disconnecting all the Inputs from the Outputs

This feature is available for all operation modes except the video wall mode.

To disconnect all the inputs from the outputs:

1. Press the ALL button.
2. Press the OFF button.

All the inputs are disconnected from all the outputs.

### 6.1.2 The TAKE Button

You can choose to work in the At Once or the Confirm mode. When the **VSM-4x4HFS** operates in the At Once mode, pressing an output-input combination implements the action immediately. In the Confirm mode, the TAKE button must be pressed to activate the switch.

#### The At Once Mode

In the At Once mode, execution is immediate and actions require no user confirmation. However, no protection is offered against changing an action in error.

#### The Confirm Mode

In the Confirm mode:

- You can enter several actions and then confirm them by pressing the TAKE button to simultaneously activate the multiple switches
- Every action requires user confirmation which protects against erroneous switching
- Execution is delayed until the user confirms the action

Note that if the TAKE button is not pressed within 60 seconds, this action is aborted

### 6.1.2.1 Toggling between the At Once and Confirm Modes

To toggle between the At Once and Confirm modes:

1. Press the TAKE button to toggle from the At Once mode (the TAKE button is not illuminated) to the Confirm mode (the TAKE button lights).  
Actions now require user confirmation and the TAKE button lights.
2. Press the TAKE button to toggle from the Confirm mode back to the At Once mode.  
Actions no longer require user confirmation and the TAKE button no longer lights.

### 6.1.2.2 Confirming a Switching Action

To confirm a switching action (in the Confirm mode):

1. Press an output-input combination.  
The TAKE button flashes.
2. Press the flashing TAKE button to confirm the action.  
The TAKE button lights.

To confirm several switching actions (in the Confirm mode):

1. Press each OUTPUT-INPUT combination in sequence.  
The TAKE button flashes.
2. Press the flashing TAKE button to confirm all the actions.  
The TAKE button lights.

### 6.1.3 Storing/Recalling In/Out Configurations

You can store and recall up to four input/output configuration setups per operation mode via the four INPUT buttons. The stored setups are saved in the non-volatile memory.



Note that you can also store and recall a setup via the OSD menu (see [Section 6.2.1](#)) and the Web pages (see [Section 7](#)).

### 6.1.3.1 Storing an Input/Output Configuration

To store the current status in memory, do the following:

1. Press the STO button.  
The STO button lights.
2. Press one of the INPUT buttons (this will be the setup # in which the current status is stored). If in the Confirm mode, press the blinking TAKE button to confirm the action.  
The memory stores the data at that reference.

### 6.1.3.2 Recalling an In/Out Configuration

To recall an input/output configuration, do the following:

1. Press the RCL button.  
The RCL button lights.
2. Press the appropriate INPUT button (the button # corresponding to the setup #). If in the Confirm mode, that setup configuration will only be implemented after pressing the TAKE button.  
The memory recalls the stored data from that reference.

### 6.1.4 Front Panel Button Shortcuts

This section defines several front panel button shortcuts:

- **Selecting an audio source** – press and hold (for 3 seconds) an output (OUTPUT A to OUTPUT D) to select the audio source
- **Muting the audio output** – press and hold (for 3 seconds) the ALL button to toggle between muting (blocking out the sound) and enabling the audio output
- **Resetting the machine** – press the MENU Button while plugging the power to reset the machine

## 6.2 Using the OSD Menu

The control buttons let you control the **VSM-4x4HFS** via the OSD menu. Press the:

- **MENU** button to enter the menu  
The default timeout is set to 10 seconds
- **ENTER** button to accept changes and to change the menu settings
- Arrow buttons to move through the OSD menu, which is displayed on the video output

On the OSD menu, select EXIT to exit the menu.

### 6.2.1 The OSD MENU

Mode	Function
<b>MODE</b>	
MATRIX	Select the 4x4 matrix switcher mode
VIDEO WALL	Select the 2x2 video wall mode
DUAL - POP	Select the 4x2 dual POP operation mode: both A outputs display two selected inputs that appear as side by side images identically. In the same way both B outputs display two selected inputs that appear as side by side images identically
DUAL - PIP	Select the 4x2 dual PIP operation mode: both A outputs display two selected inputs that appear as one PIP image over a main screen image, identically. In the same way, both B outputs display two selected inputs that appear as one PIP image over a main screen image, identically
QUAD	Select the QUAD operation mode: All four outputs show all the four input images each of which appears on one quarter of the screen
EXIT	Exit the MODE menu
<b>PICTURE</b>	
<b>Note that the PICTURE menu changes in accordance with the operation mode</b>	
In MATRIX Mode	Set the CONTRAST, BRIGHTNESS, SATURATION and HUE on all the outputs RESET ALL the PICTURE parameters to their default values
In VIDEO WALL Mode	Set the CONTRAST, BRIGHTNESS, SATURATION and HUE separately for OUT A, OUT B, OUT C and OUT D. RESET each parameter for all the outputs RESET ALL the PICTURE parameters to their default values
In DUAL POP Mode	Set the CONTRAST, BRIGHTNESS, SATURATION and HUE separately for the LEFT and RIGHT images of the A outputs, and the LEFT and RIGHT images of B outputs. RESET each parameter for all the outputs RESET ALL the PICTURE parameters to their default values
In DUAL PIP Mode	Set the CONTRAST, BRIGHTNESS, SATURATION and HUE separately for the MAIN and PIP images of the A outputs and the MAIN and PIP images of B outputs. RESET each parameter for all the outputs RESET ALL the PICTURE parameters to their default values

Mode	Function
In QUAD Mode	Set the CONTRAST, BRIGHTNESS, SATURATION and HUE separately for QUAD 1, QUAD 2, QUAD 3 and QUAD 4. RESET each parameter for all the QUADs RESET ALL the PICTURE parameters to their default values
EXIT	Exit the PICTURE menu
<b>OUTPUT</b>	
RESOLUTION	Set the output resolution to NATIVE , 480p, 576p, 720p50, 720p59, 720p60, 1080p24, 1080p50, 1080p60, 1024x768, 1280x800, 1280x1024, 1366x768, 1440x900, 1600x900, 1680x1050 or 1920x1200 Note NATIVE resolution is read from OUT A. If the FW cannot detect the OUT A native resolution or if it is not supported, the resolution defaults to 720p60
ASPECT RATIO	Set to Full, 4:3, 16:9 or Best Fit
BORDERS	<b>Available only for the DUAL and QUAD operation modes</b> Set to Show (all the borders), Only Selected (only the selected output) or OFF If Show is selected (a border around each image), the selected output's border will appear thicker
BORDER COLOR	Select RED, GREEN, BLUE, YELLOW, MAGENTA or GREY
INPUT LABELS	Set input labels to ON or OFF By default the label is set to Source 1 for input 1, Source 2 for input 2 and so on. Note that the labels can be changed via the Web pages or RS-232 commands
OUTPUT LABELS	Set output labels to ON or OFF (for MATRIX mode only) By default, labels are set to Output1, Output 2 and so on. Note that the labels can be changed via the Web pages or RS-232 commands
BEZEL CORRECTION	In the Video Wall operation mode, use bezel correction to compensate for the video wall monitor rims which create a non-continuous image across the video wall Set to OFF or ON for the Video Wall operation mode only
H BEZEL CORRECTION	Set the horizontal bezel correction Note that output resolutions 480p and 576p do not support bezel correction
V BEZEL CORRECTION	Set the vertical bezel correction Note that output resolutions 480p and 576p do not support bezel correction
IDENTIFY	Identify each input/output as well as the audio source (for DUAL and QUAD modes)
EXIT	Exit the OUTPUT menu
<b>EDID</b>	
INPUT 1	Set the output from which the EDID is read to input 1: OUT A, OUT B, OUT C, OUT D, Default or FILE
INPUT 2	Set the output from which the EDID is read to input 2: OUT A, OUT B, OUT C, OUT D, Default or FILE
INPUT 3	Set the output from which the EDID is read to input 3: OUT A, OUT B, OUT C, OUT D, Default or FILE
INPUT 4	Set the output from which the EDID is read to input 4: OUT A, OUT B, OUT C, OUT D, Default or FILE

Mode	Function
	Note that EDID does not support 4k2k and 3D The FILE option is set from the Web pages (see <a href="#">Section 8.6</a> )
AUDIO EDID	Set the audio format to LPCM 2CH (accepts LPCM 2CH), LPCM 6CH (accepts LPCM 2CH/6CH), LPCM 8CH (accepts LPCM 2CH/6CH/8CH), BITSTREAM ((accepts LPCM 2CH, AC3, DTS) or HD (accepts LPCM 2CH/6CH/8CH, AC3, DTS, Dolby Digital Plus, DTS-)
EXIT	Exit the EDID mode
<b>SOURCE</b>	
In MATRIX Mode	Set the input source for each of the outputs: From VIDEO OUT A to VIDEO OUT D, select IN 1, IN 2, IN 3 or IN 4 for each
In VIDEO WALL Mode	Select the video wall input source
In DUAL POP Mode	Select the input sources for the left and right sides of outputs A and the left and right sides of outputs B: VIDEO OUT A LEFT: IN 1, IN 2, IN 3 or IN 4 VIDEO OUT A RIGHT: IN 1, IN 2, IN 3 or IN 4 VIDEO OUT B LEFT: IN 1, IN 2, IN 3 or IN 4 VIDEO OUT B RIGHT: IN 1, IN 2, IN 3 or IN 4 Set the audio source for outputs A and outputs B (left or right for each set): AUDIO OUT A: LEFT or RIGHT AUDIO OUT B: LEFT or RIGHT
In DUAL PIP Mode	Select the input sources for the MAIN and PIP sides of outputs A and the MAIN and PIP sides of outputs B: VIDEO OUT A MAIN: IN 1, IN 2, IN 3 or IN 4 VIDEO OUT A PIP: IN 1, IN 2, IN 3 or IN 4 VIDEO OUT B MAIN: IN 1, IN 2, IN 3 or IN 4 VIDEO OUT B PIP: IN 1, IN 2, IN 3 or IN 4 Set the audio source for outputs A and outputs B (MAIN or PIP for each set): AUDIO OUT A: MAIN or PIP AUDIO OUT B: MAIN or PIP Set the PIP parameters for outputs A and outputs B separately: PIP A SIZE: SMALL, MEDIUM or LARGE PIP A POSITION: RIGHT TOP, RIGHT BOTTOM, LEFT BOTTOM or LEFT TOP PIP A SWAP: swap the MAIN and PIP images (including the audio signal) PIP B SIZE: SMALL, MEDIUM or LARGE PIP B POSITION: RIGHT TOP, RIGHT BOTTOM, LEFT BOTTOM or LEFT TOP PIP B SWAP: swap the MAIN and PIP images (including the audio signal)
In QUAD Mode	Set the input source for each QUAD: VIDEO QUAD 1: IN 1, IN 2, IN 3 or IN 4 VIDEO QUAD 2: IN 1, IN 2, IN 3 or IN 4 VIDEO QUAD 3: IN 1, IN 2, IN 3 or IN 4 VIDEO QUAD 4: IN 1, IN 2, IN 3 or IN 4 Select the AUDIO SOURCE: IN 1, IN 2, IN 3 or IN 4
EXIT	Exit the source mode

Mode	Function
<b>RECALL/STORE</b>	
The STORE/RECALL setups are defined separately for each operation mode and include the switching status only (which input to which output)	
In MATRIX Mode	STORE up to four input/output setups and RECALL them. NOW shows the current setup for all four outputs The stored setups for each memory are also shown (FAV. 1 to FAV. 4). Use STORE to store the current setup to one of the four memories (FAV. 1 to FAV. 4) Use RECALL to select a stored setup.
In VIDEO WALL Mode	STORE up to four input setups and RECALL them. NOW shows the current setup for the video wall The stored setups for each memory are also shown (FAV. 1 to FAV. 4).
In DUAL POP Mode	STORE up to four input/output setups and RECALL them. NOW shows the current setup for the AL (A left), AR (A right), BL (B left) and BR (B right) outputs. The stored setups for each memory are also shown (FAV. 1 to FAV. 4)
In DUAL PIP Mode	STORE up to four input/output setups and RECALL them. NOW shows the current setup for the AL (A Main), AR (A PIP), BL (B Main) and BR (B PIP) outputs. The stored setups for each memory are also shown (FAV. 1 to FAV. 4)
In QUAD Mode	STORE up to four input/output setups and RECALL them. NOW shows the current setup for each QUAD (1 to 4). The stored setups for each memory are also shown (FAV. 1 to FAV. 4)
<b>HDCP</b>	
INPUT 1 to INPUT 4	Select the HDCP option for the HDMI input: either ON (the default) or OFF: Setting HDCP support to disabled (OFF) on the HDMI input allows the source to transmit a non-HDCP signal if required (for example, when working with a Mac computer)
OUTPUT A to OUTPUT D	Select FOLLOW INPUT or FOLLOW OUTPUT to define whether the HDCP will follow the input or the output When FOLLOW INPUT is selected, it changes its HDCP output setting (for the HDMI output) according to the HDCP of the input. This option is recommended when the HDMI output is connected to a splitter/switcher When FOLLOW OUTPUT is selected, the scaler matches its HDCP output to the HDCP setting of the HDMI acceptor to which it is connected
<b>AUTO-SYNC OFF</b>	
	Turn the auto sync ENABLE or DISABLE. When enabled, this de-activates the output after 2 minutes if no input is present. This is useful, for example, when the output is connected to a projector, and the projector will automatically shut down when it has no input



Mode	Function
<b>OSD SETTINGS</b>	
POSITION	Set the position of the OSD to LEFT TOP, RIGHT TOP, LEFT BOTTOM or RIGHT BOTTOM
H OFFSET	Shift the horizontal position of the OSD
V OFFSET	Shift the vertical position of the OSD
VIDEO WALL OSD	Set to SINGLE OUTPUT to have the OSD appear on one of the video wall outputs or set to All Outputs to have the OSD appear on all four outputs.
TRANSPARENCY	Set the OSD background between 9 (opaque) and 0 (transparent)
IDENT. TIMEOUT	Set the "Identify" label timeout period in seconds or set it to OFF so it will appear continuously
MENU TIMEOUT	Set the menu timeout period in seconds or set it to OFF so it will appear continuously
INFO. TIMEOUT	Set the "INFO" display timeout period in seconds or set it to OFF so it will appear continuously
INFO. DISPLAY	Set the display of information ON or OFF
BRIEF INFO	Set the display of brief information ON or OFF
EXIT	Click to exit this menu
<b>ETHERNET</b>	
IP MODE	Set to DHCP or STATIC
STATIC SET	Set to IP number, NETmask or GATEway to change their numerals
BYTE (1 to 4)	Set the IP, NET and GATE addresses via these 4 bytes By default: IP = 192.168.1.39; Gateway = 192.168.1.254; and Netmask = 255.255.255.0
RELINK	Select to re-link the system after setup
EXIT	Exit the Ethernet menu
NOW	Shows the link status and the current IP, MASK and GATE addresses
<b>FACTORY DEFAULT</b>	
	Select NO or YES to reset to the factory default parameters (including the Ethernet parameters)
<b>INFORMATION</b>	
	Displays the IN/OUT resolution, the source DHCP, source audio format, OUT A native resolution, OUT mode, Ethernet MAC, Firmware version and the Kramer LOGO
<b>EXIT</b>	
	Click to exit the main menu

### 6.3 Connecting to the VSM-4x4HFS via RS-232

You can connect to the **VSM-4x4HFS** via an RS-232 connection using, for example, a PC. Note that a null-modem adapter/connection is not required.

To connect to the **VSM-4x4HFS** via RS-232, connect the RS-232 9-pin D-sub rear panel port on the product unit via a 9-wire straight cable (only pin 2 to pin 2, pin 3 to pin 3, and pin 5 to pin 5 need to be connected) to the RS-232 9-pin D-sub port on your PC.

## 6.4 Operating via Ethernet

You can connect to the **VSM-4x4HFS** via Ethernet using either of the following methods:

- Directly to the PC using a crossover cable (see [Section 6.4.1](#))
- Via a network hub, switch, or router, using a straight-through cable (see [Section 6.4.2](#))

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

### 6.4.1 Connecting the Ethernet Port Directly to a PC

You can connect the Ethernet port of the **VSM-4x4HFS** 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 **VSM-4x4HFS** with the factory configured default IP address.

After connecting the **VSM-4x4HFS** 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 10](#).

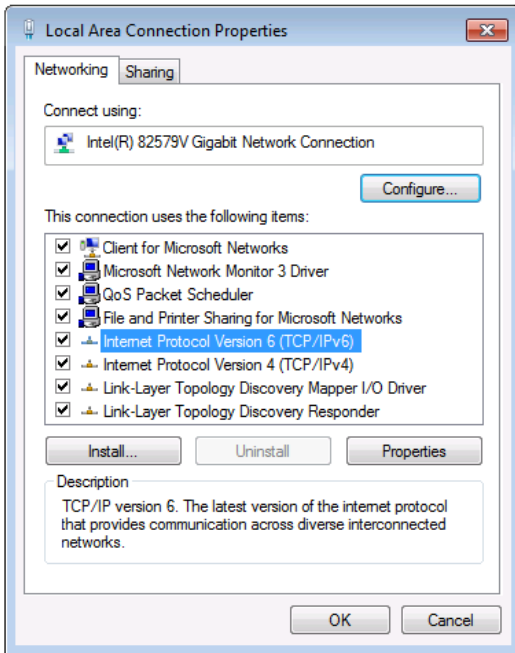


Figure 10: Local Area Connection Properties Window

4. Highlight either **Internet Protocol Version 6 (TCP/IPv6)** or **Internet Protocol Version 4 (TCP/IPv4)** depending on the requirements of your IT system.
5. Click **Properties**.  
The Internet Protocol Properties window relevant to your IT system appears as shown in [Figure 11](#) or [Figure 12](#).

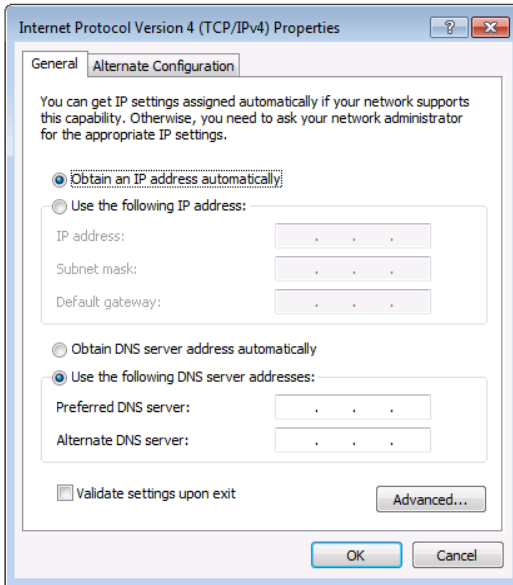


Figure 11: Internet Protocol Version 4 Properties Window

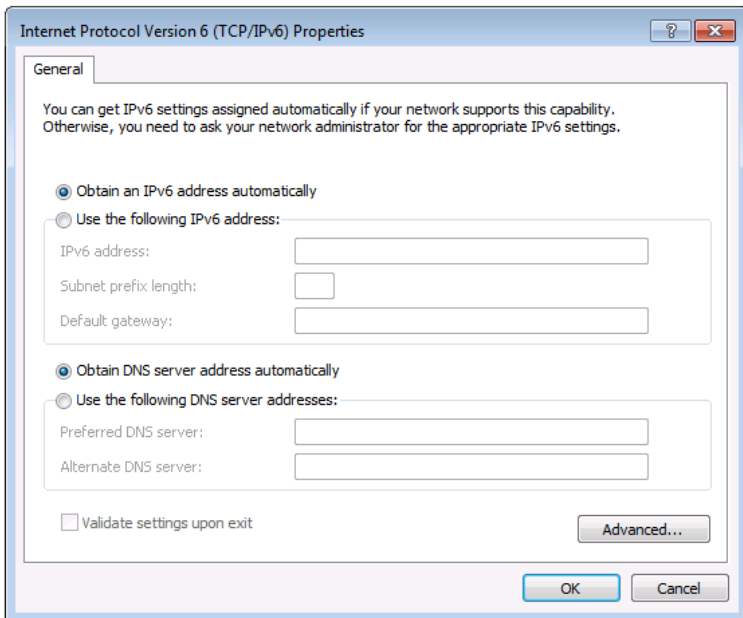


Figure 12: Internet Protocol Version 6 Properties Window

6. Select **Use the following IP Address** for static IP addressing and fill in the details as shown in [Figure 13](#).

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.

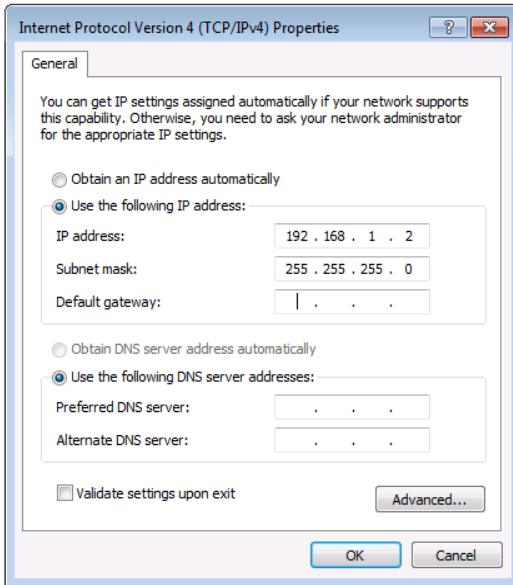


Figure 13: Internet Protocol Properties Window

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

#### 6.4.2 Connecting the Ethernet Port via a Network Hub or Switch

You can connect the Ethernet port of the **VSM-4x4HFS** to the Ethernet port on a network hub or using a straight-through cable with RJ-45 connectors.

#### 6.4.3 Configuring the Ethernet Port

You can set the Ethernet parameters via the embedded Web pages (see [Section 8.3.1](#)).

## 6.5 Controlling via the Infrared Remote Control Transmitter

You can control the **VSM-4x4HFS** from the infrared remote control transmitter:



Figure 14: Infrared Remote Control Transmitter

Keys	Function
POWER	Toggle the power save mode ON or OFF
IDENTIFY	Identify the inputs on each output
INFO	Press to indicate on each output, which input is displayed on the output
MUTE	Toggle between muting (blocking out the sound) and enabling the audio output
MATRIX	Set to Matrix mode (see <a href="#">Section 5.1</a> )
VID WALL	Set to video wall mode (see <a href="#">Section 5.2</a> )
DUAL	Set to dual mode (see <a href="#">Section 5.3</a> )
QUAD	Set to quad mode (see <a href="#">Section 5.4</a> )
STO	Store a configuration
RCL	Recall a configuration
	Four navigation keys
OK	Accept changes
MENU	Enter the OSD menu
ESC	EXIT the menu
ALL	Select all the outputs
OFF	Disconnect a selected input
TAKE	Press to carry out a setup
OUT	Select an output (A to D)
IN	Select an input (1 to 4)
AUDIO	Select the audio source (1 to 4)
720p Reset	Reset the resolution to 720p
XGA Reset	Reset the resolution to XGA
Panel Lock	Lock/unlock the front panel buttons

## 6.6 Using the IR Remote Control in the Dual Mode

This section describes how to use the IR remote control transmitter in the DUAL operation mode. Sections and [6.6.1](#) explain [6.6.2](#) the IR Remote functions in different ways for your convenience.

### 6.6.1 Using the Transmitter in the Dual Mode (1)

When in the DUAL operation mode, you can use the IR remote control transmitter shortcuts to perform additional actions. [Figure 15](#) shows the remote control with dual mode operation instructions. Note that these instructions are further detailed in the following pages.

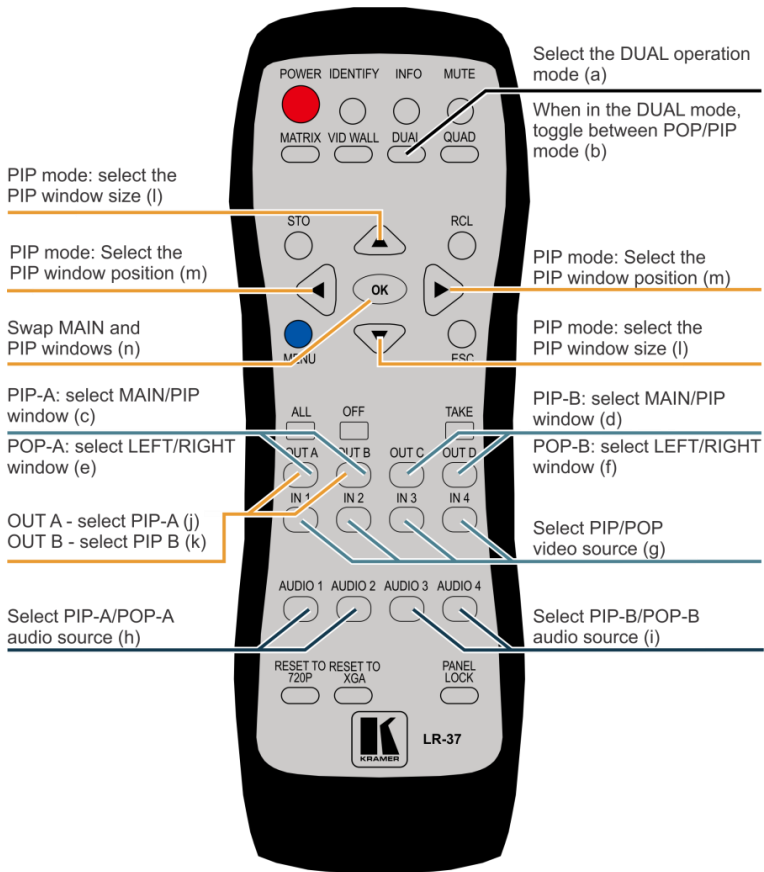


Figure 15: IR Remote Control Transmitter Dual Mode Shortcuts



Note that the letters that appear in brackets in the following pages, refer to the same letters that appear in brackets in [Figure 15](#).

**To use the DUAL mode Shortcuts:**

1. Press the DUAL button to select the DUAL operation button **(a)**.
2. Press the DUAL button again to select the PIP or POP mode **(b)**.

**To select the inputs to switch to the outputs:**

1. Select an output:
  - PIP A: press OUT A/OUT B to select the Main/PIP window for A **(c)**
  - PIP B: press OUT B/OUT C to select the Main/PIP window for B **(d)**
  - POP A: press OUT A/OUT B to select the Left/Right window for A **(e)**
  - POP B: press OUT C/OUT D to select the Left/Right window for B **(f)**
2. Select the input to switch to the output:
  - Press one of the inputs (IN 1 to IN 4) to switch to the selected output **(g)**.

**To set the audio source:**

- PIP A: press AUDIO 1/AUDIO 2 to select the Main/PIP audio source for A **(h)**
- PIP B: press the AUDIO 3/AUDIO 4 to select the Main/PIP audio source for B **(i)**
- POP A: press AUDIO 1/AUDIO 2 to select the Left/Right audio source for A **(h)**
- POP B: press the AUDIO 3/AUDIO 4 to select the Left/Right audio source for B **(i)**

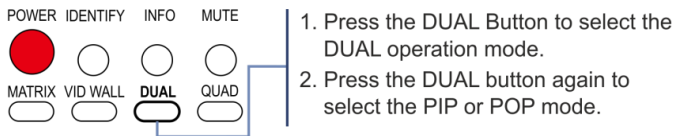


### To perform various PIP mode operations:

1. Make sure you are in the PIP mode.
2. Select the PIP output:
  - Press OUT A to select PIP A **(j)**
  - Press OUT B to select PIP B **(k)**
3. Perform any of the following operations.
  - Press up/down arrow to select the PIP window size **(l)**
  - Press the left/right arrow to select the PIP window position **(m)**
  - Press the OK button to swap between main and PIP windows **(n)**

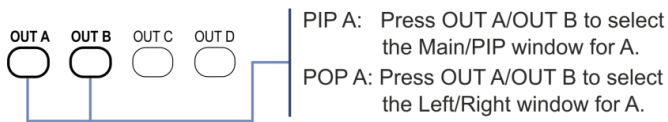
## 6.6.2 Using the Transmitter in the Dual Mode (2)

### To use the DUAL mode Shortcuts:

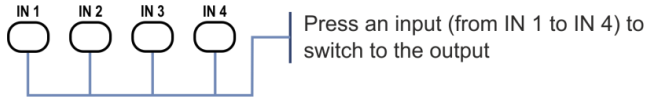
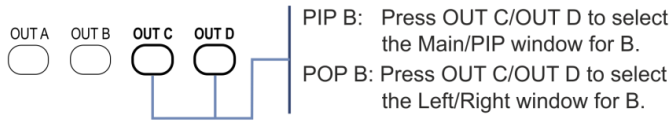


### To select the inputs to switch to the outputs:

#### For PIP/POP A:

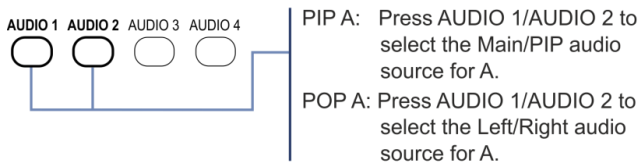


**For PIP/POP B:**

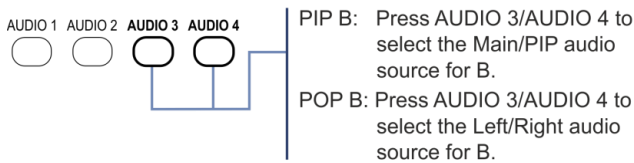


**To set the audio source:**

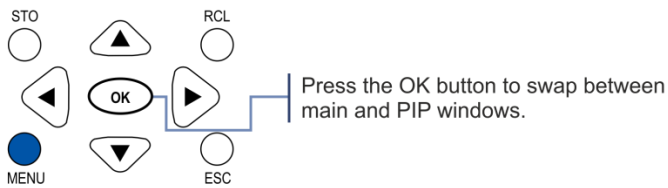
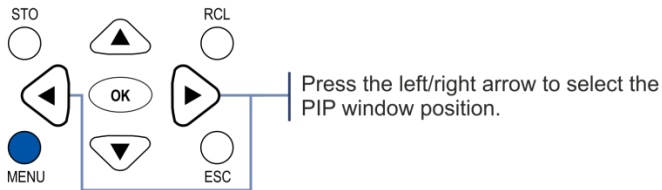
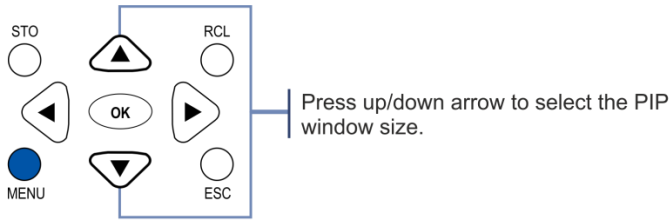
**For PIP/POP A:**



**For PIP/POP B:**



To perform various PIP mode operations (make sure you are in the PIP mode):



---

## 7 Firmware Upgrade via USB

You can upgrade the **VSM-4x4HFS** via the USB connector on the rear panel.



The latest firmware version, can be downloaded from the Kramer Web site at <http://www.kramerav.com/downloads/VSM-4x4HFS>



Note that firmware upgrade can be performed only via a Windows-based PC with a Win 7 OS (or an older version OS)

To upgrade the firmware:

1. Connect the **VSM-4x4HFS** USB connector to the PC via a USB cable while the power supply is disconnected.
2. Connect the power supply and turn the **VSM-4x4HFS** on.  
The PC automatically connects with the **VSM-4x4HFS** and a file folder opens on screen (same as would open when using any USB storage device).
3. Copy the **VSM-4X4HFS\_vx.xx.BIN** firmware and copy it onto the newly opened file folder.
4. Disconnect the USB cable.
5. Power the **VSM-4x4HFS** off and then on to check if the firmware was updated.

---

## 8 Using the Embedded Web Pages

The Web pages let you control the **VSM-4x4HFS** via the Ethernet. The Web pages include all the OSD items and more, and are accessed using a Web browser and an Ethernet connection.

Before attempting to connect:

- Perform the procedures in [Section 6.4](#).
- Ensure that your browser is supported

The following operating systems and Web browsers are supported:

**For Windows 7 and higher:**

- Chrome version 35
- Firefox version 30
- Internet Explorer version 10

**For Mac (PC):**

- Chrome version 35

**For iOS:**

- Chrome version 35
- Safari 7

**For Android OS:**

- Chrome version 35

### 8.1 Browsing the VSM-4x4HFS Web Pages

To browse the **VSM-4x4HFS** 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 Routing (first) page loads.

There are six Web pages:

- The Routing page (see [Section 8.2](#))
- The Device settings page (See [Section 8.3](#))
- The Output settings page (see [Section 8.4](#))
- The HDCP settings page (see [Section 8.5](#))
- The EDID management page (see [Section 8.6](#))
- The About page (see [Section 8.7](#))

## 8.2 The Routing Page

[Figure 16](#) shows the Routing page that is also the first page that appears following the loading page. The routing page includes a tab for each of the four operation modes.

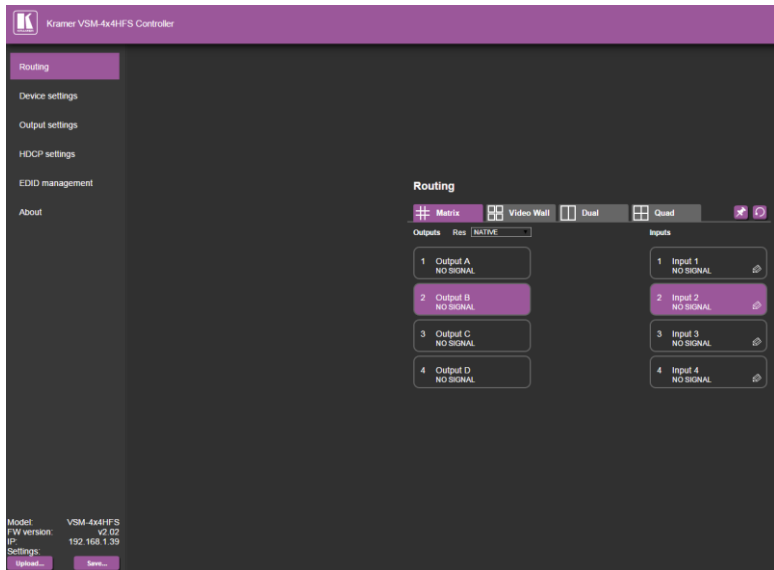


Figure 16: The Routing Page

The Upload and Save buttons on the lower part of the screen let you upload a saved configuration and save a configuration. The model name, FW version and IP number appear on the lower left side.

The Routing page lets you route the input/s to the outputs in each of the operation modes as follows for the:

- Matrix mode, see [Section 8.2.1](#)
- Video Wall mode, see [Section 8.2.2](#)
- Dual Mode, see [Section 8.2.3](#)
- Quad mode, see [Section 8.2.4](#)

### 8.2.1 The Matrix Tab

Click the Matrix tab to display the Matrix mode window:

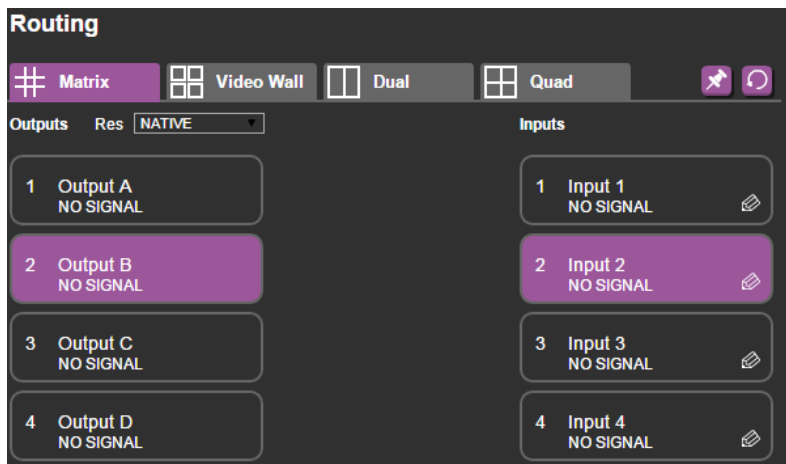


Figure 17: The Matrix Tab output Resolution

In the Matrix mode, inputs 1 to 4 can be switched to any or all the outputs. The Output buttons show the resolution and the input buttons show the signal type (or NO SIGNAL in this example). To switch an Input to an Output in the Matrix mode click an output and then click an input button to switch to that output.

Open the Res drop-down-box to select the output resolution.

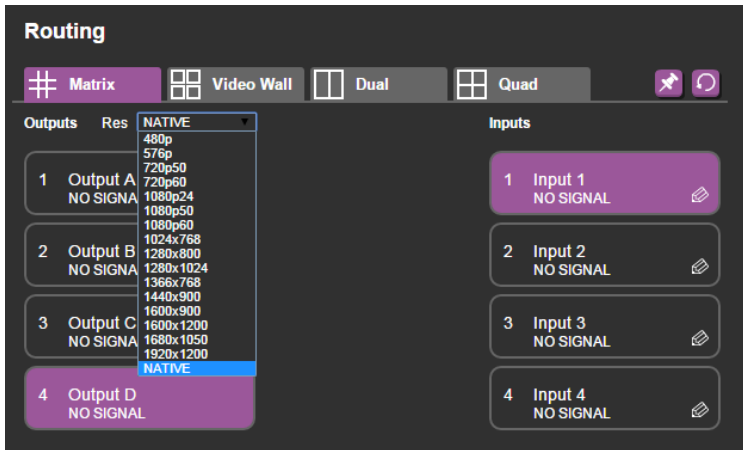



Figure 18: The Matrix Tab – Set the Output Resolution

### 8.2.1.1 The Edit Input Window

Click the edit icon  to edit the input button. This window lets you edit the input label:

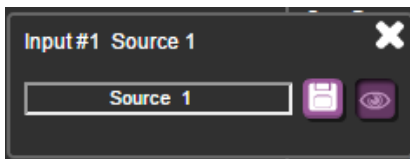


Figure 19: The Matrix Tab – the Input Edit Window

Type a label name (for example, DVD Player):

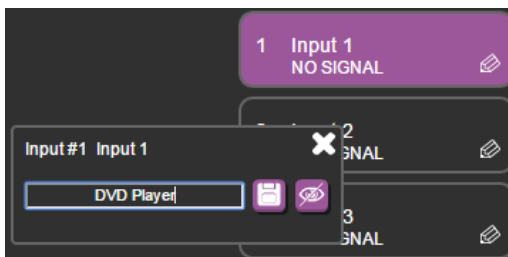

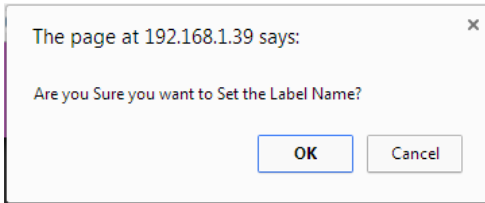




Figure 20: The Matrix Tab – Type the new label



Note that you need to Click the save button  to save the new Label. The following message appears:



Click OK to save the label name.

Toggle the View  /  button to view the label in the Web pages:

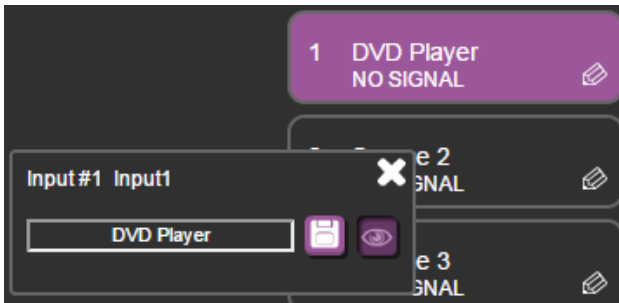



Figure 21: The Matrix Tab – View the LabelDVD


Click  to exit the input editing window.

### 8.2.1.2 Storing and Recalling a Configuration

Click the Store button  to store a configuration:




Figure 22: The Matrix Tab – Store a Configuration

1. Select one of the four presets.  
The configuration is saved.
2. Click the  icon to exit the preset window.

Click the Recall button  to recall a configuration:



Figure 23: The Matrix Tab – Recall a Configuration

1. Select one of the four presets.  
The configuration is uploaded.
2. Click the  icon to exit the preset window.

## 8.2.2 The Video Wall Tab

Click the Video Wall tab to display the Video Wall mode window:

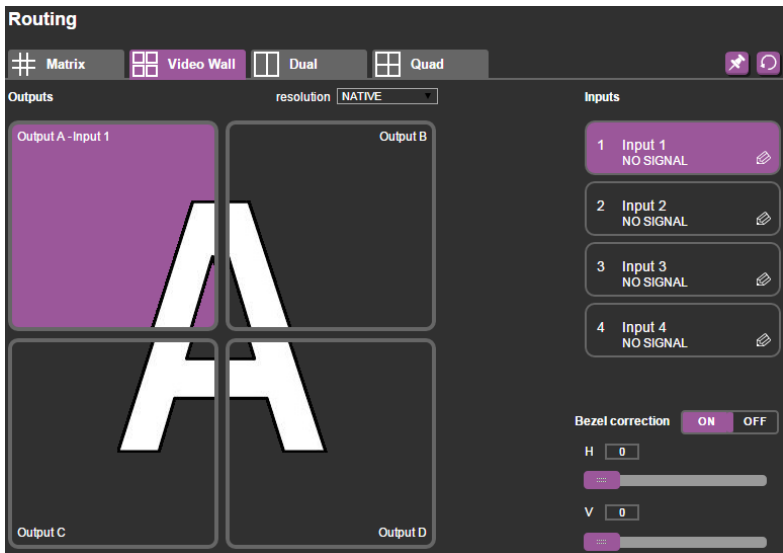


Figure 24: The Video Wall Tab

The video wall tab displays four outputs in a video wall display. Click one of the four input buttons to switch an input to the video wall. You can edit the input label (see [Section 8.2.1.1](#)), store and recall a video wall configuration (see [Section 8.2.1.2](#)) and set the output resolution.

### 8.2.2.1 Bezel Correction

Set the horizontal and vertical bezel correction (see [Section 5.2](#)) via the video Wall tab:

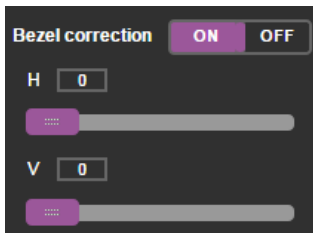


Figure 25: The Video Wall Tab – Bezel Correction

### 8.2.3 The Dual Tab

Set the mode button to (POP or PIP) display either the POP or the PIP setup modes. Click an output button (appear as windows) and then one of the four input buttons to switch an input to that output (see [Section 8.2.3.1](#)). You can set the borders (show, only selected, off), edit the input label (see [Section 8.2.1.1](#)), store and recall a dual configuration (see [Section 8.2.1.2](#)) and set the output resolution.

[Figure 26](#) shows the POP mode:

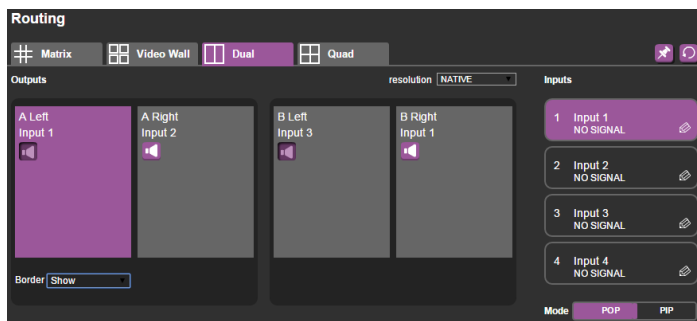


Figure 26: The Dual Tab – POP Mode

Figure 27 shows the PIP mode:

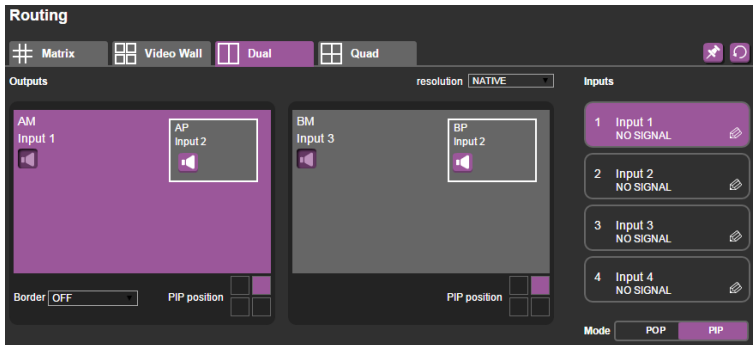


Figure 27: The Dual Tab – PIP Mode

In the PIP mode you can set the PIP position for the A and B outputs:

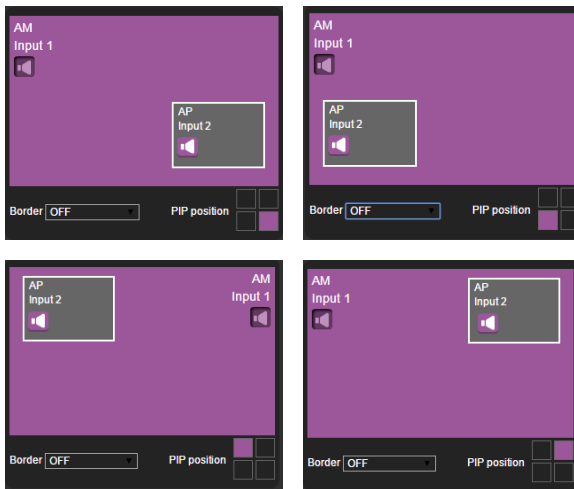


Figure 28: The Dual Tab – PIP Position

### 8.2.3.1 Switching an Input to an Output

To switch an input to an output:

- For PIP: select the MAIN or PIP on the A or B outputs
- For POP: select the Left or Right on the A or B outputs

Click an input button to switch to the output.

## 8.2.4 The Quad Mode

Click the Quad tab to display the Quad mode.

Click one of the four input buttons to switch an input to each output. You can edit the input label (see [Section 8.2.1.1](#)), store and recall a Quad configuration (see [Section 8.2.1.2](#)), set the borders and set the output resolution.

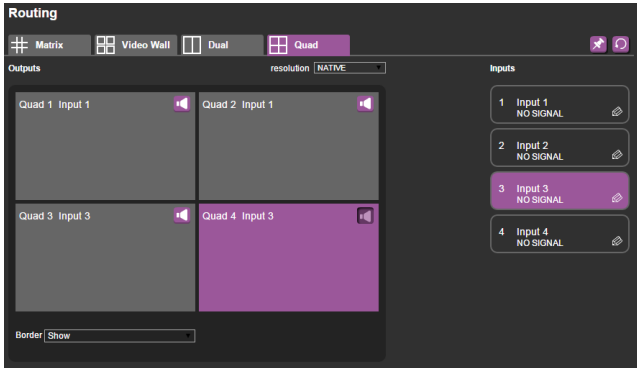


Figure 29: The Quad Tab

## 8.3 The Device Settings Page

The Device Settings window (in [Figure 30](#)) displays the firmware version and lets you set the Ethernet parameters, perform a factory reset and show the information window.

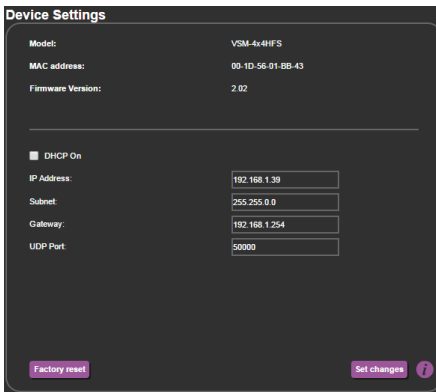


Figure 30: The Device Settings Page

### 8.3.1 Changing the Ethernet Settings

You can change the Ethernet parameters by typing the changing and clicking the Set changes button. Note that:

- When changing the IP number, the change is immediate and the Web page reloads with the new IP number (see [Figure 32](#)).

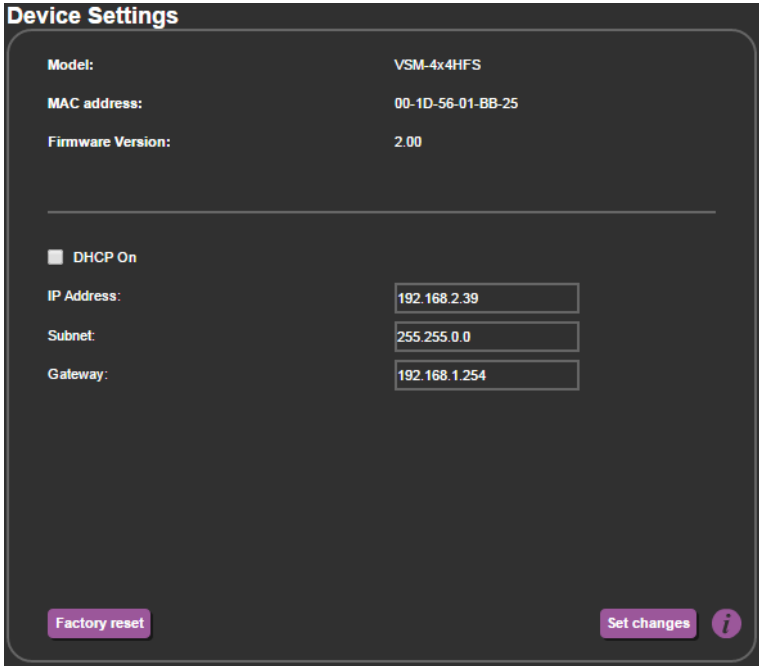


Figure 31: The Device Settings Page – Ethernet Settings

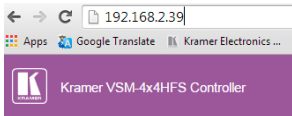



Figure 32: The Device Settings Page – IP Number Settings

To access the information window, click the  icon on the lower right side of the page.

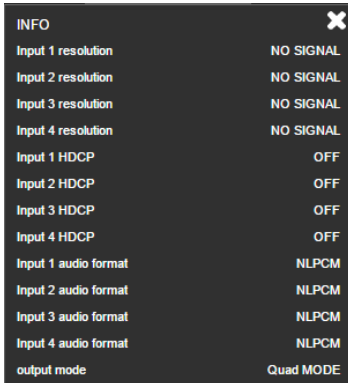


Figure 33: The Device Settings Page – the Information Window

### 8.3.2 Factory Reset

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

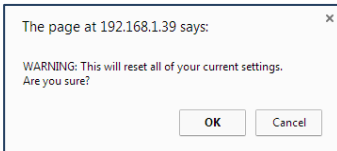


Figure 34: The Device Settings Page – Factory Reset Message

Click OK to proceed with factory reset:

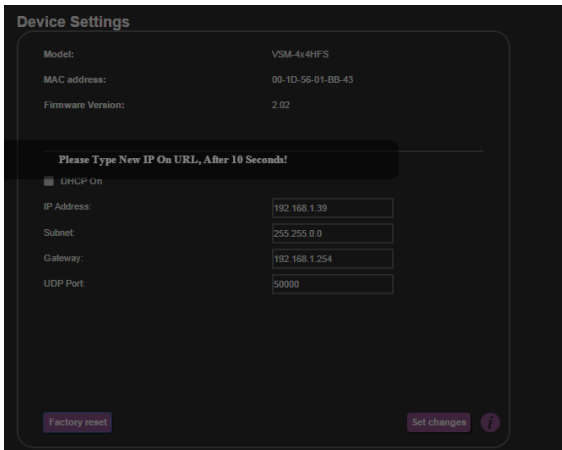


Figure 35: The Device Settings Page – Factory Reset

Note that you will have to type the new IP into your URL after reset is complete (about 10 seconds).

## 8.4 The Output Settings Page

The Output settings page lets you set the Mode, Resolution and Aspect Ratio and also enable/disable Auto-Sync Off.

[Figure 38](#) shows the Output Settings page for output 1.

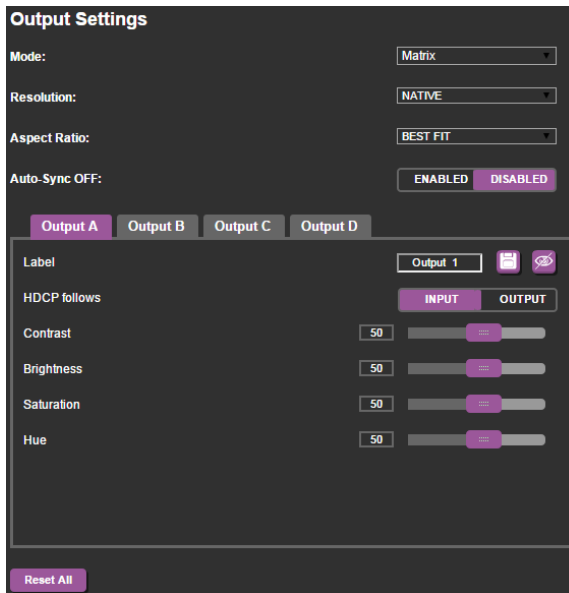


Figure 36: The Output Settings Page – Matrix and Video Wall Modes



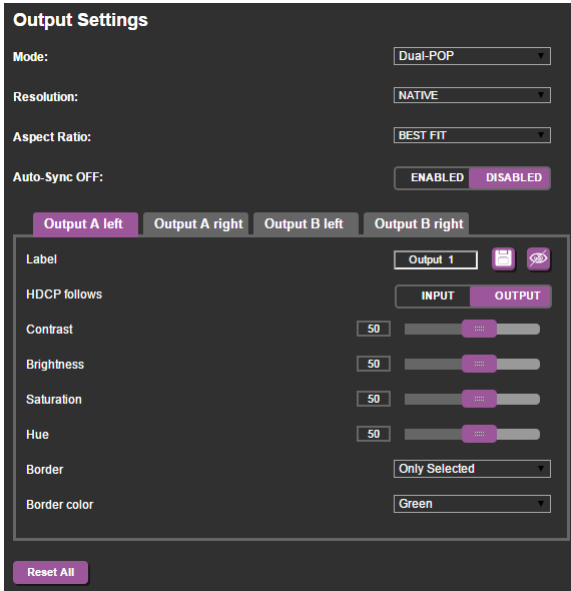


Figure 37: The Output Settings Page – Dual Mode

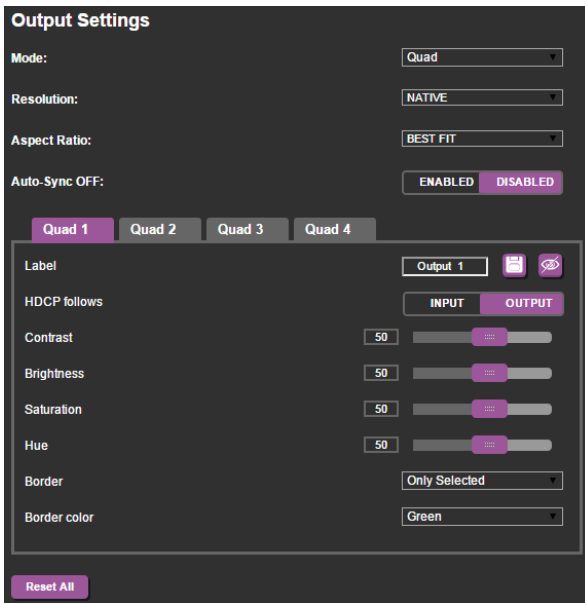


Figure 38: The Output Settings Page – Quad Mode

For each output you can set the output label, the HDCP state, as well as the Contrast, Brightness, Saturation and Hue.

Click the **Reset All** buttons to reset the output settings for all outputs.

## 8.5 The HDCP Settings Page

The HDCP settings page summarizes the HDCP data for the inputs and outputs and lets you change them.

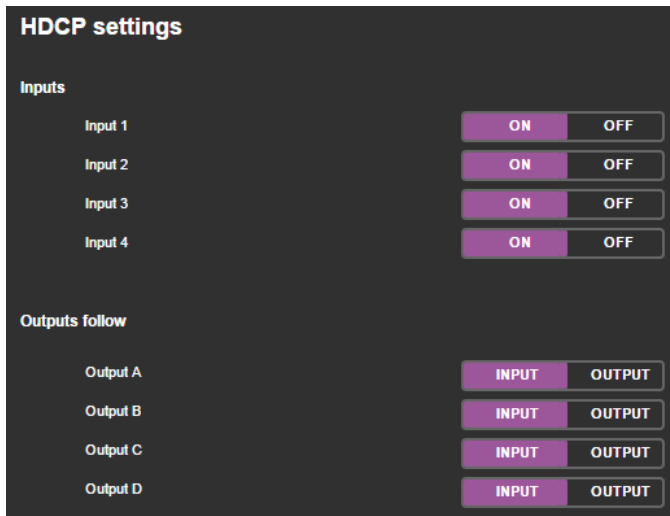


Figure 39: The HDCP Settings Page

## 8.6 The EDID Management Page

The EDID page lets you copy a selected resolution or the default resolution to one or more selected inputs.

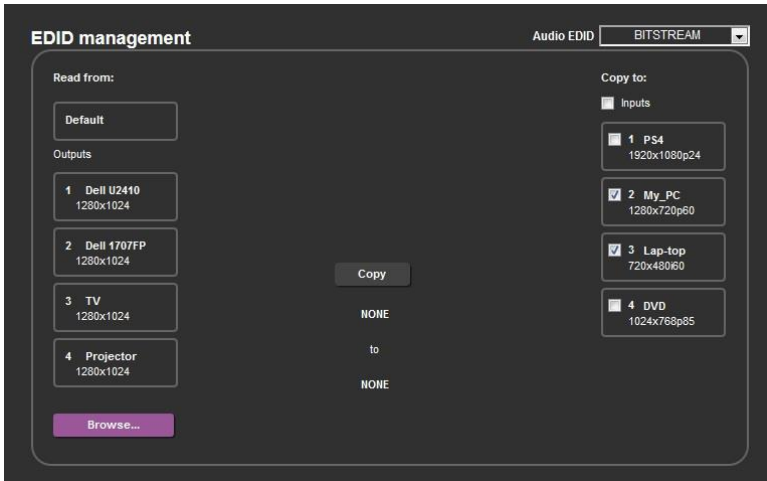


Figure 40: The EDID Page

[Figure 41](#) shows how to select a resolution from the list and select one or more inputs. To copy, click the **Copy** button:

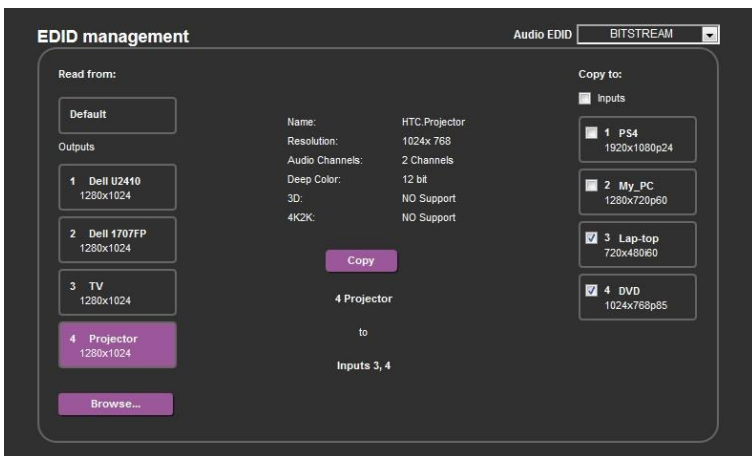


Figure 41: The EDID Page – Copying the Native Timing

Figure 41 shows how to select one of the default resolutions from the list and select one or more inputs. To copy, click the **Copy** button:

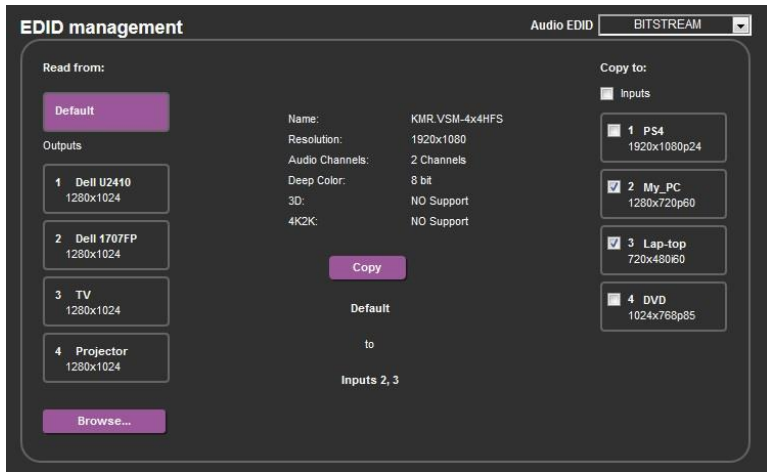


Figure 42: The EDID Page – Copying the Default

The EDID page displays the machine name, selected resolution, the audio channels and deep color support.

After clicking the **Copy** button, the EDID page shows the copy EDID results:

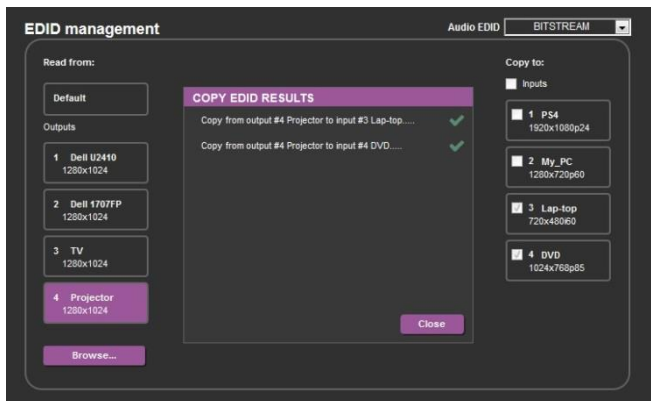


Figure 43: The EDID Page –The Copy EDID Results

## 8.7 The About Page

The **VSM-4x4HFS** About page lets you view the Web page version and Kramer Electronics Ltd details.



Figure 44: The About Page

## 8.8 Save or Upload a Configuration

The **VSM-4x4HFS** Web page lets you upload a saved configuration or save a configuration. To do so, click the Upload and buttons which are located at the lower part of the menu list, respectively.

When saving a configuration, the file automatically saves it to the Downloads.

When loading a configuration the following message appears:

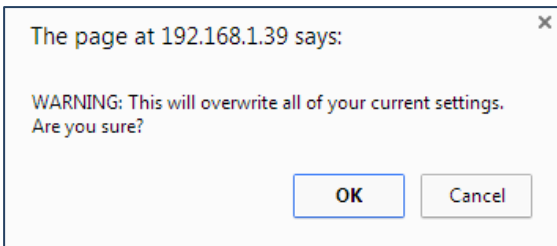


Figure 45: Loading a Configuration

## 9 Technical Specifications

INPUTS:	4 HDMI connectors (HDMI, HDCP version 1.1)
OUTPUTS:	4 HDMI connectors (HDMI, HDCP version 1.1)
OUTPUT RESOLUTIONS:	NATIVE , 480p, 576p, 720p50, 720p59, 720p60, 1080p24, 1080p50, 1080p60, 1024x768, 1280x800, 1280x1024, 1366x768, 1440x900, 1600x900, 1680x1050 or 1920x1200
VIDEO LATENCY:	Progressive input: 30ms (typical)
CONTROLS:	Front panel buttons, USB port for programming
POWER SOURCE:	100-240V AC, 27VA max.
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
DIMENSIONS:	19" x 7" x 1U (W, D, H) rack mountable
WEIGHT:	1.8kg (4lbs) approx.
INCLUDED ACCESSORIES:	Power cord, rack ears, IR remote control
Specifications are subject to change without notice at <a href="http://www.kramerelectronics.com">http://www.kramerelectronics.com</a>	

### 9.1 Default Communication Parameters

RS-232	
Baud Rate:	115,200
Data Bits:	8
Stop Bits:	1
Parity:	None
Ethernet	
To reset the IP settings to the factory reset values go to : Menu-> Factory-> RESET->Change the option to YES and press Enter	
IP Address:	192.168.1.39
Subnet mask:	255.255.255.0
Default gateway:	192.168.1.254
TCP Port #:	Not supported
Default UDP Port #:	50000
Maximum UDP Ports:	4
Full Factory Reset	
OSD	Go to : Menu-> FACTORY DEFAULT -> Change the option to YES and press Enter
P3000	Use "FACTORY" command
Front panel buttons	Press the MENU Button while plugging the power to reset the machine
RS-232/Ethernet (UDP) Command Protocol	
Command Format:	ASCII
Example (Route the video from the HDMI2 input to the HDMI A output port in the Matrix mode):	#ROUTE 0,1,2<cr>

## 9.2 Table of Supported Input Resolutions

Resolution	Resolution	Resolution
No signal	1152x864p75	1400x1050p60
640x480p59	1280x720p25 (720p25)	1440x900p60RB
640x480p72	1280x720p29 (720p29)	1440x900p60
640x480p75	1280x720p30 (720p30)	1440x900p75
640x480p85	1280x720p50 (720p50)	1600x900p60RB
720x400p70	1280x720p59 (720p59)	1600x1200p60
720x480i59 (480i59)	1280x720p60 (720p60)	1680x1050p60RB
720x480i60 (480i60)	1280x720p60CVT	1680x1050p60
720x480p59 (480p59)	1280x768p60RB	1920x1080p23 (1080p23)
720x480p60 (480p60)	1280x768p60	1920x1080p24 (1080p24)
720x576i50 (576i)	1280x768p75	1920x1080p25 (1080p25)
720x576p50 (576p)	1280x800p60RB	1920x1080p29 (1080p29)
800x600p56	1280x800p60	1920x1080p30 (1080p30)
800x600p60	1280x800p75	1920x1080i50 (1080i50)
800x600p72	1280x960p60	1920x1080p50 (1080p50)
800x600p75	1280x1024p60	1920x1080i59 (1080i59)
800x600p85	1280x1024p60CVT	1920x1080i60 (1080i60)
1024x768p60	1280x1024p75	1920x1080p59 (1080p59)
1024x768p70	1360x768p60	1920x1080p60 (1080p60)
1024x768p75	1366x768p60RB	1920x1200p60RB
1024x768p85	1366x768p60	
1152x864p70	1400x1050p60RB	

## 9.3 Table of Supported Output Resolutions

Resolution	Resolution	Resolution
Native	1080p24	1366x768
480p	1080p50	1440x900
576p	1080p60	1600x900
720p50	1024x768	1680x1050
720p59	1280x800	1920x1200
720p60	1280x1024	

---

# 10 The VSM-4x4HFS RS-232/Ethernet (UDP) Communication Protocol

The **VSM-4x4HFS** can be operated using serial commands from a PC, remote controller, or touch screen. The unit communicates using the default Kramer Protocol 3000.

## 10.1 Protocol 3000

- Kramer Protocol 3000 syntax (see section [10.1.1](#))
- Kramer Protocol 3000 commands (see section [10.1.2](#))

### 10.1.1 Kramer Protocol 3000 Syntax

Protocol 3000 communicates at a data rate of 115200 baud, no parity, 8 data bits and 1 stop bit.

#### 10.1.1.1 Host Message Format

Start	Address (optional)	Body	Delimiter
#	<i>Destination_id@</i>	Message	<b>CR</b>

#### Simple Command

Command string with only one command without addressing:

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

#### Command String

Formal syntax with commands concatenation and addressing:

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



### 10.1.1.2 Device Message Format

Start	Address (optional)	Body	delimiter
~	Sender_id@	Message	<b>CR</b> <b>LF</b>

### Device Long Response

Echoing command:

Start	Address (optional)	Body	Delimiter
~	Sender_id@	Command <b>SP</b> [Param1 ,Param2 ...] <b>result</b>	<b>CR</b> <b>LF</b>

**CR** = Carriage return (ASCII 13 = 0x0D)

**LF** = Line feed (ASCII 10 = 0x0A)

**SP** = Space (ASCII 32 = 0x20)

### 10.1.1.3 Command Terms

#### Command

A sequence of ASCII letters ('A'-'Z', 'a'-'z' and '-').

Command and 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**.

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

#### Message starting character

'#' – For host command/query

'~' – For machine response

#### Device address (Optional, for K-NET)

K-NET Device ID followed by '@'

### Query sign

'?' follows some commands to define a query request.

### Message closing character

**CR** – For host messages; carriage return (ASCII 13)

**CRLF** – For machine messages; carriage return (ASCII 13) + line-feed (ASCII 10)

### Command chain separator character

When a message string contains more than one command, a pipe ( '|' ) character separates each command.

Spaces between parameters or command terms are ignored.

## 10.1.1.4 Entering Commands

You can directly enter all commands using a terminal with ASCII communications software, such as HyperTerminal, Hercules, etc. Connect the terminal to the serial or Ethernet port on the Kramer device. To enter **CR** press the Enter key.

(**LF** is also sent but is ignored by command parser).

For commands sent from some non-Kramer controllers like Crestron, some characters require special coding (such as, /X##). Refer to the controller manual.

## 10.1.1.5 Command Forms

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

## 10.1.1.6 Command Chaining

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 once, at the beginning of the string and at the end.

Commands in the string do not execute until the closing character is entered.

A separate response is sent for every command in the chain.

## 10.1.1.7 Maximum String Length

64 characters

## 10.1.2 Kramer Protocol 3000 Commands

Command	Short Form	Description
#		Protocol handshaking
#BUILD-DATE?		Read device build date
#FACTORY		Reset to factory default configuration
#HELP		List of commands
#MODEL?		Read device model
#PROT-VER?		Read device protocol version
#RESET		Reset device
#SN?		Get device serial number
#VERSION?		Read device firmware version
#CPEDID		Copy EDID data from the output to the input EEPROM
#DISPLAY?		Get output HPD status
#HDCP-MOD		Set HDCP mode
#HDCP-MOD?		Get HDCP mode
#HDCP-STAT?		Get HDCP signal status
#INFO-IO?		Get in/out count
#INFO-PRST?		Get maximum preset count
#LOCK-FP	LCK	Lock front panel
#LOCK-FP?	LCK?	GET Lock front panel
#PRST-LST?		Get saved preset list
#PRST-RCL		Recall saved preset list
#PRST-STO		Store current connections and modes in preset
#PRST-VID?		Get video connections from saved preset
#SIGNAL?		Get input signal lock status
#ROUTE		Set layer routing
#ROUTE?		Get layer routing
#VID-RES		Set input/output resolution
#VID-RES?		Get input/output resolution
#VMUTE		Set enable/disable video on output
#VMUTE?		Get video on output status
#MUTE		Set audio mute
#MUTE?		Get audio mute
#ETH-PORT		Set Ethernet port protocol
#ETH-PORT?		Get Ethernet port protocol
#NET-DHCP	NTDH	Set DHCP mode
#NET-DHCP?	NTDH?	Get DHCP mode
#NET-GATE	NTGT	Set Gateway IP
#NET-GATE?	NTGT?	Get Gateway IP
#NET-IP	NTIP	Set device IP address
#NET-IP?	NTIP?	Get device IP address
#NET-MAC?	NTMC?	Get MAC address
#NET-MASK	NTMSK	Set device subnet mask

Command	Short Form	Description
#NET-MASK?	NTMSK?	Get device subnet mask
#BRIGHTNESS		Set window brightness
#CONTRAST		Set window contrast
#CONTRAST?		Get window contrast
#IMAGE-PROP		Set the image size (aspect ratio)
#IMAGE-PROP?		Get the image size (aspect ratio)
#SCLR-AS		Set auto-sync features (auto sync-off)
#SCLR-AS?		Get auto-sync features (auto sync-off)
#SHOW-OSD		Set the OSD display (INFO menu item in OSD)
#SHOW-OSD?		Get the OSD display (INFO menu item in OSD)
#W-BRD		Set border On/Off, color
#W-BRD?		Get border switch, color
#W-HUE		Set picture hue
#W-HUE?		Get picture hue
#W-SATURATION		Set picture saturation
#W-SATURATION?		Get picture saturation
#FCT-MAC		Set MAC address
#FCT-SN		Set serial number
#BEZEL		Set bezel On/Off , H/V correction
#BEZEL?		Get bezel switch, H/V correction status
#EDID-AUDIO		Set audio capabilities for EDID
#EDID-AUDIO?		Get audio capabilities for EDID
#IDV		Set visual indication from device
#LABEL		Set input/output label
#LABEL?		Get input/output label
#VIEW-MOD		Set view mode
#VIEW-MOD?		Get view mode

## 10.2 Kramer Protocol 3000 – Detailed Commands

This section describes the video resolutions key (see [Section 10.2.1](#)) and the detailed commands list (see [Section 10.2.2](#)). The table in [Section 10.2.3](#) describes the error codes.

### 10.2.1 The Input/Output Resolutions key

#	Resolution	#	Resolution
0	No signal (for input) Native (for output)	32	1280x768p75
1	640x480p59	33	1280x800p60RB
2	640x480p72	34	1280x800p60
3	640x480p75	35	1280x800p75
4	640x480p85	36	1280x960p60
5	720x400p70	37	1280x1024p60
6	720x480i59 (480i59)	38	1280x1024p60CVT
7	720x480i60 (480i60)	39	1280x1024p75
8	720x480p59 (480p59)	40	1360x768p60
9	720x480p60 (480p60)	41	1366x768p60RB
10	720x576i50 (576i)	42	1366x768p60
11	720x576p50 (576p)	43	1400x1050p60RB
12	800x600p56	44	1400x1050p60
13	800x600p60	45	1440x900p60RB
14	800x600p72	46	1440x900p60
15	800x600p75	47	1440x900p75
16	800x600p85	48	1600x900p60RB
17	1024x768p60	49	1600x1200p60
18	1024x768p70	50	1680x1050p60RB
19	1024x768p75	51	1680x1050p60
20	1024x768p85	52	1920x1080p23 (1080p23)
21	1152x864p70	53	1920x1080p24 (1080p24)
22	1152x864p75	54	1920x1080p25 (1080p25)
23	1280x720p25 (720p25)	55	1920x1080p29 (1080p29)
24	1280x720p29 (720p29)	56	1920x1080p30 (1080p30)
25	1280x720p30 (720p30)	57	1920x1080i50 (1080i50)
26	1280x720p50 (720p50)	58	1920x1080p50 (1080p50)
27	1280x720p59 (720p59)	59	1920x1080i59 (1080i59)
28	1280x720p60 (720p60)	60	1920x1080i60 (1080i60)
29	1280x720p60CVT	61	1920x1080p59 (1080p59)
30	1280x768p60RB	62	1920x1080p60 (1080p60)
31	1280x768p60	63	1920x1200p60RB

## 10.2.2 The Commands

Command – BUILD-DATE		Command Type – System-mandatory	
Command Name		Permission	Transparency
Set:	<b>BUILD-DATE</b>	End User	-
Get:	-	-	-
Description		Syntax	
Set:	Read device build date	#BUILD-DATE? <input type="checkbox"/> CR	
Get :	-	-	
Response			
~ <input type="checkbox"/> <input type="checkbox"/> @BUILD-DATE <sub>SP</sub> date <sub>SP</sub> time <sub>CR LF</sub>			
Parameters			
<i>date</i> – Format: YYYY/MM/DD where YYYY = Year, MM = Month, DD = Day			
<i>time</i> – Format: hh:mm:ss where hh = hours, mm = minutes, ss = seconds			

Command – FACTORY		Command Type – System-mandatory	
Command Name		Permission	Transparency
Set:	<b>FACTORY</b>	End User	-
Get:	-	-	-
Description		Syntax	
Set:	Reset device to factory defaults configuration	#FACTORY <input type="checkbox"/> CR	
Get :	-	-	
Response			
~ <input type="checkbox"/> <input type="checkbox"/> @FACTORY <sub>SP</sub> OK <sub>CR LF</sub>			
Notes			
This command deletes all user data from the device. The deletion can take some time.			

Command - HELP		Command Type - System-mandatory	
Command Name		Permission	Transparency
Set:	-	-	-
Get:	HELP	End User	Public
Description		Syntax	
Set:	-	-	
Get:	Get command list or help for specific command	2 options: 1. #HELP <code>[CR]</code> 2. #HELP <code>[SP]</code> command_name <code>[CR]</code>	
Response			
1. Multi-line: ~nn@Device available protocol 3000 commands: <code>[CR LF]</code> command <code>[SP]</code> command... <code>[CR LF]</code>			
To get help for command use: HELP (COMMAND_NAME) <code>[CR LF]</code>			
2. Multi-line: ~nn@HELP <code>[SP]</code> command: <code>[CR LF]</code> description <code>[CR LF]</code> USAGE: usage <code>[CR LF]</code>			

Command – MODEL?		Command Type – System-mandatory	
Command Name		Permission	Transparency
Set:	-	-	-
Get:	MODEL?	End User	-
Description		Syntax	
Set:	-	-	
Get :	Get device model	#MODEL? <code>[CR]</code>	
Response			
~nn@MODEL <code>[SP]</code> VSM-4x4HFS <code>[CR LF]</code>			
Parameters			
model_name – String of up to 19 printable ASCII chars			

Command – PROT-VER?		Command Type – System-mandatory	
Command Name		Permission	Transparency
Set:	-	-	-
Get:	PROT-VER?	End User	-
Description		Syntax	
Set:	-	-	
Get :	Get protocol version	#PROT-VER? <code>[CR]</code>	
Response			
~nn@PROT-VER <code>[SP]</code> 3000:version <code>[CR LF]</code>			
Parameters			
Version – Format: XX.XX where X is a decimal digit			

Command – RESET		Command Type – System-mandatory	
Command Name		Permission	Transparency
Set:	RESET	Administrator	-
Get:	-	-	-
Description		Syntax	
Set:	Reset device	#RESET <input type="checkbox"/> <input type="checkbox"/>	
Get :	-	-	
Response			
~ <input type="checkbox"/> <input type="checkbox"/> @RESET <input type="checkbox"/> <input type="checkbox"/> OK <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			
Notes			
To avoid locking the port due to a USB bug in Windows, disconnect USB connections immediately after running this command. If the port was locked, disconnect and reconnect the cable to reopen the port.			

Command - SN?		Command Type - System-mandatory	
Command Name		Permission	Transparency
Set:	-	-	-
Get:	SN?	End User	Public
Description		Syntax	
Set:	-	-	
Get:	Get device serial number	#SN? <input type="checkbox"/> <input type="checkbox"/>	
Response			
~ <input type="checkbox"/> <input type="checkbox"/> @SN <input type="checkbox"/> serial_number <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			
Parameters			
serial_number - 11 decimal digits, factory assigned			

Command –VERSION?		Command Type – System-mandatory	
Command Name		Permission	Transparency
Set:	-	-	-
Get:	VERSION?	End User	-
Description		Syntax	
Set:	-	-	
Get :	Get version number	#VERSION? <input type="checkbox"/> <input type="checkbox"/>	
Response			
~ <input type="checkbox"/> <input type="checkbox"/> @VERSION <input type="checkbox"/> firmware_version <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			
Parameters			
firmware_version – Format: XX.XX.XXXX where the digits group are: major.minor.build version			



Command - CPEDID		Command Type - System	
Command Name		Permission	Transparency
Set:	<b>CPEDID</b>	End User	Public
Get:	-	-	-
Description		Syntax	
Set:	Copy EDID data from the output to the input EEPROM	#CPEDID <sub>SP</sub> src_type, src_id, dst_type, dest_bitmap <sub>CR</sub>	
Get:	-	-	
Response			
-nn@CPEDID <sub>SP</sub> src_type, src_id, dst_type, dest_bitmap <sub>CR LF</sub>			
Parameters			
src_type (EDID source type)- 1=Output src_id – 1=OUT A; 2=OUT B; 3=OUT C; 4=OUT D, 5=Default, 6=Upload File dst_type – 0=Input dest_bitmap –bit3=IN4, bit2=IN3, bit1=IN2, bit0=IN1			
Response Triggers			
Response is sent to the com port from which the Set was received (before execution)			
Notes			
Destination bitmap size depends on device properties (for 4 inputs it is a 4-bit word) Example: bitmap 0x09 means inputs 1 and 4 are loaded with the new EDID			

Command – DISPLAY?		Command Type - System	
Command Name		Permission	Transparency
Set :	-	-	-
Get	<b>DISPLAY?</b>	End User	Public
Description		Syntax	
Set:	-	-	
Get:	Display the output	#DISPLAY? <sub>SP</sub> P1 <sub>CR</sub>	
Response			
- nn@DISPLAY <sub>SP</sub> P1,P2 <sub>CR LF</sub>			
Parameters			
P1 (Output _id) – 1=OUT A; 2=OUT B; 3=OUT C; 4=OUT D; *=ALL P2 (status) – 0=sink is not valid; 1=sink is valid; 2=sink & good EDID are valid			
Response triggers			
After execution, response is sent to the com port from which the Get was received Response is sent after every change in output HPD status ON to OFF Response is sent after every change in output HPD status OFF to ON and ALL parameters (new EDID, etc.) are stable and valid			

Command – HDCP-MOD		Command Type – System	
Command Name		Permission	Transparency
Set:	<b>HDCP-MOD</b>	Administrator	Public
Get:	<b>HDCP-MOD?</b>	End User	Public
Description		Syntax	
Set:	Set HDCP mode	#HDCP-MOD <sub>[SP]</sub> P1,P2,P3 <sub>[CR]</sub>	
Get :	Get HDCP mode	#HDCP-MOD? <sub>[SP]</sub> P1,P2 <sub>[CR]</sub>	
Response			
Set / Get : ~ <sub>[nn]</sub> @HDCP-MOD <sub>[SP]</sub> P1,P2,P3 <sub>[CR LF]</sub>			
Parameters			
P1 (Stage) – 0=Input; 1=Output P2 (Stage_id) – (stage0) – 1=IN1; 2=IN2; 3=IN3; 4=IN4; (stage1) – 1=OUT A; 2=OUT B; 3=OUT C; 4=OUT B; *=ALL P3 (Mode) – (stage0) – 0=Off; 1=On; (stage1) – 2=Follow In, 3=Follow Out			
Response triggers			
Response is sent to the com port from which the Set (before execution) / Get command was received Response is sent to all com ports after execution if HDCP-MOD was set any other external control device (button press, device menu and similar) or genlock status changed			
Notes			
Set HDCP working mode <b>on device input</b> : HDCP supported – HDCP_ON [default] HDCP not supported – HDCP OFF HDCP support changes following detected sink – MIRROR OUTPUT			

Command - HDCP-STAT		Command Type - System	
Command Name		Permission	Transparency
Set:	-	-	-
Get:	<b>HDCP-STAT?</b>	End User	Public
Description		Syntax	
Set:	None	-	
Get:	Get HDCP signal status	#HDCP-STAT? <sub>[SP]</sub> stage,stage_id <sub>[CR]</sub>	
Response			
Set / Get: ~ <sub>[nn]</sub> @HDCP-STAT <sub>[SP]</sub> stage,stage_id,mode <sub>[CR LF]</sub>			
Parameters			
P1 (Stage) – 0=Input; 1=Output P2 (Stage_id) – (stage0) – 1=IN1; 2=IN2; 3=IN3; 4=IN4; (stage1) – 1=OUT A; 2=OUT B; 3=OUT C; 4=OUT B; *=ALL P3 (Mode) – 0=Off; 1=On			
Response Triggers			
Response is sent to the com port from which the Set (before execution) / Get command was received Response is sent to all com ports after execution if HDCP-STAT was set by any other external control device (button press, device menu and similar) or HDCP mode changed			
Notes			
On output – sink status; On input – signal status			

Command - INFO-IO?		Command Type - System	
Command Name		Permission	Transparency
Set:	-	-	-
Get:	INFO-IO?	End User	Public
Description		Syntax	
Set:	-	-	
Get:	Get in/out count	#INFO-IO? <input type="checkbox"/> <input type="checkbox"/>	
Response			
~ <input type="checkbox"/> @INFO-IO? <input type="checkbox"/> <input type="checkbox"/> IN <input type="checkbox"/> <input type="checkbox"/> inputs_count, OUT <input type="checkbox"/> <input type="checkbox"/> outputs_count <input type="checkbox"/> <input type="checkbox"/>			
Parameters			
IN inputs_count = 4 OUT outputs_count = 4			

Command - INFO-PRST?		Command Type - System	
Command Name		Permission	Transparency
Set:	-	-	-
Get:	INFO-PRST?	End User	Public
Description		Syntax	
Set:	-	-	
Get:	Get maximum preset count	#INFO-PRST? <input type="checkbox"/> <input type="checkbox"/>	
Response			
~ <input type="checkbox"/> @INFO-PRST? <input type="checkbox"/> <input type="checkbox"/> VID <input type="checkbox"/> <input type="checkbox"/> preset_video_count, AUD <input type="checkbox"/> <input type="checkbox"/> preset_audio_count <input type="checkbox"/> <input type="checkbox"/>			
Parameters			
preset_video_count = 4 preset_audio_count = 0 (does not support audio preset)			
Notes			
In most units, video and audio presets with the same number are stored and recalled together by commands #PRST-STO and #PRST-RCL			

Command - <b>LOCK-FP</b>		Command Type - System	
Command Name		Permission	Transparency
Set:	<b>LOCK-FP</b>	End User	Public
Get:	<b>LOCK-FP?</b>	End User	Public
Description		Syntax	
Set:	Lock front panel	# <b>LOCK-FP</b> <sub>[SP]</sub> /lock_mode <sub>[CR]</sub>	
Get:	Get front panel lock state	# <b>LOCK-FP?</b> <sub>[CR]</sub>	
Response			
Set: ~ <sub>[nn]</sub> @ <b>LOCK-FP</b> <sub>[SP]</sub> /lock_mode <sub>[SP]</sub> <b>OK</b> <sub>[CR LF]</sub>			
Get: Option 1: ~ <sub>[nn]</sub> @ <b>LOCK-FP</b> <sub>[SP]</sub> /lock_mode <sub>[CR LF]</sub>			
Parameters			
P1 (lock_mode)- 0=Off (unlock); 1=On (lock)			

Command - <b>PRST-LST?</b>		Command Type - System	
Command Name		Permission	Transparency
Set:	-	-	-
Get:	<b>PRST-LST?</b>	End User	Public
Description		Syntax	
Set:	-	-	
Get:	Get saved preset list	# <b>PRST-LST?</b> <sub>[CR]</sub>	
Response			
~ <sub>[nn]</sub> @ <b>PRST-LST</b> <sub>[SP]</sub> preset, preset, ... <sub>[CR LF]</sub>			
Parameters			
Preset = 1,2,3,4			
Notes			
In most units, video and audio presets with the same number are stored and recalled together by commands #PRST-STO and #PRST-RCL			

Command - <b>PRST-RCL</b>		Command Type - System	
Command Name		Permission	Transparency
Set:	<b>PRST-RCL</b>	End User	Public
Get:	-	-	-
Description		Syntax	
Set:	Recall saved preset list	# <b>PRST-RCL</b> <sub>[SP]</sub> preset <sub>[CR]</sub>	
Get:	-	-	
Response			
~ <sub>[nn]</sub> @ <b>PRST-RCL</b> <sub>[SP]</sub> preset <sub>[CR LF]</sub>			
Parameters			
preset – 1,2,3 or 4			
Notes			
In most units, video and audio presets with the same number are stored and recalled together by commands #PRST-STO and #PRST-RCL			

Command - <b>PRST-STO</b>		Command Type - System	
Command Name		Permission	Transparency
Set:	<b>PRST-STO</b>	End User	Public
Get:	-	-	-
Description		Syntax	
Set:	Store current connections and modes in preset	#PRST-STO <input type="text" value="SP"/> preset <input type="text" value="CR"/>	
Get:	-	-	
Response			
~ <input type="text" value="nn"/> @PRST-STO <input type="text" value="SP"/> preset <input type="text" value="CR LF"/>			
Parameters			
preset – 1,2,3 or 4			
Notes			
In most units, video and audio presets with the same number are stored and recalled together by commands #PRST-STO and #PRST-RCL			

Command - <b>PRST-VID?</b>		Command Type - System	
Command Name		Permission	Transparency
Set:	-	-	-
Get:	<b>PRST-VID?</b>	End User	Public
Description		Syntax	
Set:	-	-	
Get:	Get video connections from saved preset	#PRST-VID? <input type="text" value="SP"/> preset, out <input type="text" value="CR"/> #PRST-VID? <input type="text" value="SP"/> preset, * <input type="text" value="CR"/>	
Response			
~ <input type="text" value="nn"/> @PRST-VID <input type="text" value="SP"/> preset, in>out <input type="text" value="CR LF"/>			
~ <input type="text" value="nn"/> @PRST-VID <input type="text" value="SP"/> preset, in>1, in>2, in>3, ... <input type="text" value="CR LF"/>			
Parameters			
preset – 1,2,3 or 4 in – 1=IN1; 2=IN2; 3=IN3; 4=IN4; 5=OFF > - connection character between in and out parameters out – 1=OUT A; 2=OUT B; 3=OUT C; 4=OUT D; "*" for all outputs			
Notes			
In most units, video and audio presets with the same number are stored and recalled together by commands #PRST-STO and #PRST-RCL			
Examples			
Store current audio and video connections and modes to preset 5	#PRST-STO 5 <input type="text" value="CR"/>	~PRST-STO 5 <input type="text" value="CR LF"/>	
Recall audio and video connections from preset 3	#PRCL 3 <input type="text" value="CR"/>	~PRST-RCL 3 <input type="text" value="CR LF"/>	
Show source of video output 2 from preset 3	#PRST-VID? 3,2 <input type="text" value="CR"/>	~PRST-VID 3, 4>2 <input type="text" value="CR LF"/>	

Command - <b>SIGNAL</b>		Command Type - System	
Command Name		Permission	Transparency
Set:	-	-	-
Get	<b>SIGNAL?</b>	End User	Public
Description		Syntax	
Set:	-	-	
Get:	Get input signal lock status	# <b>SIGNAL?</b> <input type="checkbox"/> _SP <i>inp_id</i> <input type="checkbox"/> _CR	
Response			
~ <input type="checkbox"/> _nn@ <b>SIGNAL</b> <input type="checkbox"/> _SP <i>inp_id,status</i> <input type="checkbox"/> _CR <input type="checkbox"/> _LF			
Parameters			
Inp_id (Input number)– 1=IN1; 2=IN2; 3=IN3; 4=IN4; *=ALL status – 0=signal is not valid; 1=signal is valid )			
Response Triggers			
After execution, a response is sent to the com port from which the Get was received Response is sent after every change in input signal status ON to OFF, or OFF to ON			

Command – <b>ROUTE</b>		Command Type –	
Command Name		Permission	Transparency
Set:	<b>ROUTE</b>	End User	-
Get:	<b>ROUTE?</b>	End User	-
Description		Syntax	
Set:	Set layer routing	# <b>ROUTE</b> <input type="checkbox"/> _SP P1,P2,P3 <input type="checkbox"/> _CR	
Get :	Get layer routing	# <b>ROUTE?</b> <input type="checkbox"/> _SP P1,P2 <input type="checkbox"/> _CR	
Response			
~ <input type="checkbox"/> _nn@ <b>ROUTE</b> <input type="checkbox"/> _SP P1,P2,P3 <input type="checkbox"/> _CR <input type="checkbox"/> _LF			
Parameters			
P1 (layer) – 0=Video; 1=Audio (for DUAL and QUAD modes only); P2 (dest) – 1=OUT A; 2=OUT B; 3=OUT C; 4=OUT D; *= ALL P3 (src) – 1=IN1; 2=IN2; 3=IN3; 4=IN4; 5=OFF (not for audio) DUAL mode audio P2 (dest) – 1=OUT A; 2=OUT B; 3=OUT C; 4=OUT D P3 (src) – for DUAL A: 1=IN1; 2=IN2; for DUAL B: 3=IN3; 4=IN4			
Notes			
This command replaces all other routing commands.			

Command – VID-RES		Command Type - Video	
Command Name		Permission	Transparency
Set :	<b>VID-RES</b>	End User	Public
Get	<b>VID-RES?</b>	End User	Public
Description		Syntax	
Set:	Set video resolution	#VID-RES [SP] P1,P2,P3,P4 [CR]	
Get:	Get video resolution	#VID-RES? [SP] P1,P2,P3 [CR]	
Response			
~nn@VID-RES [SP] P1,P2,P3,P4 [CR LF]			
Parameters			
P1 (stage) – 0=Input; 1=Output Note that under SET, stage=1 only P2 (stage_id) – stage0: 1=IN1; 2=IN2; 3=IN3; 4=IN4; stage1: 1=OUT A; 2=OUT B; 3=OUT C; 4=OUT D; *=ALL P3 (is_native) – 0=Off; 1=On P4 (video resolutions) see <a href="#">Section 10.2.1</a>			
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			
1. “Set” command is only applicable for <b>stage=Output (1)</b> 2. “Set” command with <i>is_native</i> =ON sets native resolution on selected output (resolution index sent = 0). Device sends as answer actual VIC ID of native resolution 3. “Get” command with <i>is_native</i> =ON returns native resolution VIC, with <i>is_native</i> =OFF returns current resolution			

Command – VMUTE		Command Type – Video	
Command Name		Permission	Transparency
Set:	<b>VMUTE</b>	End User	-
Get:	<b>VMUTE?</b>	End User	-
Description		Syntax	
Set:	Set enable/ disable video on output	# VMUTE [SP] P1,P2 [CR]	
Get :	Get video on output status	# VMUTE? [SP] P1 [CR]	
Response			
Set / Get : ~nn@ VMUTE [SP] P1, P2 [SP] OK [CR LF]			
Parameters			
P1 (output_id) – 1=OUT A; 2=OUT B; 3=OUT C; 4=OUT D; *=ALL P2 (flag) – 0=disable (free-run); 1=enable			

Command - <b>MUTE</b>		Command Type - Audio	
Command Name		Permission	Transparency
Set:	<b>MUTE</b>	End User	Public
Get:	<b>MUTE?</b>	End User	Public
Description		Syntax	
Set:	Set audio mute	# <b>MUTE</b> <sub>[SP]</sub> <i>channel</i> , <i>mute_mode</i> <sub>[CR]</sub>	
Get:	Get audio mute	# <b>MUTE?</b> <sub>[SP]</sub> <i>channel</i> <sub>[CR]</sub>	
Response			
~ <b>nn</b> @ <b>MUTE</b> <sub>[SP]</sub> <i>channel</i> , <i>mute_mode</i> <sub>[CR LF]</sub>			
Parameters			
channel – 1=OUT A, 2=OUT B, 3=OUT C, 4=OUT D, *=ALL mute_mode – 0=OFF (unmute), 1=ON (mute)			
Notes			
4 outputs have same mute_mode setup			

Command - <b>ETH-PORT</b>		Command Type - Communication	
Command Name		Permission	Transparency
Set:	<b>ETH-PORT</b>	Administrator	Public
Get:	<b>ETH-PORT?</b>	End User	Public
Description		Syntax	
Set:	Set Ethernet port protocol	# <b>ETH-PORT</b> <sub>[SP]</sub> <i>portType</i> , <i>ETHPort</i> <sub>[CR]</sub>	
Get:	Get Ethernet port protocol	# <b>ETH-PORT?</b> <sub>[SP]</sub> <i>portType</i> <sub>[CR]</sub>	
Response			
~ <b>nn</b> @ <b>ETH-PORT</b> <sub>[SP]</sub> <i>portType</i> , <i>ETHPort</i> <sub>[CR LF]</sub>			
Parameters			
portType - UDP ETHPort - UDP port number			



Command - <b>NET-DHCP</b>		Command Type - Communication	
Command Name		Permission	Transparency
Set:	<b>NET-DHCP</b>	Administrator	Public
Get:	<b>NET-DHCP?</b>	End User	Public
Description		Syntax	
Set:	Set DHCP mode	# <b>NET-DHCP</b> <sub>SP</sub> mode <sub>CR</sub>	
Get:	Get DHCP mode	# <b>NET-DHCP?</b> <sub>CR</sub>	
Response			
- <sub>nn</sub> @ <b>NET-DHCP</b> <sub>SP</sub> mode <sub>CR LF</sub>			
Parameters			
P1 (mode) 0 – Do not use DHCP. Use the IP set by the factory or using the IP set command. 1 – Try to use DHCP. If unavailable, use IP as above.			
Notes			
Connecting Ethernet to devices with DHCP may take more time in some networks To connect with a randomly assigned IP by DHCP, specify the device DNS name (if available) using the command "NAME". You can also get an assigned IP by direct connection to USB or RS-232 protocol port if available For proper settings consult your network administrator			

Command - <b>NET-GATE</b>		Command Type - Communication	
Command Name		Permission	Transparency
Set:	<b>NET-GATE</b>	Administrator	Public
Get:	<b>NET-GATE?</b>	End User	Public
Description		Syntax	
Set:	Set gateway IP	# <b>NET-GATE</b> <sub>SP</sub> ip_address <sub>CR</sub>	
Get:	Get gateway IP	# <b>NET-GATE?</b> <sub>CR</sub>	
Response			
- <sub>nn</sub> @ <b>NET-GATE</b> <sub>SP</sub> ip_address <sub>CR LF</sub>			
Parameters			
ip_address: xxx.xxx.xxx.xxx			
Notes			
A network gateway connects the device via another network and maybe over the Internet. Be careful of security problems. For proper settings consult your network administrator			

Command - <b>NET-IP</b>		Command Type - Communication	
Command Name		Permission	Transparency
Set:	<b>NET-IP</b>	Administrator	Public
Get:	<b>NET-IP?</b>	End User	Public
Description		Syntax	
Set:	Set IP address	#NET-IP <sub>[SP]</sub> ip_address <sub>[CR]</sub>	
Get:	Get IP address	#NET-IP? <sub>[CR]</sub>	
Response			
~ <sub>[hh]</sub> @NET-IP <sub>[SP]</sub> ip_address <sub>[CR LF]</sub>			
Parameters			
ip_address: xxx.xxx.xxx.xxx			
Notes			
For proper settings consult your network administrator			

Command - <b>NET-MAC?</b>		Command Type - Communication	
Command Name		Permission	Transparency
Set:	-	-	-
Get:	<b>NET-MAC?</b>	End User	Public
Description		Syntax	
Set:	-	-	
Get:	Get MAC address	#NET-MAC? <sub>[CR]</sub>	
Response			
~ <sub>[hh]</sub> @NET-MAC <sub>[SP]</sub> mac_address <sub>[CR LF]</sub>			
Parameters			
mac_address: xx-xx-xx-xx-xx-xx in HEX			

Command - <b>NET-MASK</b>		Command Type - Communication	
Command Name		Permission	Transparency
Set:	<b>NET-MASK</b>	Administrator	Public
Get:	<b>NET-MASK?</b>	End User	Public
Description		Syntax	
Set:	Set subnet mask	#NET-MASK <sub>[SP]</sub> net_mask <sub>[CR]</sub>	
Get:	Get subnet mask	#NET-MASK? <sub>[CR]</sub>	
Response			
~ <sub>[hh]</sub> @NET-MASK <sub>[SP]</sub> net_mask <sub>[CR LF]</sub>			
Parameters			
net_mask: xxx.xxx.xxx.xxx			
Response Triggers			
The subnet mask limits the Ethernet connection within the local network For proper settings consult your network administrator			

Command - <b>BRIGHTNESS</b>		Command Type - Multiviewer	
Command Name		Permission	Transparency
Set:	<b>BRIGHTNESS</b>	End User	Public
Get	<b>BRIGHTNESS?</b>	End User	Public
Description		Syntax	
Set:	Set window brightness	# <b>BRIGHTNESS</b> <sub>SP</sub> win_num,value <sub>CR</sub>	
Get:	Get window brightness	# <b>BRIGHTNESS?</b> <sub>SP</sub> win_num <sub>CR</sub>	
Response			
~nn@ <b>BRIGHTNESS</b> <sub>SP</sub> win_num,value <sub>CR LF</sub>			
Parameters			
win_num – 1=OUT A, 2=OUT B, 3=OUT C, 4=OUT D *=ALL value – 0~100			
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 BRIGHTNESS was set by any other external control device (button press, device menu and similar)			
Notes			
Value limits can vary for different devices Value is a property of input connected to current window. Changing window input source might cause changes in this value (refer device definitions)			

Command - <b>CONTRAST</b>		Command Type - Multiviewer	
Command Name		Permission	Transparency
Set:	<b>CONTRAST</b>	End User	Public
Get	<b>CONTRAST?</b>	End User	Public
Description		Syntax	
Set:	Set window contract	# <b>CONTRAST</b> <sub>SP</sub> win_num,value <sub>CR</sub>	
Get:	Get window contract	# <b>CONTRAST?</b> <sub>SP</sub> win_num <sub>CR</sub>	
Response			
~nn@ <b>CONTRAST</b> <sub>SP</sub> win_num,value <sub>CR LF</sub>			
Parameters			
win_num – 1=OUT A, 2=OUT B, 3=OUT C, 4=OUT D *=ALL value – 0~100			
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 CONTRAST was set by any other external control device (button press, device menu and similar)			
Notes			
Value limits can vary for different devices Value is a property of input connected to current window. Changing the window input source might cause changes in this value (refer to device definitions)			

Command – <b>IMAGE-PROP</b>		Command Type – Multiviewer/Scaler	
Command Name		Permission	Transparency
Set:	<b>IMAGE-PROP</b>	End User	Public
Get:	<b>IMAGE-PROP?</b>	End User	Public
Description		Syntax	
Set:	Set the image size	# <b>IMAGE-PROP</b> <input type="checkbox"/> <sub>SP</sub> <input type="checkbox"/> <sub>CR</sub> <input type="checkbox"/> <i>P1</i>	
Get :	Get the image size	# <b>IMAGE-PROP?</b> <input type="checkbox"/> <sub>SP</sub> <i>P1</i> ,..., <i>P6</i> <input type="checkbox"/> <sub>CR</sub>	
Response			
Set / Get : ~ <input type="checkbox"/> <sub>nn</sub> @ <b>IMAGE-PROP</b> <input type="checkbox"/> <sub>SP</sub> <i>P1</i> , <i>P2</i> ,... <input type="checkbox"/> <sub>CR</sub> <input type="checkbox"/> <sub>LF</sub>			
Parameters			
<i>P1</i> – 1=OUT A, 2=OUT B, 3=OUT C, 4=OUT D *=ALL Note: all 4 scalers have the same aspect ratio <i>P2</i> – 1=Full; 2=Best Fit; 3=Panscan (4:3); 4=letterbox (16:9)			
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 CMD-NAME was set any other external control device (button press, device menu and similar) or genlock status was changed			
Notes			
Sets the image properties of the selected scaler			

Command – <b>SCLR-AS</b>		Command Type – Multiviewer/Scaler	
Command Name		Permission	Transparency
Set:	<b>SCLR-AS</b>	End User	Public
Get:	<b>SCLR-AS?</b>	End User	Public
Description		Syntax	
Set:	Set auto-sync features	# <b>SCLR-AS</b> <input type="checkbox"/> <sub>SP</sub> <i>P1</i> , <i>P2</i> <input type="checkbox"/> <sub>CR</sub>	
Get :	Get auto-sync features	# <b>SCLR-AS?</b> <input type="checkbox"/> <sub>SP</sub> <i>P1</i> <input type="checkbox"/> <sub>CR</sub>	
Response			
Set / Get : ~ <input type="checkbox"/> <sub>nn</sub> @ <b>SCLR-AS</b> <input type="checkbox"/> <sub>SP</sub> <i>P1</i> , <i>P2</i> ,... <input type="checkbox"/> <sub>CR</sub> <input type="checkbox"/> <sub>LF</sub>			
Parameters			
<i>P1</i> – 1=OUT A, 2=OUT B, 3=OUT C, 4=OUT D *=ALL Note that all 4 scalers have the same auto sync-off status <i>P2</i> – On/Off – 0=Off; 1=On			
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			

Command – <b>SHOW-OSD</b>		Command Type – Multiviewer/Scaler	
Command Name		Permission	Transparency
Set:	<b>SHOW-OSD</b>	End User	Public
Get:	<b>SHOW-OSD?</b>	End User	Public
Description		Syntax	
Set:	Set the OSD of selected channel	# <b>SHOW-OSD</b> <sub>SP</sub> <i>id,switch</i> <sub>CR</sub>	
Get :	Get the OSD of selected channel	# <b>SHOW-OSD?</b> <sub>SP</sub> <sub>CR</sub>	
Response			
~ <sub>nn</sub> @ <b>SHOW-OSD</b> <sub>SP</sub> <i>id,switch</i> <sub>CR LF</sub>			
Parameters			
P1 –1=OUT A, 2=OUT B, 3=OUT C, 4=OUT D *=ALL Note that all 4 scalers have the same OSD display P2 – On/Off – 0=Off; 1=On			
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 SHOW-OSD was set any other external control device (button press, device menu and similar) or genlock status was changed			

Command - <b>W-BRD</b>		Command Type - Multiviewer	
Command Name		Permission	Transparency
Set:	<b>W-BRD</b>	End User	Public
Get	<b>W-BRD?</b>	End User	Public
Description		Syntax	
Set:	Set window border	# <b>W-BRD</b> <sub>SP</sub> <i>win_num, enable</i> <sub>CR</sub>	
Get:	Get window border status	# <b>W-BRD?</b> <sub>SP</sub> <i>win_num</i> <sub>CR</sub>	
Response			
~ <sub>nn</sub> @ <b>W-BRD</b> <sub>SP</sub> <i>id, switch, ColSpace,p1,p2,p3</i> <sub>CR LF</sub>			
Parameters			
id – 1 switch – 0=Show, 1=Only Selected, 2=Off ColSpace – 0=RGB P1,p2,p3 – 1,1,0=Red, 0,10=Green, 0,0,1=Blue, 1,1,0=Yellow, 1,0,1=Magenta, 1,1,1=Grey			
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 W-BRD was set by any other external control device (button press, device menu and similar)			
Notes			
For DUAL/QUAD mode only			

Command - <b>W-HUE</b>		Command Type - Multiviewer	
Command Name		Permission	Transparency
Set:	<b>W-HUE</b>	End User	Public
Get	<b>W-HUE?</b>	End User	Public
Description		Syntax	
Set:	Set window hue value	# <b>W-HUE</b> <sub>SP</sub> <i>win_num, value</i> <sub>CR</sub>	
Get:	Get window hue value	# <b>W-HUE?</b> <sub>SP</sub> <i>win_num</i> <sub>CR</sub>	
Response			
~ <i>nn</i> @ <b>W-HUE</b> <sub>SP</sub> <i>win_num, value</i> <sub>CR LF</sub>			
Parameters			
win_num – 1=OUT A, 2=OUT B, 3=OUT C, 4=OUT D, *=ALL value – 0~100			
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 W-HUE was set by any other external control device (button press, device menu and similar)			
Notes			
Value limits can vary for different devices Value is a property of input connected to current window. Changing window input source might cause changes in this value (refer device definitions)			

Command - <b>W-SATURATION</b>		Command Type - Multiviewer	
Command Name		Permission	Transparency
Set:	<b>W- SATURATION</b>	End User	Public
Get:	<b>W- SATURATION?</b>	End User	Public
Description		Syntax	
Set:	Set window saturation	# <b>W-SATURATION</b> <sub>SP</sub> <i>win_id,value</i> <sub>CR</sub>	
Get:	Get window saturation	# <b>W-SATURATION?</b> <sub>SP</sub> <i>win_id</i> <sub>CR</sub>	
Response			
~ <i>nn</i> @ <b>W-SATURATION</b> <sub>SP</sub> <i>win_id,value</i> <sub>CR LF</sub>			
Parameters			
win_num – 1=OUT A, 2=OUT B, 3=OUT C, 4=OUT D, *=ALL value – 0~100			

Command - <b>FCT-MAC</b>		Command Type - Ethernet (Secret)	
Command Name		Permission	Transparency
Set:	<b>FCT-MAC</b>	Factory	Internal
Get:	-	-	-
Description		Syntax	
Set:	Set MAC address	# <b>FCT-MAC</b> <sub>[SP]</sub> <i>mac_address</i> <sub>[CR LF]</sub>	
Get:	-	-	
Response			
~ <b>[nn]</b> @ <b>FCT-MAC</b> <sub>[SP]</sub> <i>mac_address</i> <sub>[CR LF]</sub>			
Parameters			
mac_address: xx-xx-xx-xx-xx-xx in HEX			
Notes			
To activate the change, reset the device			

Command - <b>FCT-SN</b>		Command Type - System-mandatory (Secret)	
Command Name		Permission	Transparency
Set:	<b>FCT-SN</b>	Factory	Internal
Get:	-	-	-
Description		Syntax	
Set:	Set serial number	# <b>FCT-SN</b> <sub>[SP]</sub> <i>serial_number</i> <sub>[CR LF]</sub>	
Get:	-	-	
Response			
~ <b>[nn]</b> @ <b>FCT-SN</b> <sub>[SP]</sub> <i>serial_number</i> <sub>[CR LF]</sub>			
Parameters			
<i>serial_number</i> - 11 decimal digits			

Command - <b>BEZEL</b>		Command Type - Multiviewer	
Command Name		Permission	Transparency
Set:	<b>BEZEL</b>	End User	Public
Get:	<b>BEZEL?</b>	End User	Public
Description		Syntax	
Set:	Set bezel On/Off , H/V correction	# <b>BEZEL</b> <sub>[SP]</sub> <i>id,type,switch,H,V</i> <sub>[CR LF]</sub>	
Get:	Get bezel switch, H/V correction status	# <b>BEZEL</b> <sub>[SP]</sub> <i>id</i> <sub>[CR LF]</sub>	
Response			
~ <b>[nn]</b> @ <b>BEZEL</b> <sub>[SP]</sub> <i>id,type,switch,H,V</i> <sub>[CR LF]</sub>			
Parameters			
id - window id =1 type – 0-current H/V value, 1-max. H/V value switch – 0=Off; 1=On H,V – 0 – Max			
Notes			
Setting the BEZEL type to 1 results in an error			

Command – EDID-AUDIO		Command Type – EDID Handling	
Command Name		Permission	Transparency
Set:	<b>EDID-AUDIO</b>	-	-
Get:	<b>EDID-AUDIO?</b>	End User	Public
Description		Syntax	
Set:	Set audio capabilities for EDID	# <b>EDID-AUDIO</b> <sub>SP</sub> mode <sub>CR</sub>	
Get :	Get audio capabilities for EDID	# <b>EDID-AUDIO?</b> <sub>SP CR</sub>	
Response			
~ <sub>nn</sub> @ <b>EDID-AUDIO</b> <sub>SP</sub> mode <sub>CR LF</sub>			
Parameters			
<i>mode</i> – 0=LPCM 2CH, 1=LPCM 6CH, 2=LPCM 8CH, 3=BITSTREAM, 4=HD			

Command - IDV		Command Type - System	
Command Name		Permission	Transparency
Set:	<b>IDV</b>	End User	Public
Get:	-	-	-
Description		Syntax	
Set:	Set visual indication from device	# <b>IDV</b> <sub>CR</sub>	
Get:	-	-	
Response			
~ <sub>nn</sub> @ <b>IDV</b> <sub>SP</sub> <b>OK</b> <sub>CR LF</sub>			
Notes			
Using this command, some devices can light a sequence of buttons or LEDs to allow identification of a specific device from similar devices			

Command - LABEL		Command Type - System	
Command Name		Permission	Transparency
Set:	<b>LABEL</b>	End User	Public
Get:	<b>LABEL?</b>	End User	Public
Description		Syntax	
Set:	Set input/output label	# <b>LABEL</b> <sub>SP</sub> stage, stage_id, switch, label <sub>CR</sub>	
Get:	Get input/output label	# <b>LABEL?</b> <sub>SP</sub> stage_id <sub>CR</sub>	
Response			
~ <sub>nn</sub> @ <b>LABEL</b> <sub>SP</sub> stage, stage_id, switch, label <sub>CR LF</sub>			
Parameters			
<i>stage</i> – 0=Input, 1=Output			
<i>stage_id</i> – (stage0) 1=IN1, 2=IN2, 3=IN3, 4=IN4; (stage1) 1=OUT A, 2=OUT B, 3=OUT C, 4=OUT D			
<i>switch</i> – 0=off, 1=on			
<i>label</i> (custom label string) – A string of up to 12 chars			
Notes			
If ignore stage_id and label string is empty, only do label on/off switch			



Command – <b>VIEW-MOD</b>		Command Type – Multiviewer/Scaler	
Command Name		Permission	Transparency
Set:	<b>VIEW-MOD</b>	End User	Public
Get:	<b>VIEW-MOD?</b>	End User	Public
Description		Syntax	
Set:	Set view mode	# <b>VIEW-MOD</b> <sub>SP</sub> <i>mode</i> <sub>CR</sub>	
Get :	Get view mode	# <b>VIEW-MOD?</b> <sub>SP</sub>	
Response			
~ <sub>nn</sub> @ <b>VIEW-MOD</b> <sub>SP</sub> <i>mode</i> <sub>CR LF</sub>			
Parameters			
<i>mode</i> – 0=Matrix, 1=Dual PIP, 2=N/A, 3=QUAD, 4=Video Wall, 5=DUAL POP			

### 10.2.3 Error Codes

Error	Description
1	No error
2	Protocol syntax error, 1st char isn't '#'
3	Command not available in command list
4	Parameter is out of range
5	
6	
7	Protocol busy, UART ring buffer is overflow
8	
9	
10	

## LIMITED WARRANTY

The warranty obligations of 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 Does this Coverage Last

Seven years as of this printing; please check our Web site for the most current and accurate warranty information.

### Who is Covered

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

### What Kramer Electronics will do

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

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

### What Kramer Electronics will not do Under This Limited Warranty

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

### How to Obtain a Remedy under this Limited Warranty

To obtain a remedy under this limited warranty, you must contact either the authorized Kramer Electronics reseller from whom you purchased this product or the Kramer Electronics office nearest you. For a list of authorized Kramer Electronics resellers and/or Kramer Electronics authorized service providers, please visit our web site at [www.kramerelectronics.com](http://www.kramerelectronics.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. You may also be directed to an authorized reseller or a person authorized by Kramer Electronics to repair the product.

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

### Limitation on Liability

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# KRAMER



## 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.

[www.kramerAV.com](http://www.kramerAV.com)  
[info@kramerel.com](mailto:info@kramerel.com)