

## USER MANUAL

### MODEL:

VS-8FDxI

Programmable 8 Port SDI Router



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# Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better!

Our 1,000-plus different models now appear in 14 groups that are clearly defined by function: GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Routers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders 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.

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## Getting Started

We recommend that you:

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



Go to [www.kramerav.com/downloads/VS-8FDxl](http://www.kramerav.com/downloads/VS-8FDxl) to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

## Achieving the Best Performance

- Use only good quality connection cables (we recommend Kramer high-performance, high-resolution cables) to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables).
- Do not secure the cables in tight bundles or roll the slack into tight coils.
- Avoid interference from neighbouring electrical appliances that may adversely influence signal quality.
- Position your Kramer **VS-8FDxl** away from moisture, excessive sunlight and dust.



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

## Safety Instructions



- 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.

## Recycling Kramer Products

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

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## Overview

Congratulations on purchasing your Kramer **VS-8FDxI**.

**VS-8FDxI** is a high-quality 8-port matrix switcher for SDI signals for up to 3G HD-SDI. Each SDI port can be defined as either an input or an output.

The **VS-8FDxI** provides exceptional quality, advanced and user-friendly operation, and flexible control.

## Exceptional Quality

- Max. Data Rate – 3Gbps.
- HDTV Compatibility.
- Multi-Standard Operation – SDI (SMPTE 259M/344M), HD-SDI (SMPTE 292M), 3G HD-SDI (SMPTE 424M).
- Selectable Single (for routing a signal of up to 1080p) or Dual mode (for routing a signal of up to 4K30).
- Kramer Equalization & re-Klocking™ Technology – Rebuilds the digital signal to travel longer distances.
- Cable Equalization – Up to 350m for SD signals, 140m for 1.5GHz HD signals and 120m for 3GHz 3G signals.
- Clean Switching – When the sources are genlocked to the selected genlock input with a difference of no more than two lines of video.

## Advanced and User-friendly Operation

- Supports ANC Data – Embedded audio, teletext, time code, etc.

- Memory Locations – Stores 8 multiple switches as presets to be recalled and executed when needed.
- Versatile Genlocking – Using an analog signal.
- Resolution information buttons
- Easy front-panel operation and routing.
- User friendly embedded web pages
- Lock button to prevent tampering.
- Kramer protocol 3000 support.
- Firmware upgrade via Ethernet or the RS-232 port.
- Control Options – RS-232 serial commands transmitted by a PC, touch screen system or other serial controller, Ethernet port via LAN.
- LCD 16x2 display, indicating the switching status and other functions.
- Includes non-volatile memory that retains the last settings, after switching the power off and then on again.

## Flexible Connectivity

- Interchangeable input to output switching – from 1:7 distribution amplifier (DA) to 7x1 switcher in the 1080p mode and 1:3 (DA) to 3x1 switcher in the 4K/30 mode.
- Housed in a 19" 1U rack mountable enclosure, with rack ears included, and fed from a 100-240 VAC universal switching power supply.

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## Typical Applications

The **VS-8FDxl** is ideal for the following typical applications:

- Rental and staging.

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## Controlling your VS-8FDxl

Control your **VS-8FDxl** directly via the front panel push buttons, or:

- By RS-232 serial commands transmitted by a touch screen system, PC, or other serial controller.
- Via the Ethernet using built-in user-friendly web pages.

# Defining the VS-8FDxl

## Programmable 8 Port SDI Router

This section defines the VS-8FDxl.

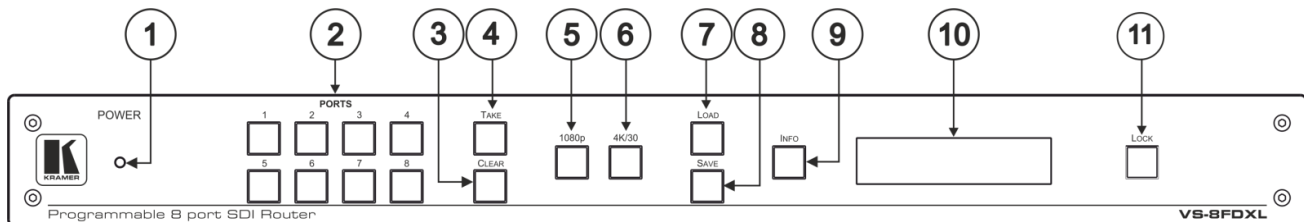


Figure 1: VS-8FDxl Programmable 8 Port SDI Router Front Panel

#	Feature	Function
①	POWER LED	Illuminated switch for turning the unit ON or OFF.
②	PORT Buttons	Press an output port (lights green) and then an input port (lights blue) to route an input to an output.
③	CLEAR Button	Press to clear a selection.
④	TAKE Button	Press to enter TAKE mode. In Take mode, press several sets of output-input ports and then press TAKE to activate all the selected routings at the same time. (When TAKE mode is OFF, the output-input pair is switched immediately).
⑤	1080p Button	Press to light the front-panel PORT button LEDs that are set to Single mode (1080p) and view them on the LCD display panel.
⑥	4K/30 Button	Press to light the front-panel PORT button LEDs that are set to Dual mode (4K@30) and view them on the LCD display panel.
⑦	LOAD Button	To load a preset configuration: Press LOAD, press the appropriate PORT preset button to select a preset configuration, and then press TAKE to load that preset.
⑧	SAVE Button	To save the current port configuration to a PORT preset button: Press STORE, press the port button to which you want to save the configuration, and then press TAKE to save the setup to that port.
⑨	INFO Button	Press to display the firmware version and IP address. Press INFO and then a specific PORT button to display the information of that selected port.
⑩	LCD Display Panel	Displays the current routing status, device information and so on.
⑪	LOCK Button	Press for about 3 seconds to lock the front panel. When locked (button is lit), press again for about 3 seconds to release the front panel lock.

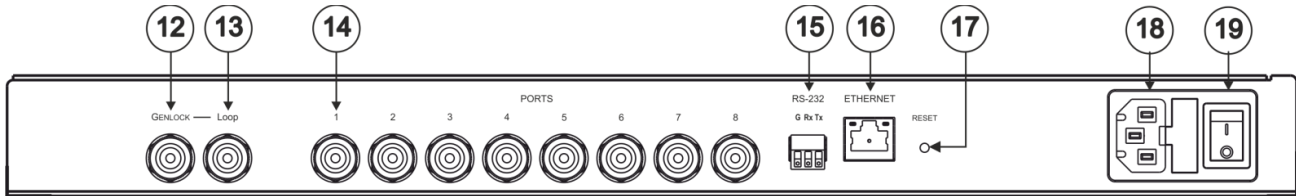


Figure 2: VS-8FDxl Programmable 8 Port SDI Router Rear Panel

#	Feature	Function
12	GENLOCK BNC Connector	Connect to the GENLOCK source.
13	LOOP BNC Connector	Connect to the GENLOCK connector of the next unit in the daisy chain.
14	PORTS BNC Connectors	Connect to sources and acceptors (8 in total, or 4 in total for dual mode).
15	RS-232 (G,Rx,Tx) Terminal Block Connector	Connect to a PC or remote controller.
16	ETHERNET RJ-45 Connector	Connect to a PC via LAN and also use for firmware upgrade.
17	RESET Button	Press briefly to restart the system. Press for 10 seconds to reset IP settings to factory default values. The device powers up and loads the factory default values: IP address: 192.168.1.39; Mask: 255.255.255.0; Gateway 192.168.1.1.
18	Power Socket	AC connector enabling power supply to the <b>VS-8FDxl</b> .
19	Power Switch	Illuminated switch for turning the unit ON and OFF.

# Installing in a Rack

This section provides instructions for rack mounting the **VS-8FDxI**. Before installing in a rack, verify that the environment is within the recommended range:

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

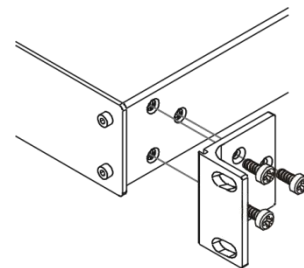


**When installing on a 19" rack, avoid hazards by taking care that:**

- It is located within recommended environmental conditions. Operating ambient temperature of a closed or multi-unit rack assembly may exceed ambient room temperature.
- Once rack mounted, there is enough air still flow around the **VS-8FDxI**.
- The **VS-8FDxI** is placed upright in the correct horizontal position.
- You do not overload the circuit(s). When connecting the **VS-8FDxI** to the supply circuit, overloading the circuits may have a detrimental effect on overcurrent protection and supply wiring. Refer to the appropriate nameplate ratings for information. For example, for fuse replacement, see the value printed on the product label.
- The **VS-8FDxI** is earthed (grounded) and connected only to an electricity socket with grounding. Pay particular attention when electricity is supplied indirectly (for example, when the power cord is not plugged directly into the wall socket but to an extension cable or power strip). Use only the supplied power cord.

**To rack-mount the VS-8FDxI:**

1. Attach both ear brackets to the **VS-8FDxI**: Remove the screws from each side of the **VS-8FDxI** (3 on each side), and replace them through the ear brackets.
2. Place the ears of the **VS-8FDxI** against the rack rails and insert the appropriate screws (not provided) through each of the four holes in the rack ears.





Some models, may feature built-in rack ears:


- Detachable rack ears can be removed for desktop use.
- Always mount the **VS-8FDxI** in the rack before connecting any cables or power.
- If you are using a Kramer rack adapter kit (for a machine that is not 19"), see the Rack Adapters user manual for installation instructions available from our Web site [www.kramerav.com/downloads/VS-8FDxI](http://www.kramerav.com/downloads/VS-8FDxI).



# Connecting the VS-8FDxl

-  Always switch off the power to each device before connecting it to your VS-8FDxl. After connecting your VS-8FDxl, connect its power and then switch on the power to each device.
-  Although this connecting example shows only several inputs and outputs that are connected, you can connect all the inputs and outputs simultaneously.

To connect the VS-8FDxl as illustrated in the example in [Figure 3](#):

-  This connection example describes the VS-8FDxl default setup: a 4x4 switcher in the 1080p mode. Other setups can include a range of 7:1 to 1x7 switching setups and in the 4K/30 mode, a range of 3:1 to 1x3 switching setups.

1. Connect up to four SDI video sources to the PORT BNC connectors (1 to 4) <sup>(14)</sup>. For example, connect:
  - An SDI camera to PORT 1.
  - A Kramer FC-113 HDMI to SD/HD-SDI Converter to PORT 4.
2. Connect up to four SDI video PORT BNC connectors (5 to 8) <sup>(14)</sup> to up to four acceptors. For example, connect:
  - PORT 5 to an SDI display.
  - PORT 8 to an SDI display.
3. Connect the power cord <sup>(18)</sup>. We recommend that you use only the power cord that is supplied with this machine.
4. If required, connect:
  - The ETHERNET port <sup>(16)</sup>.
  - The RS-232 3-pin terminal block connector <sup>(15)</sup> to a control device.

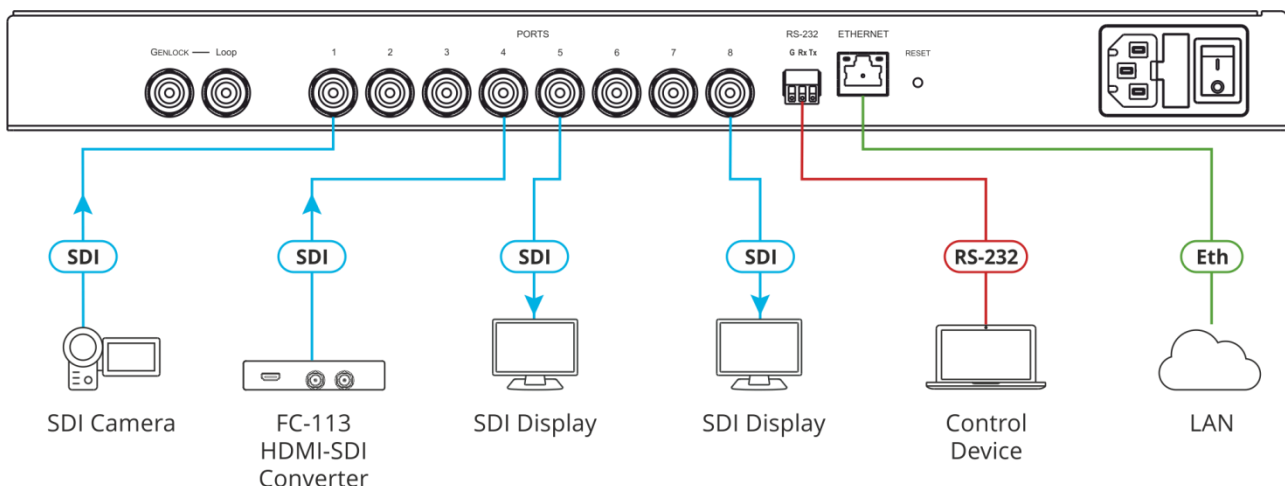


Figure 3: Connecting to the VS-8FDxl Rear Panel

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## Connecting to VS-8FDxl via RS-232

You can connect to the VS-8FDxl via an RS-232 connection <sup>(15)</sup> using, for example, a PC.

To connect to the VS-8FDxl via RS-232:

- Connect the RS-232 rear panel port on the VS-8FDxl 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.

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## Connecting VS-8FDxl via the ETHERNET Port

You can connect to the VS-8FDxl via Ethernet using either of the following methods:

- Directly to the PC using a crossover cable (see [Connecting the Ethernet Port Directly to a PC](#) on page 8).
- Via a network hub, switch, or router, using a straight-through cable (see [Connecting the Ethernet Port via a Network Hub or Switch](#) on page 10).



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

## Connecting the Ethernet Port Directly to a PC

You can connect the Ethernet port of the VS-8FDxl 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 VS-8FDxl with the factory configured default IP address.

After connecting the VS-8FDxl 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 4](#).

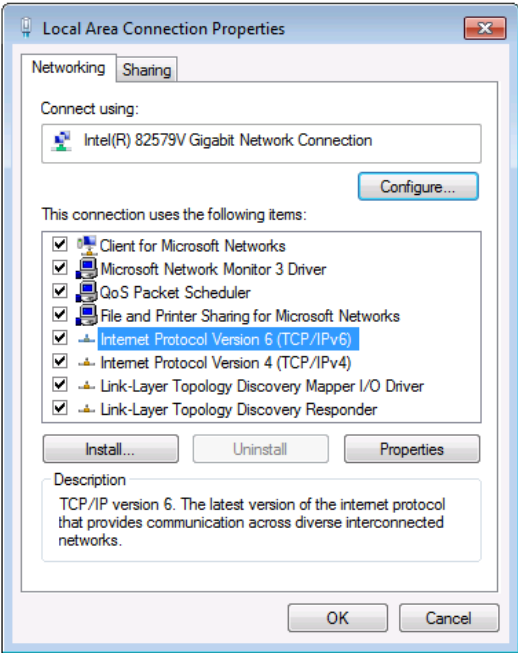


Figure 4: Local Area Connection Properties Window

- 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 5](#) or [Figure 6](#).

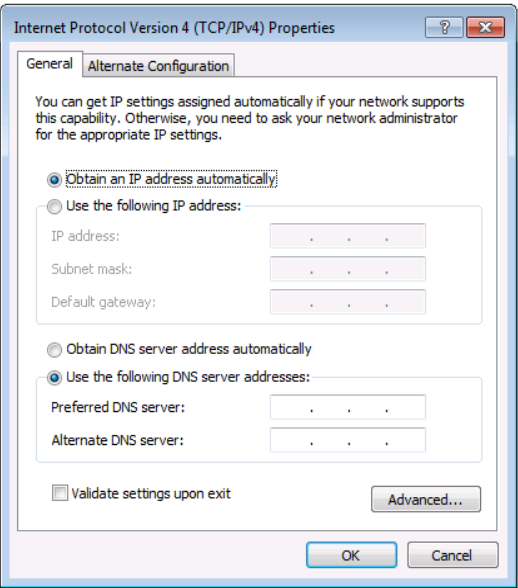


Figure 5: Internet Protocol Version 4 Properties Window

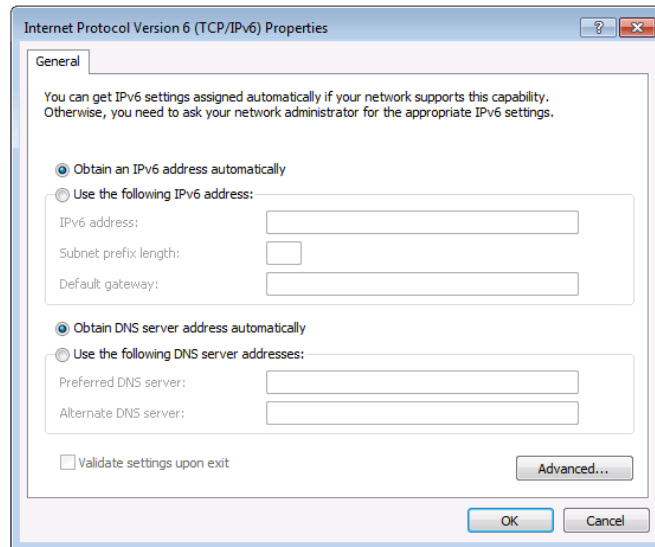


Figure 6: Internet Protocol Version 6 Properties Window

6. Select **Use the following IP Address** for static IP addressing and fill in the details as shown in [Figure 7](#).  
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.

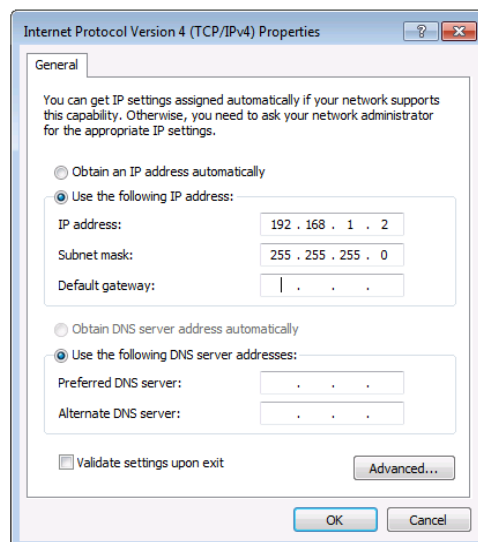


Figure 7: Internet Protocol Properties Window

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

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

You can connect the Ethernet port of the VS-8FDxl to the Ethernet port on a network hub or using a straight-through cable with RJ-45 connectors.

## Control Configuration via the Ethernet Port

To control several units via Ethernet, connect the Master unit (Device 1) via the Ethernet port to the Ethernet port of your PC. Use your PC provide initial configuration of the settings (see [Connecting VS-8FDxl via the ETHERNET Port](#) on page 8).

# Operating VS-8FDxl via Front Panel Buttons

Press the power switch (19) to power the device. During the initialization process, the LCD display briefly displays the current version and IP address (accessed also by pressing **INFO** (9) during normal operation), and then the PORT buttons illuminate (green for outputs and blue for inputs).

Following initialization, the front panel buttons and display enter normal operation and the display shows the video IN-OUT status:

<b>IN</b>	<b>1</b>	<b>4</b>	<b>5</b>
<b>OUT</b>	<b>7</b>	<b>28</b>	<b>36</b>

Figure 8: LCD Display – Normal Operation

In this example, ports 1, 4 and 5 are configured as inputs (port buttons illuminated blue) and ports 2, 3, 6, 7 and 8 are configured as outputs (port buttons illuminated green). Port 1 is routed to port 7, port 4 is routed to ports 2 and 8, and port 5 is routed to ports 3 and 6.

You can configure ports to be set as inputs or outputs only via the embedded web pages, see [Setting Port Configuration](#) on page 17.

The VS-8FDxl front panel buttons enable performing the following functions:

- [Routing the Signals](#) on page 11.
- [Saving and Loading a Setup](#) on page 12.

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## Routing the Signals

- [Viewing the Operation Mode](#) on page 11.
- [Routing a Signal](#) on page 12.

## Viewing the Operation Mode

The operation mode can be set only via the web pages, see [Setting Port Configuration](#) on page 17. The 1080p (5) and 4K/30 (6) buttons enable you to view the operation mode for each port.

**To view ports in Single operation mode:**

- Press **1080P**:  
The 1080P button illuminates.  
The LCD display shows the current switching status of the Single mode ports.  
The Single mode port buttons illuminate green (for outputs) and blue (for inputs) for a few seconds.

**To view ports in Dual operation mode:**

- Press **4K/30**:  
The 4K/30 button illuminates.  
The LCD display shows the current switching status of the Dual mode ports.  
The Dual mode port buttons illuminate green (for outputs) and blue (for inputs) for a few seconds.

**Routing a Signal**

The input/output port configuration is identified by the color of the **PORT** ② buttons (blue for input and green for output).

**To route a signal:**

1. Press an output **PORT** button (green).  
The selected button flashes.
2. Press an input **PORT** button (blue).  
The selected input is routed to the selected output which no longer flashes, and the current status can be viewed on the display.

**To route several signals together:**

1. Press **TAKE** ④.  
The **TAKE** button flashes.
2. Press several output-input **PORT** buttons.  
All the selected buttons flash.
3. Press **TAKE** to carry out the routing operation.  
The selected inputs are routed to the selected outputs which no longer flash, and the current status can be viewed on the display.



All operations should be carried out within 10 seconds.

Press **CLEAR** ③ to cancel the operation.

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**Saving and Loading a Setup**

**VS-8FDxl** can store up to 8 setups. Each setup includes the port direction settings, the operation mode (1080p or 4K/30), the genlock mode and the timing settings.


**To save the current setup:**

1. Press **SAVE** ⑧.  
The **SAVE** button flashes and the **PORT** buttons are dimmed.
2. Press a **PORT** ② button (from 1 to 8).  
The selected **PORT** button flashes red.
3. Press **TAKE** ④.  
The current preset is saved and the buttons no longer flash.

**To load a setup:**

1. Press **LOAD** .  
The **LOAD** button flashes and the **PORT** buttons are dimmed.
2. Press the desired **PORT** button (from 1 to 8).  
A preview of the preset configuration is displayed on the LCD.  
Press any number of presets (by pressing a port button) to preview their configuration before pressing **TAKE** to load the desired configuration.
3. Press **TAKE** to load the desired configuration.  
The selected preset is loaded and the buttons no longer flash.



Pressing **CLEAR**  or **LOAD/SAVE** before pressing **TAKE** cancels the load/save process.



You need to press **TAKE** within 10 seconds, to apply settings.

# Firmware Upgrade

You can upgrade the **VS-8FDxl** via:

- Web pages.
- By RS-232/TCP/UDP using Kramer K-UPLOAD tool.



The latest firmware version and the latest version of **K-UPLOAD** and installation instructions can be downloaded from the Kramer Web site at

[www.kramerav.com/downloads/VS-8FDxl](http://www.kramerav.com/downloads/VS-8FDxl).



# Using the Embedded Web Pages

The Web pages let you control the **VS-8FDxl** 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 described in [Connecting VS-8FDxl via the ETHERNET Port](#) on page [8](#).
- Ensure that your browser is supported.

The following operating systems and Web browsers are supported:

OS	Version	Browser	Version
Windows	7	IE	11
			9
			10
		Firefox	48.0.2
			45.0.1
			54
	Chrome	31.0.1650.59	
		31.0.1650.60	
		59.0.3071.109	
	Safari	5.1.7(7534.57.2)	
8	IE	11	
	Firefox	47.0.1	
	Chrome	51.0.2704.106	
Mac	10.11	Safari	9.0(11601.1.56)
iOS	10.3.2	Safari	N/A
Android	N/A	N/A	N/A

The **VS-8FDxl** web pages enable performing the following:

- [Switching and Setting the Ports](#) on page [17](#).
- [Setting the Genlock](#) on page [20](#).
- [Changing Device Settings and Saving/Loading Presets](#) on page [21](#).
- [Activating Security](#) on page [23](#).
- [Performing Firmware Upgrade](#) on page [26](#).
- [Locking the Front Panel Buttons](#) on page [26](#).
- [Viewing the About Page](#) on page [27](#).

**To browse the VS-8FDxl Web pages:**

1. Open your Internet browser.
2. Type the IP address of the device in the address bar of your browser. For example, the default IP address:



The Authentication window appears (if set, security is enabled):

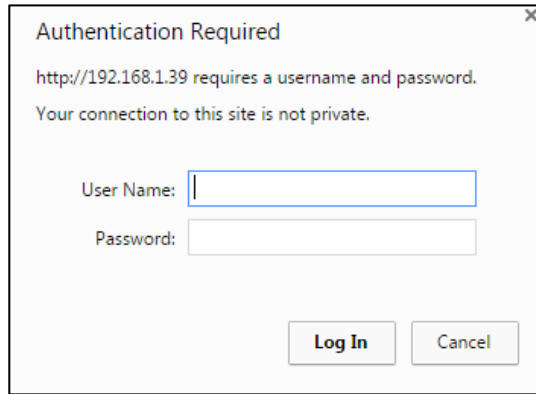


Figure 9: Using the Embedded Web Pages – the Authentication Window

3. Enter the **User Name** and **Password** and click **OK** (Admin and Admin by default). The Video Switching page appears:

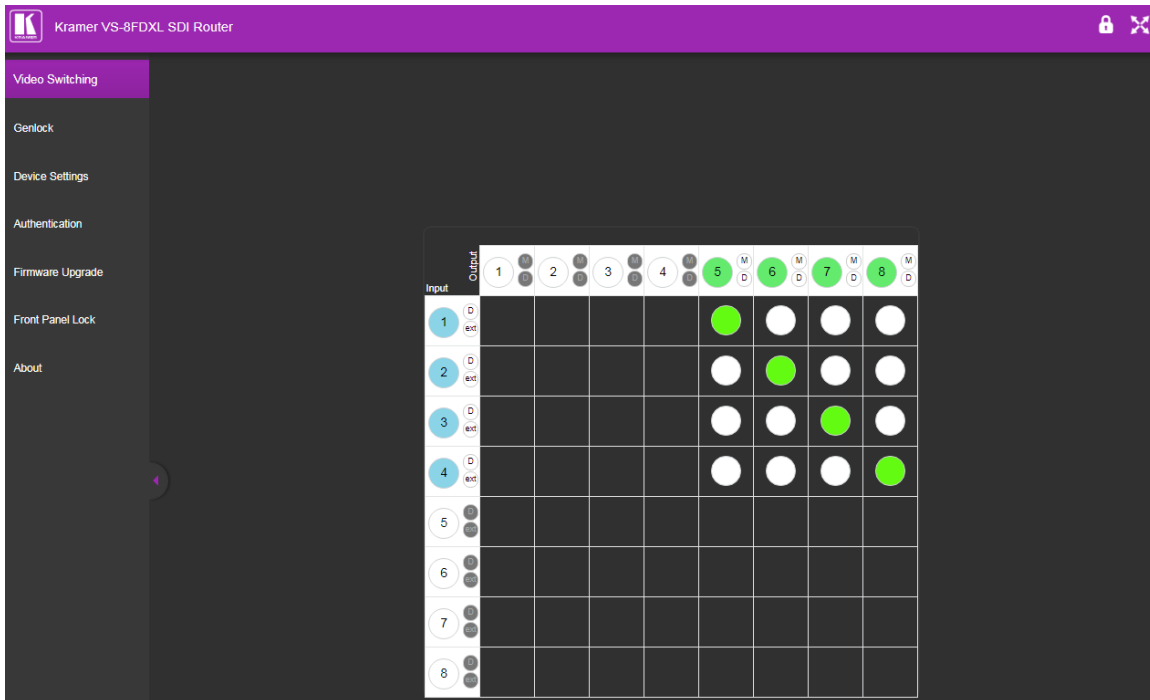


Figure 10: Video Switching Page with Navigation List on Left

4. Click the desired Web page or click the arrow to hide the navigation list.

## Switching and Setting the Ports

The Video Switching Web page enables performing the following functions:

- [Setting Port Configuration](#) on page [17](#).
- [Switching an Input to an Output](#) on page [19](#).

### Setting Port Configuration

Port configuration includes:

- [Setting a port as an input or output](#) on page [17](#).
- [Setting ports to Single or Dual Operation Mode](#) on page [17](#).
- [Other Port Settings](#) on page [18](#).

#### Setting a port as an input or output

Each SDI port can be set to function as an input or an output.

**To set the port as an input or output:**

- In the **Output** row, click a button (from 1 to 8).  
For example, select button 4 to be an output:  
Button 4 changes color from white to green on the Output row and changes from blue to white on the Input column.
- In the **Input** column, click a button (from 1 to 8).  
For example, select button 2 to be an input:  
Button 2 changes color from white to blue on the Input column and changes from green to white on the Output row.

#### Setting ports to Single or Dual Operation Mode

The Single mode uses one SDI port to route an HDMI signal up to 1080p.

The Dual mode uses two SDI ports to route an HDMI signal up to 4K30. Each SDI-port pair transmits one signal as if it were a single port.

The Dual (4K30) mode uses the following SDI pairs to route the signal (input or output): ports 1 and 2, ports 3 and 4, ports 5 and 6, and ports 7 and 8. All the port actions (for example, routing or muting affect the pair simultaneously).

To route signals in the Dual mode, you need at least one SDI pair on the input and one SDI pair on the output that are configured to the Dual mode. For example, if ports 1 and 2 are set as a dual input and ports 5 and 6 are set as dual outputs, when routing 1 to 5, **VS-8FDxI** also routes 2 to 6 as part of the dual pair. When muting output 5, output 6 will be automatically muted too.

**To set a port to Single or dual operation mode:**

- Click **D** next to an input or an output button to enter the dual mode. The adjacent port is also set to dual mode.

For example clicking **D** on Input 1 immediately turns Input 2 to Dual mode, see [Figure 13](#).

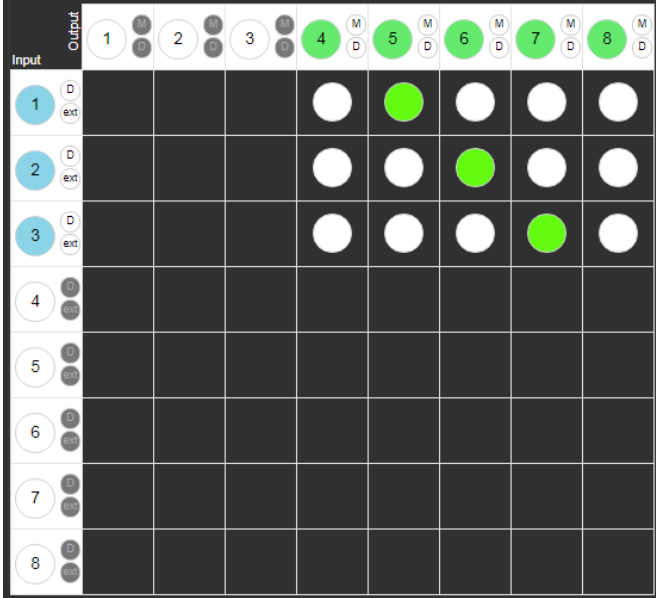


Figure 11: Video Switching Page – The Switching Matrix

Switching configurations can be set with a click of a button. For example, ports 1 to 7 are set as inputs and port 8 is set as an output:

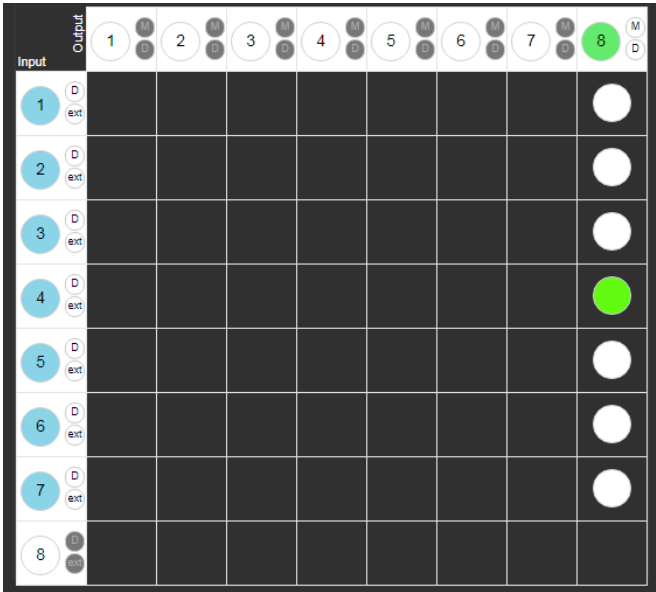


Figure 12: Video Switching Page – 7x1 Switcher Configuration Example

**Other Port Settings**

**To mute an output:**

- Click **M** next to an output button to mute the output. **M** turns green.
- Click **ext** next to an input button to extend the input reach. **ext** turns green

## Switching an Input to an Output

To switch an input to an output click a white button in the switching matrix.

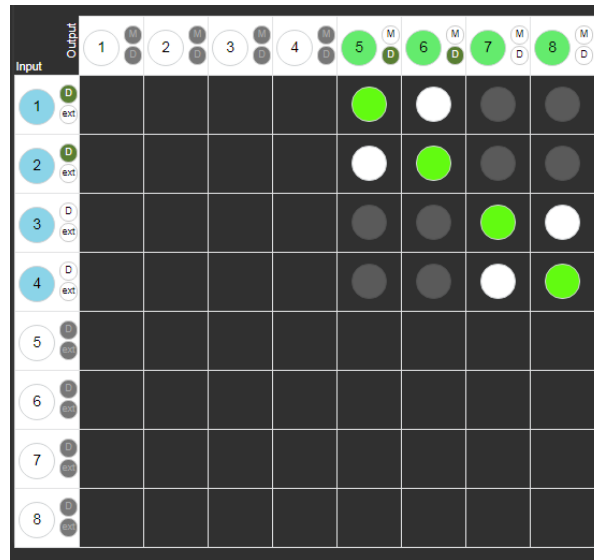


Figure 13: Video Switching Page – Switching Matrix Example

The switching matrix includes the following buttons (as illustrated in [Figure 13](#)):



The input is switched to the output.  
For example input port 3 is switched to output port 7.



The input is currently not switched to an output/s but switching is possible.  
For example, input port 3 is currently not switched to output port 8.



This switching option is not possible.  
For example, input port 3 cannot be switched to output port 5 since Output 5 is set to the Dual mode (output ports 5 and 6).

## Setting the Genlock

Use the **Genlock** web page to activate and configure the genlock port.

To set the genlock:

1. In the Navigation pane, click **Genlock**. The Genlock page appears.

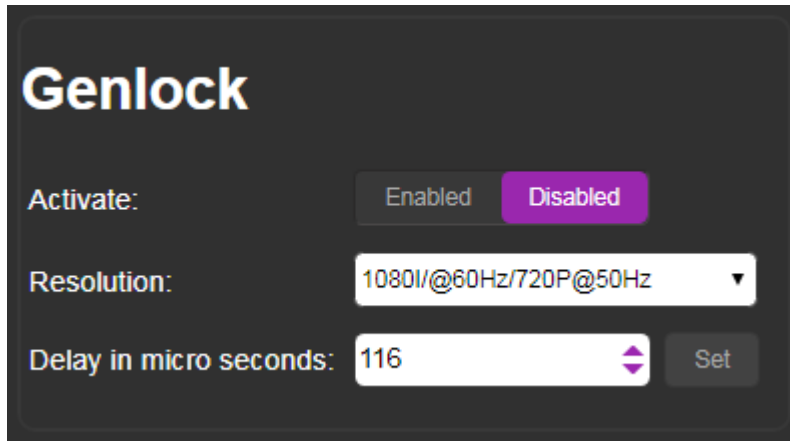


Figure 14: Genlock Page

2. Set the desired genlock resolution.  
The delay time appears.



You can also set the delay time manually to a specific delay time that does not appear on the list. In this case the Resolution box displays **Customized**.

3. Click **Set**.
4. Enable or disable the genlock port settings.

## Changing Device Settings and Saving/Loading Presets

The Device Settings Web page shows the device details, such as the unit name (changeable), model name, firmware version, serial number, MAC address and TCP port number (changeable), and also enables performing the following functions:

- [Changing the Ethernet Settings](#) on page [21](#).
- [Loading and Saving a Preset](#) on page [22](#).
- [Performing Firmware Upgrade](#) on page [26](#).

### Changing the Ethernet Settings

To change the Ethernet settings:

1. In the Navigation pane, click **Device Settings**. The Device Settings page appears:

**Device Settings**

Unit name VS-8FDXL-0

Model VS-8FDXL

Firmware version 01.01.0024

Serial number 1

**Ethernet Settings**

DHCP

IP address 192 . 168 . 1 . 39

Mask address 255 . 255 . 0 . 0

Gateway address 192 . 168 . 0 . 1

Mac address a0-f6-fd-48-75-58

TCP port 5000

Preset 1    Locked

Figure 15: Device Settings Page

2. Set **DHCP** ON or OFF.
3. If DHCP is OFF, change any of the parameters (IP Address, Netmask and/or Gateway).
4. Click **Set**.



Note that:

- After changing the IP number, reload the web page with the new IP address.
- If DHCP is ON, reload the web page with the new IP address.

## Loading and Saving a Preset

You can save up to 8 presets and load them onto the **VS-8FDxI**, see [Saving and Loading a Setup](#) on page [12](#).

**To save the current switching configuration to a preset:**

1. In the Navigation pane, click **Device Settings**. The Device Settings page appears ([Figure 15](#)).
2. Click the Preset drop-down box and select a Preset number (Preset 1 to Preset 8).
3. Click **Save**.  
The current configuration is stored in the selected preset.

**To load the current switching configuration to the device:**

1. In the Navigation pane, click **Device Settings**. The Device Settings page appears ([Figure 15](#)).
2. Click the Preset drop-down box and select the Preset number (Preset 1 to Preset 8) with the desired configuration.
3. Click **Load**.  
The current configuration is uploaded to **VS-8FDxI**.
4. If desired, check **Locked** to lock the preset.  
The preset is locked and cannot be changed with a different configuration via the **SAVE** front panel button. When trying to save a different configuration to the locked preset, the following message appears on the display:

“Failed saving read-only preset”.



You can only save a new configuration to this preset by unlocking the configuration via the web pages.



## Performing a Factory Reset

To reset the device to its factory default values:

1. In the Navigation pane, click **Device Settings**. The Device Settings page appears ([Figure 15](#)).
2. Click **Factory Reset**. The following window appears:

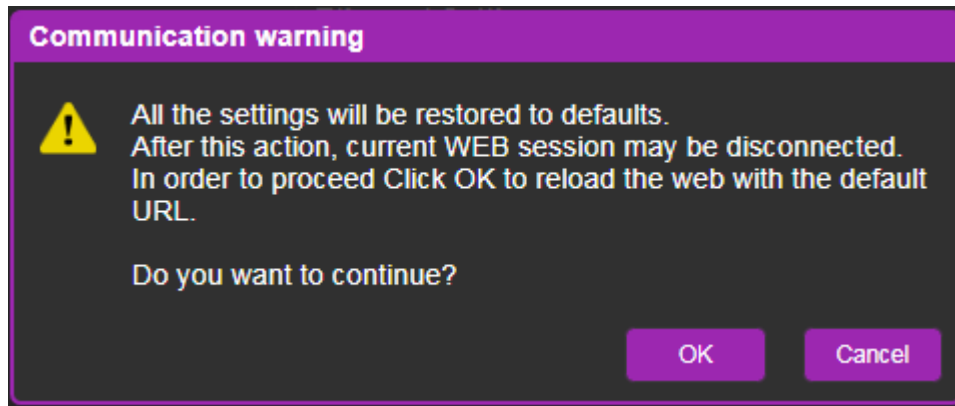


Figure 16: Device Settings Page – Factory Reset

3. Click **OK** to start factory reset and follow the instructions on-screen.

---

## Activating Security

Use the Authentication page to set Web access permission.

### Setting Web Page Access Permission

To define access to the web pages, in the Navigation pane, click **Authentication**. The Authentication page appears displaying the current status (Security Enabled or disabled).

Figure 17: Authentication Page

**To access Web pages without using the password:**

1. Check the current security settings.
2. Set **Activate Security** to **Disabled**.

The following message appears:

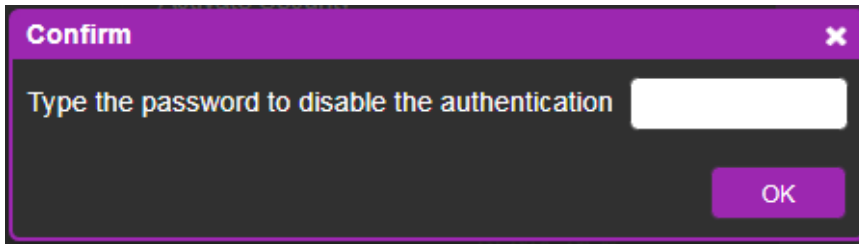


Figure 18: Authentication Page – Deactivating the Security

3. Type the current password (by-default, Admin).
4. Click **OK**.  
Authentication is disabled.



Figure 19: Authentication Page – Authentication Disabled

The page reloads and the top right side of the web page displays the security icon:



Figure 20: Security Page – Unlocked Icon

**To access web pages using the password:**

1. Check the current security status.
2. Set **Activate Security** to **Enabled** for web page password protection. The following message appears:

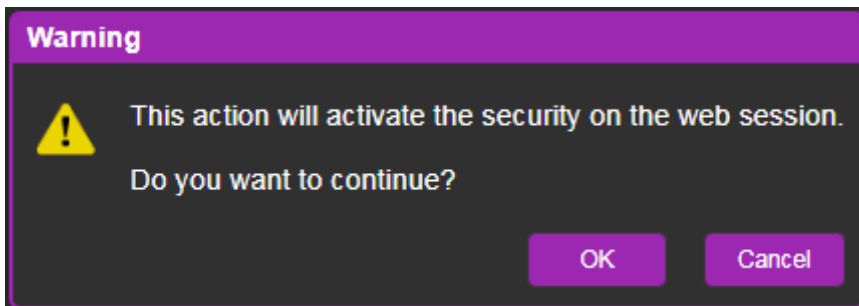
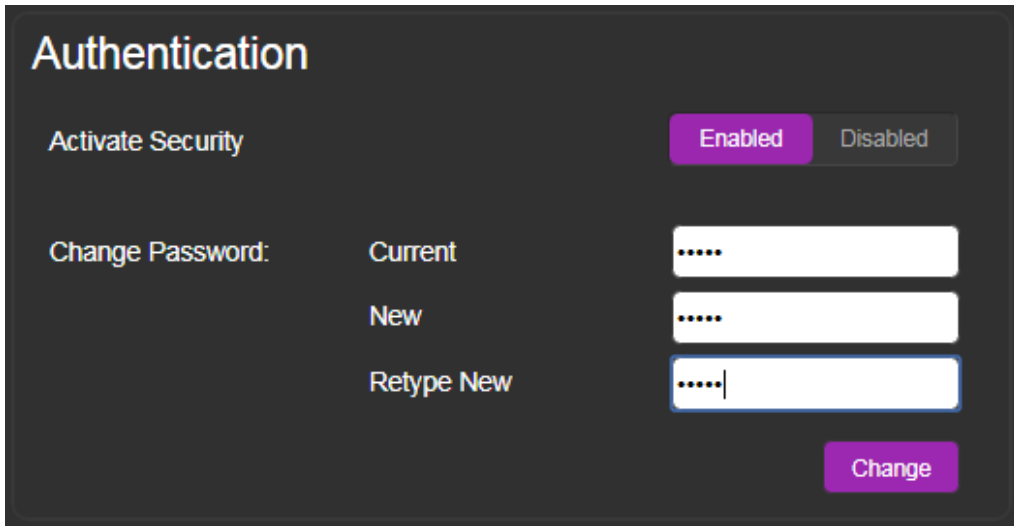


Figure 21: Authentication Page – Activating the Security

3. Select **Authentication** from the Navigation pane and type in the new password.



The screenshot shows the 'Authentication' page with a dark background. At the top left, the title 'Authentication' is displayed. Below it, the 'Activate Security' section has a toggle switch currently set to 'Enabled'. Underneath, the 'Change Password' section contains three input fields: 'Current', 'New', and 'Retype New', each with masked characters (dots). A blue 'Change' button is located at the bottom right of the form.

Figure 22: Security Page – Setting the Admin Password

4. Click **Change**. The following message appears:

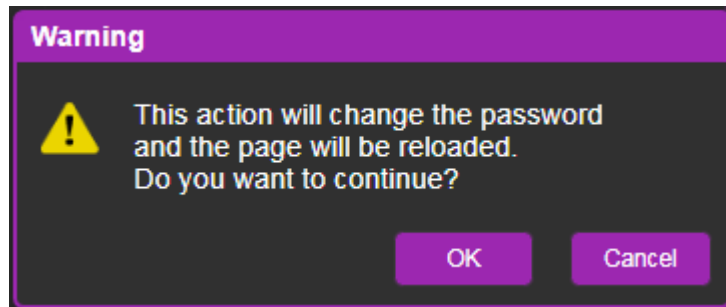


Figure 23: Security Page – Password Warning

5. Click **OK**.

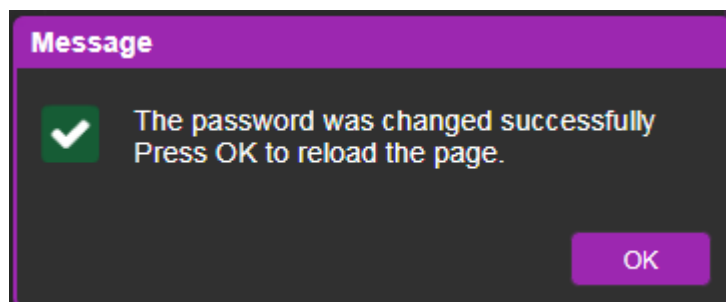


Figure 24: Authentication Page – Activating the Security

The page reloads and can be accessed by entering the password. The top right side of the web page displays the security icon:



Figure 25: Security Page – Locked Icon

---

## Performing Firmware Upgrade

To perform firmware upgrade:

1. In the Navigation pane, click **Firmware Upgrade**. The Firmware Upgrade page appears.

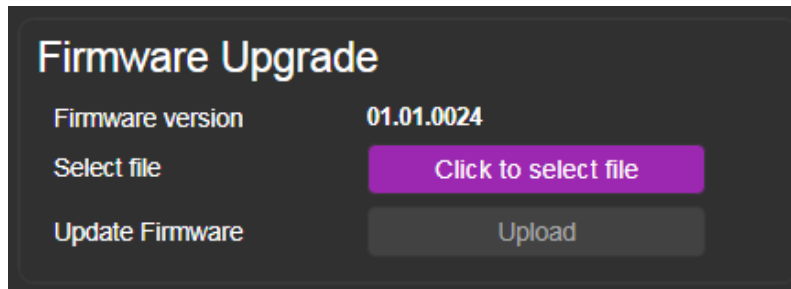


Figure 26: Firmware Upgrade Page

2. Click **Click to select file** and select the new firmware file.
3. Click **Open**.  
The new firmware file is selected.
4. Click **Upload** and follow the instructions on-screen.

---

## Locking the Front Panel Buttons

The Front Panel Lock page lets you lock the front panel buttons.

When set to ON, **LOCK** (11) on the front panel illuminates and the buttons are locked. Unlock the buttons either by setting Status to OFF or by pressing **LOCK** for 5 seconds once again.

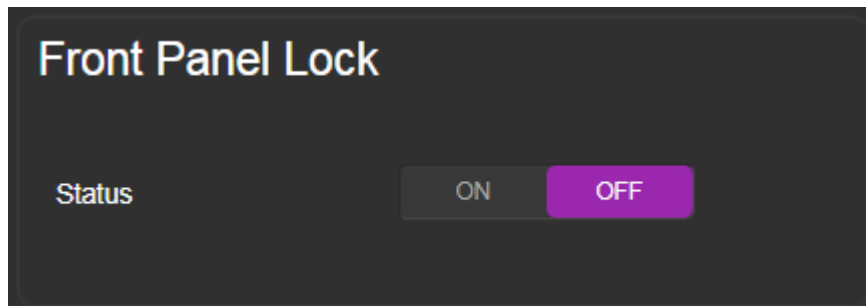


Figure 27: Front Panel Lock Page

## Viewing the About Page

The VS-8FDxl About page lets you view the Web page version and Kramer Electronics Ltd details.



Figure 28: About Page

# Technical Specifications

Ports	8 3G HD-SDI/HD-SDI/SDI video, 75Ω	On BNC connectors (by default, 1 to 4 are set as inputs and 5 to 8 are set as outputs)
	1 Genlock composite video input with loop	On BNC connectors
	1 RS-232	On a 3-pin terminal block for device control
	1 Ethernet	On an RJ-45 female connector for device control
Video	Max. Resolution	1080p@60Hz@24bpp For coupled signals: 4K@30
	Max Data Rate	3Gbps
	Reach	Up to 350m for SD signals Up to 140m for 1.5GHz HD signals Up to 120m for 3GHz HD signals 3G input reach can be extended by 10 meters in Extended mode
	SMPTE Standards	3G HD-SDI: SMPTE 424M HD-SDI: SMPTE 292M SDI: SMPTE 259M/344M
Control	Front Panel	Front panel buttons LCD display Power LED
	Other	RS-232, Ethernet (including embedded web pages)
Power	Consumption	28VA
	Source	100-240V AC, 50/60Hz
	Coupling	AC
Environmental Conditions	Operating Temperature	0° to +40°C (32° to 104°F)
	Storage Temperature	-40° to +70°C (-40° to 158°F)
	Humidity	10% to 90%, RH non-condensing
General	Net Dimensions (W, D, H)	19", 7", 1U, rack mountable
	Shipping Dimensions (W, D, H)	55cm x 27.6 cm x 10.7cm (21.65" x 10.87" x 4.21")
	Net Weight	1.7kg (3.75lbs) approx.
	Shipping Weight	2.7kg (6.0lbs) approx.
Accessories	Included	Rack ears, power cord
Specifications are subject to change without notice at <a href="http://www.kramerav.com">www.kramerav.com</a>		

## Default Communication Parameters

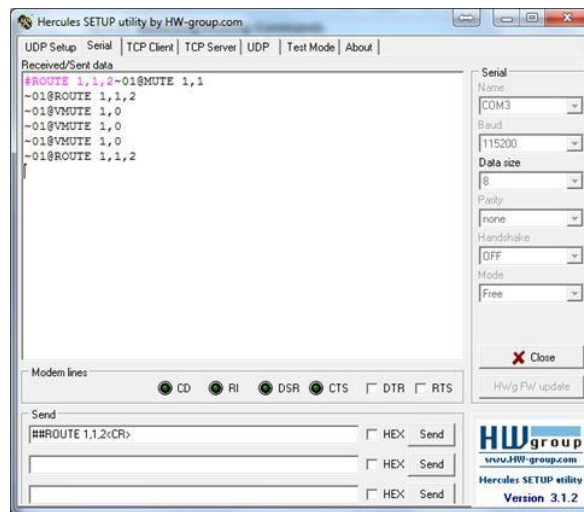
<b>RS-232</b>			
Protocol 3000			
Baud Rate:	115,200	Stop Bits:	1
Data Bits:	8	Parity:	None
Command format example (define port 6 as an output port):		#PORT-DIRECTION 1,IN ~01@PORT-DIRECTION 1,IN	
<b>TCP/IP Parameters</b>			
IP Address:	192.168.1.39	UDP Port #:	50000
Subnet mask:	255.255.255.000	Maximum UDP Connections:	20
Default gateway:	192.168.1.1	Maximum TCP Connections:	Unlimited
TCP Port #:	5000		
<b>Full Factory Reset</b>			
Web Page:	Device Settings Web page.		
Protocol 3000:	Use "Factory" command: #FACTORY<CR>		
Rear panel RESET button:	Press RESET for 10 seconds while the machine is on. The device automatically resets and powers up again, loading factory default values.		

# Protocol 3000

The **VS-8FDxI Programmable 8 Port SDI Router** can be operated using the Kramer Protocol 3000 serial commands. The command framing varies according to how you interface with the **VS-8FDxI**.

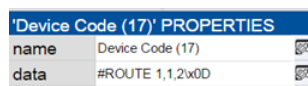
Generally, a basic video input switching command that routes a layer 1 video signal to HDMI out 1 from HDMI input 2 (`ROUTE 1, 1, 2`), is entered as follows:

- Terminal communication software, such as Hercules:



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

- K-Touch Builder (Kramer software):



- K-Config (Kramer configuration software):



All the examples provided in this section are based on using the K-Config software.

You can enter commands directly using terminal communication software (e.g., Hercules) by connecting a PC to the serial or Ethernet port on the **VS-8FDxI**. To enter `CR` press the Enter key (`LF` is also sent but is ignored by the command parser).

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



For more information about Protocol 3000 commands, see:

- [Understanding Protocol 3000](#) on page [31](#)
- [Kramer Protocol 3000 Syntax](#) on page [32](#)
- [Protocol 3000 Commands](#) on page [36](#)

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## Understanding Protocol 3000

Protocol 3000 commands are structured according to the following:

- **Command** – A sequence of ASCII letters (A-Z, a-z and -). A command and its parameters must be separated by at least one space.
- **Parameters** – A sequence of alphanumeric ASCII characters (0-9, A-Z, a-z and some special characters for specific commands). Parameters are separated by commas.
- **Message string** – Every command entered as part of a message string begins with a message starting character and ends with a message closing character.



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

- **Message starting character:**
  - # – For host command/query
  - ~ – For device response
- **Device address** – K-NET Device ID followed by @ (optional, K-NET only)
- **Query sign** – ? follows some commands to define a query request
- **Message closing character:**
  - CR – Carriage return for host messages (ASCII 13)
  - CR LF – Carriage return for device messages (ASCII 13) and line-feed (ASCII 10)
- **Command chain separator character** – Multiple commands can be chained in the same string. Each command is delimited by a pipe character ( | ). When chaining commands, enter the message starting character and the message closing character only at the beginning and end of the string.



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

## Kramer Protocol 3000 Syntax

The Kramer Protocol 3000 syntax uses the following delimiters:

- **CR** = Carriage return (ASCII 13 = 0x0D)
- **LF** = Line feed (ASCII 10 = 0x0A)
- **SP** = Space (ASCII 32 = 0x20)

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

The Protocol 3000 syntax is in the following format:

- **Host Message Format:**

Start	Address (optional)	Body	Delimiter
#	<i>Device_id@</i>	<b>Message</b>	<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 command concatenation and addressing:

Start	Address	Body	Delimiter
#	<i>Device_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>

- **Device Message Format:**

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

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

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

## Extended Protocol 3000

In addition to the standard Protocol 3000 syntax, newer Kramer products use extended syntax to improve user experience and provide easier deployment and configuration.

For products with many ports and of different types, the extended syntax describes commands and their parameters in a more intuitive, user-friendly format.

To identify devices supporting extended commands, use the #HELP command to list all supported commands. Commands that begin with the prefix 'X-' use extended Protocol 3000 syntax. Extended commands use Port ID (see [Port ID Format](#) on page 33) and Signal ID (see [Signal ID Format](#) on page 34) instead of the old port naming parameters.

### Port ID Format

The port ID is composed of three fields separated by a dot '.' (`<direction_type>.<port_type>.<port_index>`), where:

- `<direction_type>` – specifies the direction of the port (see [Direction Types](#) on page 33).
- `<port_type>` – identifies the port type (see [Port Types](#) on page 34).
- `<port_index>` – is a port index that always matches the port number printed on the front or rear panel of the product.

Examples:

IN.SDI.1 (refers to SDI input port 1)

OUT.HDMI.4 (refers to HDMI output port 4)

BOTH.RS232.2 (refers to bidirectional RS-232 port 2)

### Direction Types

The string representation is not case sensitive.

String	Meaning
IN	Input port
OUT	Output port
BOTH	Bi-directional port where the direction has no meaning

## Port Types

The string representation is not case sensitive.

String	Meaning
HDMI	HDMI port
HDBT	HDBaseT port
SDI	Any serial digital SDI port
ANALOG_AUDIO	Any balanced or unbalanced audio ports
AMPLIFIED_AUDIO	Any analog outputs defined as amplified audio
MIC	Any microphone port including a balanced audio input port divided into left/right
RS232	Local control port used for data control
IR	Local IR input
USB_A	Local USB port of type-A (client)
USB_B	Local USB port of type-B (host)

## Signal ID Format

The signal ID is composed of three fields separated by a dot ‘.’

(`<port_id>.<signal_type>.<index>`), where:

- `<port_id>` – Indicates the port ID, as described in [Port ID Format](#) on page 33.
- `<signal_type>` – Indicates the type of signal, as described in [Extended Signal Types](#) on page 34.
- `<index>` – Indicates a specific channel number when there are multiple channels of the same type

Signal ID: `<port_id>.<signal_type>.<index>`

also means: `<<direction_type>.<port_type>.<index>>.<signal_type>.<channel_index>`

Examples:

`IN.HDMI.1.VIDEO.1` (refers to video channel 1 of HDMI input port 1)

`OUT.HDBT.1.AUDIO.1` (refers to audio channel 1 of HDBaseT output port 1)

## Extended Signal Types

The string representation is non-case sensitive.

String	Meaning
VIDEO	Video signal of the port
AUDIO	Audio signal of the port
RS232	Data signal of the port (relevant for HDBT and RS-232 ports for example)
IR	IR signal of the port (relevant for HDBT and IR ports for example)
USB	USB signal of the port (relevant for HDBT and USB_A/B ports for example)

## Examples

To understand the advantages of the extended Protocol 3000 syntax, compare the standard `MUTE` and `VMUTE` command syntax with the extended `X-MUTE` command syntax.

`MUTE` and `VMUTE` are dedicated commands to mute audio and video respectively. Both commands receive the index of the output to mute as a parameter. Two separate commands

are used to mute different signal types and neither command enable muting the inputs and not the outputs.

However, the `X-MUTE` command can mute audio and/or video on either inputs or outputs:

- Mute video on output 1: `#X-MUTE OUT.HDMI.1.VIDEO.1`
- Mute audio on output 1: `#X-MUTE OUT.HDMI.1.AUDIO.1`
- Mute video on input 1: `#X-MUTE IN.HDMI.1.VIDEO.1`
- Mute audio on input 1: `#X-MUTE IN.HDMI.1.AUDIO.1`

The name of the action remains the same and what it affects is passed in parameters.

In another example, the `#ROUTE` command is extended by the command `#X-ROUTE`:

- To route a video signal to HDBT output #4 from HDMI input #1:  
`#X-ROUTE OUT.HDBT.4.VIDEO.1,IN.HDMI.1.VIDEO.1`  
`~01@X-ROUTE OUT.HDBT.4.VIDEO.1,IN.HDMI.1.VIDEO.1`
- To route an audio signal to analog output #1 from the HDMI input #1:  
`#X-ROUTE OUT.ANALOG_AUDIO.1.AUDIO.1,IN.HDMI.1.AUDIO.1`  
`~01@X-ROUTE OUT.ANALOG_AUDIO.1.AUDIO.1,IN.HDMI.1.AUDIO.1`

---

## Other Rules

In routing commands, first specify the target output(s), then the source input.

Example: `#X-ROUTE OUT.ANALOG_AUDIO.1.AUDIO.1, IN.HDMI.1.AUDIO.1`

Brackets '[' and ']' are reserved Protocol 3000 characters that define a list of parameters as in [a,b,c,d].

Example: to route video input 3 to outputs 1,4,6,7: `ROUTE 1, [1, 4, 6, 7], 3<cr>`

Example illustrating brackets and commas:

`#SIGNALS-LIST?`

`~01@SIGNALS-LIST`

`[IN.SDI.1.VIDEO.1, IN.SDI.2.VIDEO.1, IN.SDI.3.VIDEO.1, IN.SDI.4.VIDEO.1, IN.SDI.5.VIDEO.1, IN.SDI.6.VIDEO.1, IN.SDI.7.VIDEO.1, IN.SDI.8.VIDEO.1, OUT.SDI.1.VIDEO.1, OUT.SDI.2.VIDEO.1, OUT.SDI.3.VIDEO.1, OUT.SDI.4.VIDEO.1, OUT.SDI.5.VIDEO.1, OUT.SDI.6.VIDEO.1, OUT.SDI.7.VIDEO.1, OUT.SDI.8.VIDEO.1]`

## Protocol 3000 Commands

This section includes the following commands:

- [Common Commands](#) on page [36](#)
- [System Commands](#) on page [41](#)
- [Authentication Commands](#) on page [45](#)
- [Video Commands](#) on page [46](#)
- [Communication Commands](#) on page [50](#)

### Common Commands

Command	Description
#	Protocol handshaking (system mandatory)
BUILD-DATE	Get device build date (system mandatory)
FACTORY	Reset to factory default configuration
HELP	Get command list (system mandatory)
MODEL?	Get device model (system mandatory)
PROT-VER?	Get device protocol version (system mandatory)
RESET	Reset device (system mandatory)
SN?	Get device serial number (system mandatory)
VERSION?	Read device firmware version
LOCK-FP	Lock/get front panel
NAME	Set/get machine (DNS) name
NAME-RST	Reset machine name to factory default (DNS)

#

Functions		Permission	Transparency
Set:	#	End User	Public
Get:	-	-	-
Description		Syntax	
Set:	Protocol handshaking	# <input type="text"/>	
Get:	-	-	
Response			
~ <input type="text"/> @ <input type="text"/> OK <input type="text"/> <input type="text"/>			
Notes			
Validates the Protocol 3000 connection and gets the machine number Step-in master products use this command to identify the availability of a device			
K-Config Example			
`#", 0x0D			

**BUILD-DATE**

Functions		Permission	Transparency
Set:	-	-	-
Get:	<b>BUILD-DATE?</b>	End User	Public
Description		Syntax	
Set:	-	-	
Get:	Get device build date	# <b>BUILD-DATE?</b> <code>[CR]</code>	
Response			
~ <code>[nn]</code> @ <b>BUILD-DATE</b> <code>[SP]</code> date <code>[SP]</code> time <code>[CR LF]</code>			
Parameters			
date – Format: YYYY/MM/DD where YYYY = Year, MM = Month, DD = Day time – Format: hh:mm:ss where hh = hours, mm = minutes, ss = seconds			
K-Config Example			
"#BUILD-DATE?", 0x0D			

**FACTORY**

Functions		Permission	Transparency
Set:	<b>FACTORY</b>	End User	Public
Get:	-	-	-
Description		Syntax	
Set:	Reset device to factory default configuration	# <b>FACTORY</b> <code>[CR]</code>	
Get:	-	-	
Response			
~ <code>[nn]</code> @ <b>FACTORY</b> <code>[SP]</code> OK <code>[CR LF]</code>			
Notes			
This command deletes all user data from the device. The deletion can take some time. Your device may require powering off and powering on for the changes to take effect.			
K-Config Example			
"#FACTORY", 0x0D			

**HELP**

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

**MODEL**

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

**PROT-VER**

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

**RESET**

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



**SN?**

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

**VERSION?**

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

**LOCK-FP**

Functions		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> <code>[SP]</code> lock_mode <code>[CR]</code>	
Get:	Get front panel lock state	# <b>LOCK-FP?</b>	
Response			
~ <code>[nn]</code> @ <b>LOCK-FP</b> <code>[SP]</code> lock_mode <code>[SP]</code> OK <code>[CR LF]</code>			
Parameters			
lock_mode – 0 (Off, unlock the front panel buttons), 1 (On, lock the front panel buttons)			
K-Config Example			
Unlock front panel: `#LOCK-FP 0`, 0x0D			

**NAME**

Functions		Permission	Transparency
Set:	<b>NAME</b>	Administrator	Public
Get:	<b>NAME?</b>	End User	Public
Description		Syntax	
Set:	Set machine (DNS) name	# <b>NAME</b> <b>SP</b> <i>machine_name</i> <b>CR</b>	
Get:	Get machine (DNS) name	# <b>NAME?</b> <b>CR</b>	
Response			
Set:	~ <b>nn</b> @ <b>NAME</b> <b>SP</b> <i>machine_name</i> <b>CR</b> <b>LF</b>		
Get:	~ <b>nn</b> @ <b>NAME</b> <b>SP</b> <i>machine_name</i> <b>CR</b> <b>LF</b>		
Parameters			
machine_name – String of up to 14 alpha-numeric characters (can include hyphens but not at the beginning or end)			
Notes			
The machine name is not the same as the model name. The machine name is used to identify a specific machine or a network in use (with DNS feature on).			
K-Config Example			
Set the DNS name of the device to “room-442”: `#NAME room-442`,0x0D			

**NAME-RST**

Functions		Permission	Transparency
Set:	<b>NAME-RST</b>	Administrator	Public
Get:	-	-	-
Description		Syntax	
Set:	Reset machine (DNS) name to factory default	# <b>NAME-RST</b> <b>CR</b>	
Get:	-	-	
Response			
~ <b>nn</b> @ <b>NAME-RST</b> <b>SP</b> <b>OK</b> <b>CR</b> <b>LF</b>			
Notes			
Factory default of machine (DNS) name is “KRAMER_” + 4 last digits of device serial number			
K-Config Example			
Reset the machine name (S/N last digits are 0102): `#NAME-RST KRAMER_0102`,0x0D			

## System Commands

Command	Description
LOCK-FP	Lock front panel
LOG-TAIL?	Retrieve last lines from log file
PRST-LOCK	Set preset lock status
PRST-STO	Store current connections to preset
PRST-RCL	Recall saved preset list
PORT-DIRECTION	Set port direction
PORTS-LIST	Get all ports' ID list
SIGNALS-LIST	Get all signals' ID list

### LOCK-FP

Functions	Permission	Transparency
Set: <b>LOCK-FP</b>	End User	Set:
Get: <b>LOCK-FP?</b>	End User	Get:
Description	Syntax	
Set: Lock the front panel	# <b>LOCK-FP</b> [SP]Lock/Unlock[CR]	
Get: Get the front panel lock state	# <b>LOCK-FP?</b> [CR]	
Response		
~[nn]@ <b>LOCK-FP</b> [SP]Lock/Unlock[CR LF]		
Parameters		
Lock/Unlock - 0 (unlock), 1 (lock)		
K-Config Example		
Lock the front panel: `#LOCK-FP,1",0x0D`		

### LOG-TAIL

Functions	Permission	Transparency
Set: -	-	-
Get: <b>LOG-TAIL?</b>	End User	Public
Description	Syntax	
Set: -	-	
Get: Get the last "n" lines of message logs	# <b>LOG-TAIL?</b> [SP]line_num[CR LF]	
Response		
Get: ~[nn]@ <b>LOG-TAIL?</b> [CR LF] Line content #1[CR LF] Line content #2[CR LF] etc...		
Parameters		
Line_num - optional, 10 (default)		
Notes		
Used for advanced troubleshooting. Helps find error root causes and gets details not displayed in the error code number.		
Example		
#NAME %66yy ~01@NAME %66yy ERR 003 #LOG-TAIL? 1 2015-09-14 09:13:12:566 ERROR P3K_Common_Cmd Invalid name character %(37) - only alphanumeric and hyphen are allowed		

**PRST-LOCK**

Functions		Permission	Transparency
Set:	<b>PRST-LOCK</b>	End User	Public
Get:	<b>PRST-LOCK?</b>	End User	Public
Description		Syntax	
Set:	Set a preset as read-only	# <b>PRST-LOCK</b> [SP]preset_Index,mode[CR LF]	
Get:	Get the preset read-only status	# <b>PRST-LOCK?</b> [SP]preset_Index[CR LF]	
Response			
Set / Get: ~nn@ <b>PRST-LOCK</b> [SP]preset_Index,mode[CR LF]			
Parameters			
preset_Index – 1 to 8 (preset number) mode – ON, OFF			
Notes			
Prevents users from overriding the preset by mistake			
Examples			
#PRST-LOCK? 1 ~01@PRST-LOCK 1,OFF #PRST-LOCK? 2 ~01@PRST-LOCK 2,OFF #PRST-LOCK 2,ON ~01@PRST-LOCK 2,ON #PRST-LOCK? 2 ~01@PRST-LOCK 2,ON			
K-Config Example			
Set preset 1 as read only: `#PRST-LOCK 1,ON`,0x0D			

**PRST-STO**

Functions		Permission	Transparency
Set:	<b>PRST-STO</b>	End User	Public
Get:	-	-	-
Description		Syntax	
Set:	Store current connections, volumes and modes in preset	# <b>PRST-STO</b> [SP]preset[CR]	
Get:	-	-	
Response			
~nn@ <b>PRST-STO</b> [SP]preset[CR LF]			
Parameters			
preset – preset number: 1 (Port 1)... 8 (Port 8)			
K-Config Example			
Store preset 1: `#PRST-STO 1`,0x0D			

**PRST-RCL**

Functions		Permission	Transparency
Set:	<b>PRST-RCL</b>	End User	Public
Get:	-	-	-
Description		Syntax	
Set:	Recall saved preset list	# <b>PRST-RCL</b> [SP]preset[CR]	
Get:	-	-	
Response			
~nn@ <b>PRST-RCL</b> [SP]preset[CR LF]			
Parameters			
preset – preset number: 1 (Port 1)... 8 (Port 8)			
K-Config Example			
Recall preset 1: "#PRST-RCL 1",0x0D			

**PORT-DIRECTION**

Functions		Permission	Transparency
Set:	<b>PORT-DIRECTION</b>	End User	Public
Get:	<b>PORT-DIRECTION?</b>	End User	Public
Description		Syntax	
Set:	Set port direction for video port	# <b>PORT-DIRECTION</b> [SP]port_index,direction[CR LF]	
Get:	Get port direction for video port	# <b>PORT-DIRECTION?</b> [SP]port_index,direction[CR LF]	
Response			
Set / Get: ~nn@ <b>PORT-DIRECTION</b> [SP]port_index,direction[CR LF]			
Parameters			
port_index – port number from the front panel (1-8) direction – IN (input), OUT (output)			
Notes			
This command defines the direction of a bidirectional port. Then routing is possible between them, use X-ROUTE as following: #X-ROUTE OUT.SDI.5,IN.SDI.1 ~01@X-ROUTE OUT.SDI.5.VIDEO.1,IN.SDI.1.VIDEO.1			
Example			
Set: #PORT-DIRECTION 5,OUT                   ~01@PORT-DIRECTION 5,OUT #PORT-DIRECTION 1,IN                   ~01@PORT-DIRECTION 1,IN			
Get: #PORT-DIRECTION? 5                   ~01@PORT-DIRECTION 5,OUT #PORT-DIRECTION? 1                   ~01@PORT-DIRECTION 1,IN			
K-Config Example			
Set the direction of port 1 to IN: "#PORT-DIRECTION 1,IN",0x0D			

**PORTS-LIST**

Functions		Permission	Transparency
Set:	-	-	-
Get:	PORTS-LIST?	End User	Public
Description		Syntax	
Set:	-	-	
Get:	Get the port list of this machine	#PORTS-LIST? <code>CR LF</code>	
Response			
~ <code>nn</code> @PORTS-LIST <code>SP</code> [port_id,...] <code>CR LF</code>			
Parameters			
port_id - <direction_type>.<port_type>.<port_index>, see <a href="#">Port ID Format</a> on page 33 for further information.			
Notes			
The response is returned in one line and terminated with <code>CR LF</code>			
The response format lists port IDs separated by commas.			
Examples			
#PORTS-LIST? ~01@PORTS-LIST [IN.SDI.1,IN.SDI.2,IN.SDI.3,IN.SDI.4,OUT.SDI.5,OUT.SDI.6,OUT.SDI.7,OUT.SDI.8]			
K-Config Example			
Get the ports list: "#PORTS-LIST?",0x0D			

**SIGNALS-LIST**

Functions		Permission	Transparency
Set:	-	-	-
Get:	SIGNALS-LIST?	End User	Public
Description		Syntax	
Set:	-	-	
Get:	Get signal ID list of this machine	#SIGNALS-LIST? <code>CR LF</code>	
Response			
~ <code>nn</code> @SIGNALS-LIST <code>SP</code> [signal_id,...] <code>CR LF</code>			
Parameters			
signal_id - <direction_type>.<port_type>.<port_index>.<signal_type>.<index> for further information, see <a href="#">Signal ID Format</a> on page 34)			
Notes			
The response is returned in one line and terminated with <code>CR LF</code>			
The response format lists signal IDs separated by commas.			
Examples			
#SIGNALS-LIST? ~01@SIGNALS-LIST [IN.SDI.1.VIDEO.1,IN.SDI.2.VIDEO.1,IN.SDI.3.VIDEO.1,IN.SDI.4.VIDEO.1, IN.SDI.5.VIDEO.1,IN.SDI.6.VIDEO.1,IN.SDI.7.VIDEO.1,IN.SDI.8.VIDEO.1, OUT.SDI.1.VIDEO.1,OUT.SDI.2.VIDEO.1,OUT.SDI.3.VIDEO.1,OUT.SDI.4.VIDEO.1, OUT.SDI.5.VIDEO.1,OUT.SDI.6.VIDEO.1,OUT.SDI.7.VIDEO.1,OUT.SDI.8.VIDEO.1]			
K-Config Example			
Get the signals list: "#SIGNALS-LIST?",0x0D			

## Authentication Commands

Command	Description
PASS	Set/get password for login level

### PASS

Functions		Permission	Transparency
Set:	<b>PASS</b>	Administrator	Public
Get:	<b>PASS?</b>	Administrator	Public
Description		Syntax	
Set:	Set password for login level	# <b>PASS</b> [SP]login_level,password[CR]	
Get:	Get password for login level	# <b>PASS?</b> [SP]login_level[CR]	
Response			
~nn@ <b>PASS</b> [SP]login_level,password[CR LF]			
Parameters			
login_level – level of login to set: User, Admin			
password – password for the login_level. Up to 15 printable ASCII chars.			
Notes			
The default password is an empty string			
K-Config Example			
Set the password for the Admin protocol permission level to 33333: `#PASS Admin,33333",0x0D`			

## Video Commands

Command	Description
GENLOCK-MODE	Set/get genlock mode
GENLOCK-TIME-MICROSEC	Set/get genlock timing
PORT-RES-TYPE	Set/get port signal resolution type
VMUTE	Set/get video on output status
X-long-reach	Set/get long-reach mode of a port
x-ROUTE	Route a port to other port

### GENLOCK-MODE

Functions		Permission	Transparency
Set:	<b>GENLOCK-MODE</b>	End User	Public
Get:	<b>GENLOCK-MODE?</b>	End User	Public
Description		Syntax	
Set:	Set genlock sync	# <b>GENLOCK-MODE</b> SPmodeCR LF	
Get:	Get genlock mode	# <b>GENLOCK-MODE?</b> CR LF	
Response			
Set / Get: ~nn@ <b>GENLOCK-MODE</b> SPmodeCR LF			
Parameters			
mode – ON, OFF (not case sensitive)			
Notes			
This command synchronizes the routing action with sync frames. Routing does not occur until a sync frame is detected and delay is defined in the <b>GENLOCK-TIME-MICROSEC</b> command. This mode affects the whole system and is not configurable per output/input.			
Examples			
<pre>#GENLOCK-TIME-MICROSEC? ~01@GENLOCK-TIME-MICROSEC 100 #GENLOCK-TIME-MICROSEC 20 ~01@GENLOCK-TIME-MICROSEC 20 #GENLOCK-MODE ON ~01@GENLOCK-MODE ON #GENLOCK-MODE? ~01@GENLOCK-MODE ON</pre>			
K-Config Example			
Set genlock mode to on: `#GENLOCK-MODE ON`, 0x0D			



**GENLOCK-TIME-MICROSEC**

Functions		Permission	Transparency
Set:	#GENLOCK-TIME-MICROSEC	End User	Public
Get:	#GENLOCK-TIME-MICROSEC?	End User	Public
Description		Syntax	
Set:	Set genlock delay in microseconds	#GENLOCK-TIME-MICROSEC	SPvalueCR
Get:	Get genlock delay in microseconds	#GENLOCK-TIME-MICROSEC?	SPvalueCR
Response			
Set / Get: ~nn@GENLOCK-TIME-MICROSEC SPvalueCR LF			
Parameters			
value – time in microseconds			
Notes			
Configures the maximum delay in microseconds between arrival of a picture frame and its routing is executed			
Examples			
#GENLOCK-TIME-MICROSEC? ~01@GENLOCK-TIME-MICROSEC 100 #GENLOCK-TIME-MICROSEC 20 ~01@GENLOCK-TIME-MICROSEC 20			
K-Config Example			
Set genlock delay time to 25microsec: `#GENLOCK-TIME-MICROSEC 25",0x0D			

**PORT-RES-TYPE**

Functions		Permission	Transparency
Set:	PORT-RES-TYPE	End User	Public
Get:	PORT-RES-TYPE?	End User	Public
Description		Syntax	
Set:	Set dual/single mode for video ports	#PORT-RES-TYPE	SPport_index,res_typeCR LF
Get:	Get port resolution type	#PORT-RES-TYPE?	SPport_index,res_typeCR LF
Response			
Set / Get: ~nn@PORT-RES-TYPE SPport_index,modeCR LF			
Parameters			
port_index – 1 to 8 (input or output number) mode – single, dual			
Notes			
Dual mode routes both signals as a pair. Two responses are returned to the Get command. When muting or selecting extra-range mode, both inputs/output of the pair are affected.			
Example			
#PORT-RES-TYPE? 8 ~01@PORT-RES-TYPE 8,SINGLE #PORT-RES-TYPE 8,DUAL ~01@PORT-RES-TYPE 8,DUAL ~01@PORT-RES-TYPE 7,DUAL			
K-Config Example			
Set port 1 to the single mode: `#PORT-RES-TYPE 1,SINGLE",0x0D			

**VMUTE**

Functions		Permission	Transparency
Set:	<b>VMUTE</b>	End User	Public
Get:	<b>VMUTE?</b>	End User	Public
Description		Syntax	
Set:	Set enable/disable video on output	# <b>VMUTE</b> [SP]output_id,flag[CR]	
Get:	Get video on output status	# <b>VMUTE?</b> [SP]output_id[SP] [CR]	
Response			
Set / Get: ~nn@ <b>VMUTE</b> [SP]output_id,flag[CR LF]			
Parameters			
output_id – 1 (Port 1), 2 (Port 2), 3 (Port 3), 4 (Port 4), 5 (Port 5), 6 (Port 6), 7 (Port 7), 8 (Port 8) flag – 0 (unmute), 1 (mute), 2 (blank video)			
K-Config Example			
Disable the video output on Port 2: `#VMUTE 2,0",0x0D			

**X-LONG-REACH**

Functions		Permission	Transparency
Set:	<b>X-LONG-REACH</b>	End User	Public
Get:	<b>X-LONG-REACH?</b>	End User	Public
Description		Syntax	
Set:	Set extra range (long reach) mode for SDI ports	# <b>X-LONG-REACH</b> [SP]port_id,state[CR LF]	
Get:	Get extra range (long reach) state configuration on any port	# <b>X-LONG-REACH?</b> [SP]port_id[CR LF]	
Response			
Get: ~nn@ <b>X-LONG-REACH</b> [SP]port_id,state[CR LF]			
Parameters			
port_id – <direction_type>.<port_type>.<port_index> for further information see <a href="#">Port ID Format</a> on page 33. state – OFF, ON (not case sensitive)			
Notes			
Some devices support extra range (long reach) mode, used in HDBT and SDI applications. Use the command #PORTS-LIST? to list all port IDs available in the system.			
Example			
#X-LONG-REACH IN.SDI.1,OFF ~01@X-LONG-REACH IN.SDI.1,OFF #X-LONG-REACH? IN.SDI.1 ~01@X-LONG-REACH IN.SDI.1,OFF			
K-Config Example			
Set port 1 (configured as input) long-reach mode to on: `#X-LONG-REACH IN.SDI.1,ON",0x0D			

**X-ROUTE**

Functions		Permission	Transparency
Set:	<b>X-ROUTE</b>	End User	Public
Get:	<b>X-ROUTE?</b>	End User	Public
Description		Syntax	
Set:	Send routing command to matrix	# <b>X-ROUTE</b> <u>SP</u> OUT_signal_id,IN_signal_id <u>CR LF</u>	
Get:	Get routing status	# <b>X-ROUTE?</b> <u>SP</u> OUT_signal_id <u>CR LF</u>	
Response			
Set / Get: ~ <u>nn</u> @ <b>X-ROUTE</b> <u>SP</u> OUT_signal_id,IN_signal_id <u>CR LF</u>			
Parameters			
OUT_signal_id – OUT.SDI.<port_index>.VIDEO.<port_index> for further information see see <a href="#">Signal ID Format</a> on page 34).			
IN_signal_id – IN.SDI.<port_index>.VIDEO.<port_index> for further information see see <a href="#">Signal ID Format</a> on page 34).			
Notes			
It is recommended to use the command #SIGNALS-LIST? To get the list of all signal IDs available in the system and which can be used in this command.			
Video 1 is the default port in this command and is implied even if not written: #X-ROUTE OUT.SDI.5, IN.SDI.1 is interpreted as: #X-ROUTE OUT.SDI.5.VIDEO.1, IN.SDI.1.VIDEO.1			
Examples			
#X-ROUTE OUT.SDI.5.VIDEO.1, IN.SDI.1.VIDEO.1 ~01@X-ROUTE OUT.SDI.5.VIDEO.1, IN.SDI.1.VIDEO.1 #X-ROUTE? OUT.SDI.5.VIDEO.1 ~01@X-ROUTE OUT.SDI.5.VIDEO.1, IN.SDI.1.VIDEO.1			
Reduced form : #X-ROUTE OUT.SDI.5, IN.SDI.1 ~01@X-ROUTE OUT.SDI.5.VIDEO.1, IN.SDI.1.VIDEO.1			
K-Config Example			
Route port 1 (input) to port 8 (output): "#X-ROUTE OUT.SDI.8.VIDEO.1, IN.SDI.1.VIDEO.1", 0x0D			

## Communication Commands

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

### ETH-PORT

Functions		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> [SP]portType,ETHPort[CR]	
Get:	Get Ethernet port protocol	# <b>ETH-PORT?</b> [SP]portType[CR]	
Response			
~nn@ <b>ETH-PORT</b> [SP]portType,ETHPort[CR LF]			
Parameters			
portType – 0 (TCP)=, 1 (UDP) ETHPort – 0-65534 (TCP / UDP port number)			
Notes			
If the port number you enter is already in use, an error is returned The port number must be within the following range: 2000-(2^16-1)			
K-Config Example			
Set the Ethernet port protocol for TCP to port 12457: `#ETH-PORT 0,12457",0x0D`			

### NET-CONFIG

Functions		Permission	Transparency
Set:	<b>NET-CONFIG</b>	End User	Public
Get:	<b>NET-CONFIG?</b>	End User	Public
Description		Syntax	
Set:	Set a network configuration.	# <b>NET-CONFIG</b> [SP]id,ip,net_mask,gateway[CR LF]	
Get:	Get a network configuration.	# <b>NET-CONFIG?</b> [SP]id[CR LF]	
Response			
Get: ~nn@ <b>NET-CONFIG</b> [SP]id,ip,net_mask,gateway[CR LF]			
Parameters			
id – network ID ip – network IP net_mask – network mask gateway – network gateway			
Example			
# NET-CONFIG 1,192.168.113.10,255.255.0.0,192.168.0.1 ~01@ NET-CONFIG 1,192.168.113.10,255.255.0.0,192.168.0.1			
K-Config Example			
Set the network configuration: `#NET-CONFIG 1,192.168.113.10,255.255.0.0,192.168.0.1",0x0D`			

**NET-DHCP**

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

**NET-GATE**

Functions		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> [SP]ip_address[CR]	
Get:	Get gateway IP	# <b>NET-GATE?</b> [CR]	
Response			
~nn@ <b>NET-GATE</b> [SP]ip_address[CR LF]			
Parameters			
ip_address – gateway IP address, in the following format: xxx.xxx.xxx.xxx			
Notes			
A network gateway connects the device via another network, possibly over the Internet. Be careful of security problems. Consult your network administrator for correct settings.			
K-Config Example			
Set the gateway IP address to 192.168.0.1: `# <b>NET-GATE</b> 192.168.000.001`, 0x0D			

**NET-IP**

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

**NET-MAC**

Functions		Permission	Transparency
Set:	-	-	-
Get:	<b>NET-MAC?</b>	End User	Public
Description		Syntax	
Set:	-	-	
Get:	Get MAC address	# <b>NET-MAC?</b> [CR]	
Response			
~nn@ <b>NET-MAC</b> [SP]mac_address[CR LF]			
Parameters			
mac_address – unique MAC address. Format: XX-XX-XX-XX-XX-XX where X is hex digit			
K-Config Example			
`#NET-MAC?`,0x0D			

**NET-MASK**

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

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

#### **What is Covered**

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

#### **What is Not Covered**

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

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

#### **How Long this Coverage Lasts**

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

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

#### **Who is Covered**

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

#### **What Kramer Electronics Will Do**

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

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

#### **What Kramer Electronics Will Not Do Under This Limited Warranty**

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

#### **How to Obtain a Remedy Under This Limited Warranty**

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

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

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

#### **Limitation of Liability**

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

#### **Exclusive Remedy**

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

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

#### **Other Conditions**

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

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

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



P/N:



2900-300545

Rev:



1



## 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.