

kramer WP-DEC7 Avoip Decoder User Manual

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MODEL: WP-DEC7 4K AVoIP Decoder www.kramerav.com

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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!

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/WP-DEC7 to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

Achieving Best Performance

- Use only good quality connection cables (we recommend Kramer high-performance, high-resolution cables) to
 avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often
 associated with low quality cables).
- Do not secure the cables in tight bundles or roll the slack into tight coils.
- Avoid interference from neighboring electrical appliances that may adversely influence signal quality.
- Position your Kramer WP-DEC7 away from moisture, excessive sunlight and dust.

Safety Instructions



(Laution:

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

- For products with relay terminals and GPI\O ports, please refer to the permitted rating for an external connection, located next to the terminal or in the User Manual.
- There are no operator serviceable parts inside the unit.

Marning:

- Use only the power cord that is supplied with the unit.
- To ensure continuous risk protection, replace fuses only according to the rating specified on the product label which is located on the bottom of the unit.

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/quality/environment.

Overview

Congratulations on purchasing your Kramer WP-DEC7 4K AVoIP Decoder, an advanced decoder for streaming 4K@60Hz (4:2:0) video signals, RS-232, or CEC signals via Ethernet over copper cable in unicast (one-to-one) or multicast (one-to-many) configurations.

WP-DEC7 decodes encoded video signal and receives RS-232 or CEC signals.

WP-DEC7 provides high-quality, advanced user-friendly operation and flexible control.

Exceptional Quality

- Video Streaming Transmitter/Receiver Streams up to 4K@60Hz (4:2:0) resolution signals over a 1G network interface.
- HDR Support HDR10 up to 4K@30Hz 4:2:2 12bits.
- Streaming Support Provides unicast and multicast streaming.
- Analog Audio De-embedding WP-DEC7 extracts the HDMI audio signal or LAN streaming audio and outputs
 it as balanced analog audio.
- Video Wall Support WP-DEC7 can create a video wall of up to 16×16 displays.

Advanced and User-friendly Operation

- Convenient and Comprehensive Control Control the unit using intuitive embedded web pages, Protocol 3000
 API commands via Ethernet, or front panel buttons.
 PoE Support Device power is supplied by a PoE (Power over Ethernet) connection from a PoE switch.
- Control Gateway Through P3K or special TCP connection, remote users can control/communicate with RS-232, or CEC to the connected devices.
- Separate Service LAN Port A second LAN port is available for physical separation between AV and command streams to improve security and reliability.

Flexible Connectivity

Analog/embedded audio outputs.

Typical Applications

WP-DEC7 is ideal for the following typical applications:

- · Real-time essential installations such as command and control rooms.
- Large scale AV content sharing installations using existing wires and infrastructure in corporate offices and government applications.
- AV distribution systems with one or more sources and multiple displays in schools, universities, and public venues.

Controlling your WP-DEC7

Control your WP-DEC7 via:

- The Ethernet using built-in user-friendly web pages.
- Protocol commands.

Defining WP-DEC7

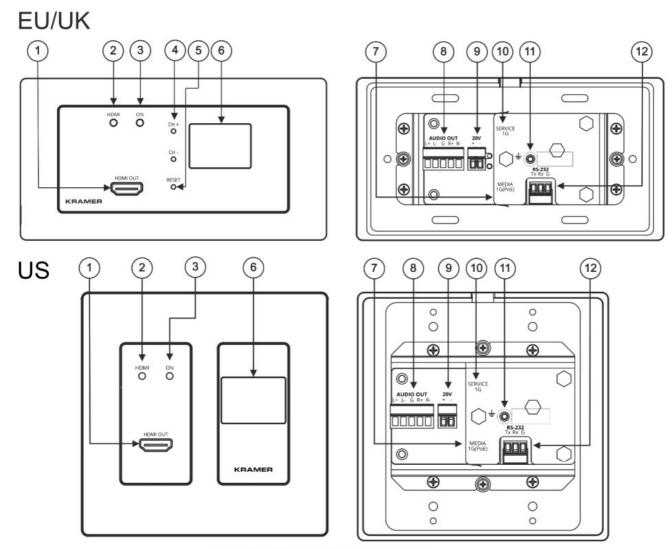


Figure 1: WP-DEC7 4K AVoIP Decoder

#	Feature	Function			
1	HDMI OUT Connector	Connect to an additional WP-DEC7 device to loop the signal, or to connect a local acceptor.			
2	HDMI LED	Lights Green	A link has been established with an encoder which is transmitting A/V signals.		
		Flashes Green	A signal is established, and a problem is detected.		
3	ON LED	Flashes Red	Default IP address is unavailable, device acquiring fallback address in subnet 192.168.0.0/16. 'ON' LE D flashes continuously in slow 0.5/10sec cadence.		
		Lights Green	Power is on.		
		Flashes Green fast FW is downloaded in the			
		Flashes Green very f ast (for 60sec)	A device identification command is sent (Flag me).		
		Lights Yellow	Device falls back to default IP address (192.168.1. 40).		

4	CH+ / CH-Recessed Buttons	Press to set the channel ID. The channel ID will show in the LCD display. On the US model access to these buttons requires removal of the frame se t.
5	RESET Recessed Button	Press and hold for 10 seconds to reset the device to its factory default values. All LEDs flash. On the US model access to this button requires removal of the frame set.
6	LCD Display	Displays the channel on which the media is streamed.
7	LAN MEDIA 1G(PoE) RJ-45 Port	Unicast: connect for streaming either directly to a decoder or via LAN. Multi cast: connect to multiple decoders or connect to one decoder to which mult iple decoders are daisy-chained via SERVICE (1G) port. WP-DEC7 is powered by PoE (power over ethernet) delivered through the LAN MEDIA port, unless the optional 20V DC connector is attached.
8	AUDIO OUT 5-pin Terminal Block Connector	Connect to a balanced analog stereo audio acceptor.
9	20V/1A DC Connector	Connect to the power adapter (optional, purchased separately).
10	LAN SERVICE 1G RJ-45 Po rt	Used optionally for physical separation between AV and command streams to separate LAN for security and reliability purposes.
11	Ring Tongue Terminal Groun ding Screw	Connect to a grounding wire (optional).
12	RS-232 3-pin Terminal Block Connector	Connect to an RS-232 device to use as a Gateway and bi-directional signal extension (even when no AV signal is extended).

Mounting WP-DEC7



within the recommended range:

- Operation temperature 0° to 40°C (32 to 104° F).
- Storage temperature -40° to $+70^{\circ}$ C (-40 to $+158^{\circ}$ F).
- Humidity 10% to 90%, RHL non-condensing.



Caution:

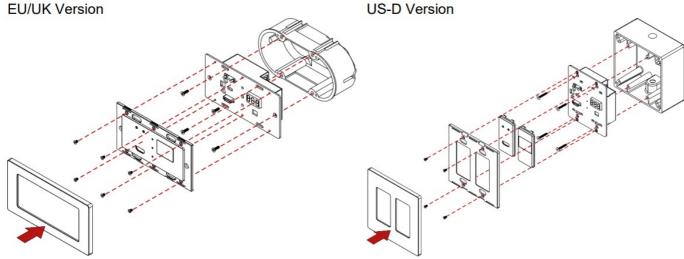
Mount WP-DEC7 before connecting any cables or power.



▲ Warning:

- Ensure that the environment (e.g., maximum ambient temperature & air flow) is compatible for the device.
- · Avoid uneven mechanical loading.
- Appropriate consideration of equipment nameplate ratings should be used for avoiding overloading of the circuits.
- Reliable earthing of rack-mounted equipment should be maintained.
- Maximum mounting height for the device is 2 meters.

Insert the device into the in-wall box (first connect the RS-232 and LAN/POE RJ-45 Connector cables and/or power) and connect the parts as shown in the illustration:





DECORA® design frames are included in US-D models.

We recommend that you use standard 2 gang in-wall junction boxes (or their equivalent):

- US-D: 2 gang US electrical junction boxes.
- EU: 2 gang in-wall junction box, with a cut-hole diameter of 2x68mm and depth that can fit in both the device and the connected cables (DIN 49073).
- UK: 2 gang in-wall junction box (BS 4662), 135x75mm (W, H) and depth that can fit in both the device and the connected cables.
- EU/UK: 2 gang on-wall junction box (use the recommended Kramer on-wall box available at www.kramerav.com/product/WP-DEC7).

Connecting WP-DEC7

By-default, the WP-DEC7 is powered by PoE (Power over Ethernet). An optional power adapter can be purchased for connecting the product to mains electricity.

Always switch off the power to a device before connecting it to your WP-DEC7. After connecting your devices, connect their power and then switch on the power to each device.

In this example, WP-DEC7 is connected to KDS-EN7, but it can be connected to any compatible decoder

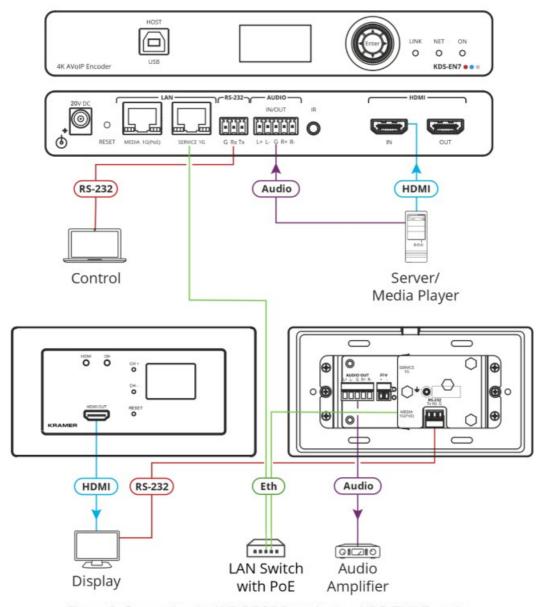


Figure 2: Connecting the WP-DEC7 Decoder to a KDS-EN7 Encoder

To connect WP-DEC7 as illustrated in the example in Figure 2:

- 1. Connect the LAN MEDIA 1G(PoE) RJ-45 port 7 on the WP-DEC7 to the LAN MEDIA1G(PoE) RJ-45 port on the LAN switch.
- 2. Connect an AV source to the HDMI IN port (for example, a Server or a Media Player) on the encoder. Connect the:
 - Audio port to the AUDIO 5-pin terminal block.
 - HDMI port to the HDMI connector.
- 3. Connect the HDMI OUT connector 1 on WP-DEC7 to an HDMI acceptor (for example, a display).
- 4. Connect RS-232 3-pin terminal block connectors:
 - On the encoder, connect the RS-232 port to a laptop/controller.

On the WP-DEC7, connect RS-232 12 to the display.

RS-232 bidirectional signals can be sent between the display and the laptop connected to the HDMI OUT connector on the WP-DEC7.

Connecting the Audio Output

The following are the pinouts for connecting the input/output to a balanced or unbalanced stereo audio acceptor:

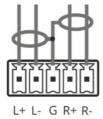




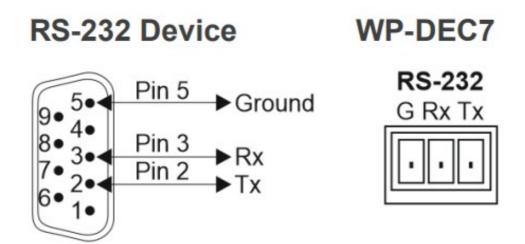
Figure 3: Connecting to a Balanced Stereo Audio Acceptor

Figure 4: Connecting to an Unbalanced Stereo Audio Acceptor

Connecting to WP-DEC7 via RS-232

You can connect to WP-DEC7 via an RS-232 connection 12 using, for example, a PC. WP-DEC7 features an RS-232 3-pin terminal block connector allowing the RS-232 to control WP-DEC7. Connect the RS-232 terminal block on the rear panel of WP-DEC7 to a PC/controller, as follows:

From the RS-232 9-pin D-sub serial port, connect:



- Pin 2 to the TX pin on the WP-DEC7 RS-232 terminal block
- Pin 3 to the RX pin on the WP-DEC7 RS-232 terminal block
- Pin 5 to the G pin on the WP-DEC7 RS-232 terminal block

Operating and Controlling WP-DEC7

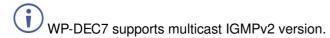
This section describes the following actions:

- Configuring the Network Switch on page 11.
- Configuring the WP-DEC7 on page 11.
- Operating via Ethernet on page 12.
- Connecting the Ethernet Port Directly to a PC on page 12.

Configuring the Network Switch

Before setting the system, make sure that your AV over IP network switch meets the following minimum requirements:

- A PoE (power over ethernet) switch or PoE injector is required to power the WP-DEC7.
 If necessary, an optional 20V DC power supply can be used.
- Jumbo Frames On. (at least 8000 bytes).
- IGMP Snooping On.
- IGMP Querier On.
- IGMP Immediate/Fast Leave On.



• Unregistered Multicast Filtering - On.

Configuring the WP-DEC7

To start operating the WP-DEC7:

- Use the recessed CH+/- buttons 12 to match the channel on which the encoded input is streamed. By default, the WP-DEC7 searches for an encoded stream on channel 1.
- If an encoder source (such as the Error! No document variable supplied. Error! No document variable supplied.) is detected, the HDMI LED lights green. If none is detected, it flashes green.
- If an HDMI acceptor is connected, but no encoded stream is detected, a NO SIGNAL screen will be displayed and the bottom right of the screen will show the device's firmware version and local IP.

Use the Web UI to configure WP-DEC7 (see Using WP-DEC7 Embedded Web Pages on page 15).

Operating via Ethernet

The WP-DEC7's embedded Web UI provides high-level configuration options. Access to this UI requires an ethernet connection to the WP-DEC7 and that you identify its IP address.

To identify the device's IP address, use any of the following methods:

- Connect the WP-DEC7 ethernet port directly to a PC.
 - For instructions, see Connecting the Ethernet Port Directly to a PC on page 12.
 - When connected to a PC, the WP-DEC7 is given the default static IP address:
 - 192.168.1.40. If this IP address is already in use, the system will provide a random unique IP in the range of 192.168.X.Y
- Connect the Ethernet port of WP-DEC7 to the Ethernet port on a network hub, switch or router using a straightthrough cable with RJ-45 connectors.
 - Make sure your PC is connected to the same LAN as the WP-DEC7.
 - By default, the WP-DEC7 is DHCP-enabled. Make sure that there is a DHCP server in the network so the device can obtain a valid IP address.
 - Identify the device's IP address. This can be achieved by connecting a screen to the WP-DEC7 HDMI port without providing any encoded input. The screen shows the device's Local IP address at the bottom right. You can change the Ethernet parameters via the embedded web pages (see Using WP-DEC7 Embedded Web Pages on page 15).
- Use the Kramer KDS-7-MNGR to discover the IP address, see www.kramerav.com/product/KDS-7-MNGR.

You can connect the Ethernet port of WP-DEC7 directly to the Ethernet port on your PC using a crossover cable with RJ-45 connectors.

This type of connection is recommended for identifying WP-DEC7 with the factory configured default IP address, 192.168.1.40.

To connect the WP-DEC7 to the Ethernet port, configure your PC as follows:

- 1. Click Start > Settings > Network & Internet.
- 2. Under Advanced network settings, click Change Adapter Options.
- 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 connection appears as shown in Figure 5.

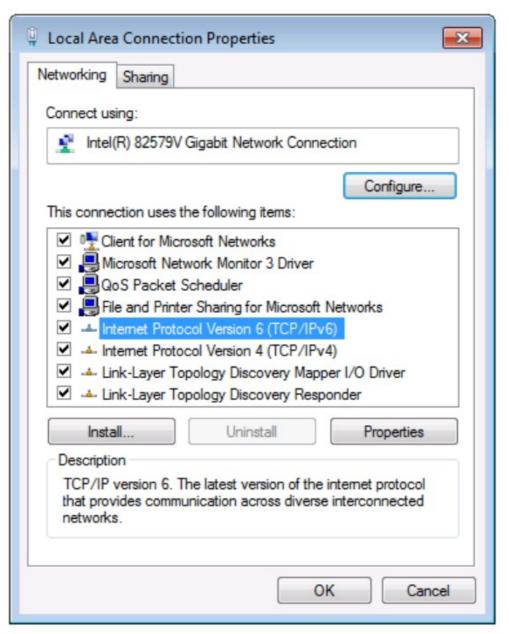


Figure 5: Local Area Connection Properties Window

- 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 6 or Figure 7.

	Alternate Configuration					
his ca	n get IP settings assigned pability. Otherwise, you no appropriate IP settings.					
Obtain an IP address automatically						
⊚ U	se the following IP addres	s:				
IP a	ddress:					
Subi	net mask:					
Defa	ault gateway:					
© 0	btain DNS server address	automati	cally			
U	se the following DNS serve	er address	ses:			
Pref	erred DNS server:					
Alte	rnate DNS server:					
	/alidate settings upon exit				Adv	anced

Figure 6: Internet Protocol Version 4 Properties Window

ternet Protocol Version 6 (TCP/I	Pv6) Properties	? 💌
General		
	d automatically if your network supports this capability. network administrator for the appropriate IPv6 settings.	
Obtain an IPv6 address auto	omatically	
Ouse the following IPv6 addre	ess:	
IPv6 address:		
Subnet prefix length:		
Default gateway:		
Obtain DNS server address a	automatically	
Use the following DNS server		
Preferred DNS server:		
Alternate DNS server:		
Validate settings upon exit	Adv	anced
	OK	Cancel

Figure 7: 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 8. For TCP/IPv4 you can use any IP address in the range 192.168.1.1 to 192.168.1.255 (excluding 192.168.1.40) that is provided by your IT department.

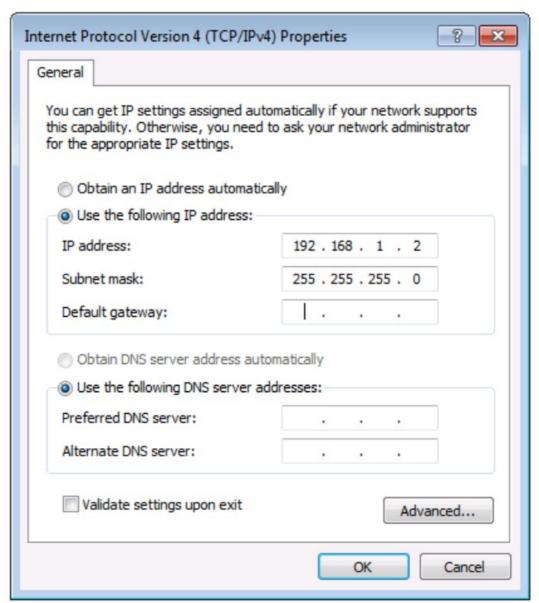


Figure 8: Internet Protocol Properties Window

- 7. Click OK.
- 8. Click Close.
- 9. Continue with Using WP-DEC7 Embedded Web Pages on page 15.

Using WP-DEC7 Embedded Web Pages

WP-DEC7 can be operated remotely using the embedded Web UI pages. Access the Web UI by typing the WP-DEC7's IP address in a browser and pressing Enter.

The following operating systems and Web browsers are supported:

Operating Systems	Browser
Windows 7	Chrome Firefox Safari
Windows 10	Chrome Edge Firefox
Mac	Safari
iOS	Safari
Android OS	N/A



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

Opening the WP-DEC7 Embedded Web Pages

To Browse the WP-DEC7 Web Pages:

- 1. Open your Internet browser.
- 2. Type the IP number of the device in the Address bar of your browser. To find out the IP address, see Operating via Ethernet on page 12.

For example, the default IP number:



3. If your device is password-protected, the Login window appears.

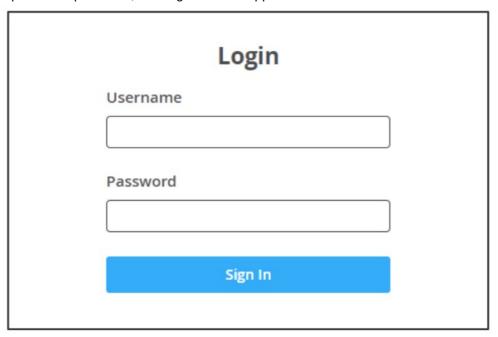


Figure 9: Login Window

Enter the Username and Password (admin/admin, by default).

4. The WP-DEC7 Main page (AV Routing tab) opens.

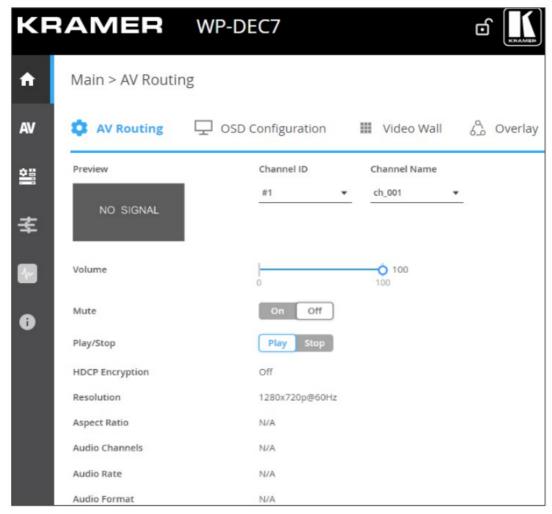
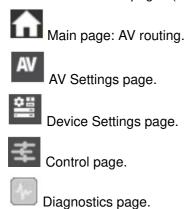


Figure 10: Device Control Page with Navigation List on Left

5. Select from the pages on the left side of the screen to access options.

The Web UI has six pages (accessed from the menu on the left side):



About page.

The WP-DEC7 embedded web pages enable performing the following actions:

- Defining and Viewing AV Routing Parameters on page 17.
- Configuring Device Information on page 19.
- Setting the Video Wall on page 20.
- Configuring the Overlay on page 21.
- Defining Video Settings on page 24.
- · Setting General Preferences on page 25.

- · Managing Network Settings on page 28.
- Defining an NTP Time and Date Server on page 31.
- Configuring WP-DEC7 for HTTPS and 802.1x on page 32.
- Managing User Access on page 34.
- Defining WP-DEC7 Gateway Settings on page 35.
- Viewing WP-DEC7 Status on page 38.
- Viewing WP-DEC7 Connections Status on page 39.
- Viewing the WP-DEC7 Logs on page 40.
- Viewing the About Page on page 41.

Defining and Viewing AV Routing Parameters To define AV routing settings:

1. In the Navigation pane, Select Main>AV Routing. The AV Routing page appears.

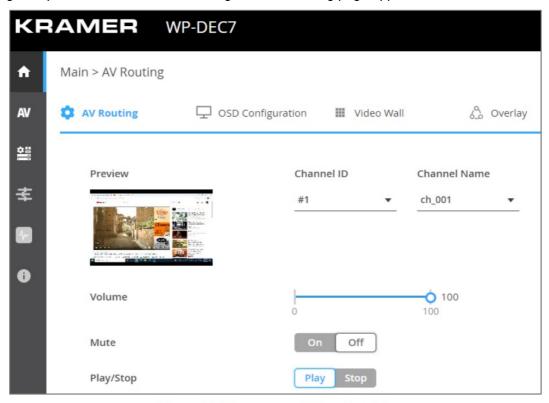


Figure 11: Main page - AV Routing Tab

2. Set the following:

Channel ID: Set Channel ID and click APPLY.

Channel ID defines the device input ID (1 to 999). See also Hiding the Channel Number on page 27.

- Channel Name: If necessary, enter the Stream Name and click APPLY.
- Stream name is identical to Host name (see Setting General Preferences on page 25) can include up to 24 characters; "-" and "_" are allowed within the name. by default, the name is the model name and MAC address connected by "-".
- Volume: Use the slider to adjust the analog audio output volume (0 to 100%).
 Default is 80 (0dB), 100% (12dB) and 0 is mute.
- Mute: Mute/unmute all audio outputs (HDMI OUT, AUDIO OUT, and MEDIA ports).
- Play/Stop: Start or stop streaming of video, audio, IR, RS-232 and USB signals.
- 3. View the following streaming parameters:

- HDCP Encryption: On (digital copyright protection is enabled) or Off.
- Resolution: Input video signal resolution.
- Aspect Ratio: Input video signal aspect ratio.
- Audio Channels: The number of audio channels sent in the input signal.
- Audio Rate: Input signal audio sample frequency and bit depth.
- Audio Format: LPCM, Non LPCM (for example, Dolby Digital, Dolby Digital+, and so on), HBR (for example, Dolby TrueHD) or N/A.

HDCP Encryption	Off
Resolution	1280x720p@60Hz
Aspect Ratio	N/A
Audio Channels	N/A
Audio Rate	N/A
Audio Format	N/A

Figure 12: Audio Information – AV Routing Tab

AV routing settings are defined.

Configuring Device Information

Configure the Error! No document variable supplied. OSD settings.

To configure the OSD:

- 1. In the Navigation pane, Select Main>AV Routing. The AV Routing page appears (see Figure 10).
- 2. Select the OSD Configuration tab.

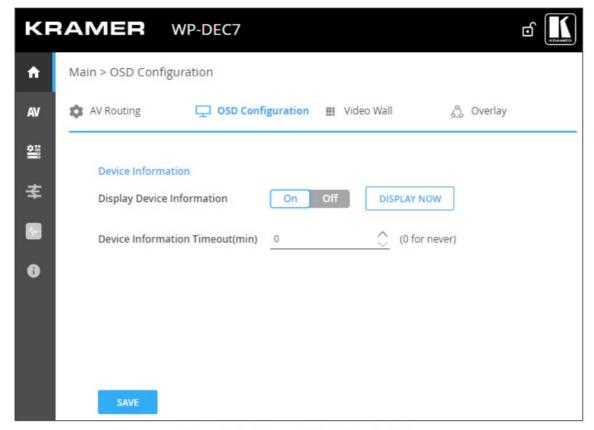


Figure 13: Main Page - OSD Configuration Tab

- 3. Enable/disable Device information (ON/OFF).
- 4. Click DISPLAY NOW to display device information.
- 5. Set the device information timeout.

If video is lost, and the sleep image is displayed, Device Information appears, and at this state cannot be turned off.

Device information is displayed.

Setting the Video Wall

Configure the Error! No document variable supplied. video wall.

To configure the Error! No document variable supplied. video wall:

- 1. In the Navigation pane, Select Main>AV Routing. The AV Routing page appears (Figure 10).
- 2. Select the Video Wall tab.

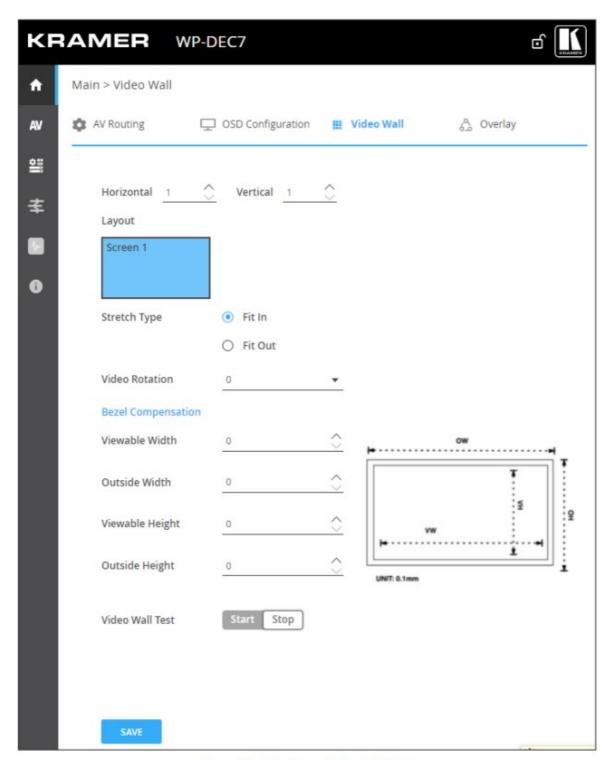


Figure 14: Main Page - Video Wall Tab

3. Set the video wall horizontal and vertical size (up to 16×16). For example, select a 2×3 video wall and view the layout.

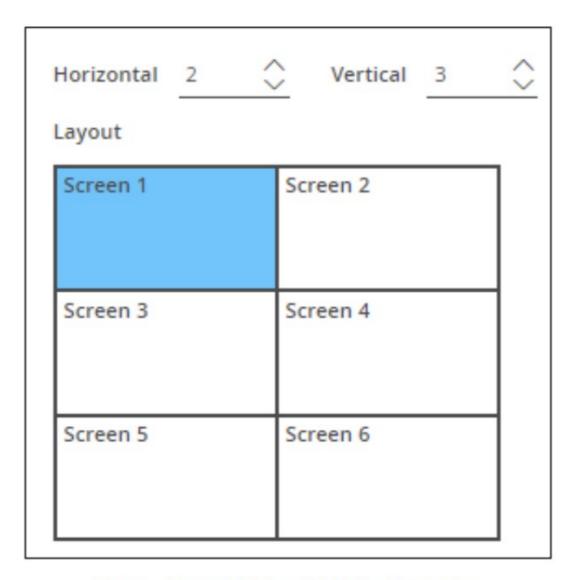


Figure 15: 2x3 Video Wall Configuration

- 4. Define the Image stretch type over the video wall. Check:
 - Fit In, to stretch the video to fit the screen.
 - Fit Out, to maintain the source video aspect ratio and fill the video to the screen.

Note that part of the video may be cut out.

- 5. If required, rotate the video image by 90, 180 or 270 degrees (default is 0).
- 6. Set Bezel Compensation.
- 7. Click Start to text video wall, then click Stop.
- 8. Click SAVE.

Video wall is configured.

Configuring the Overlay

Use the Overlay tab to perform the following actions:

- Configuring the Image Overlay on page 22.
- Configuring the Text Overlay on page 23.

Configuring the Image Overlay

To configure the image overlay:

- 1. In the Navigation pane, Select Main>AV Routing. The AV Routing page appears (see Figure 10).
- 2. Select the Overlay tab.

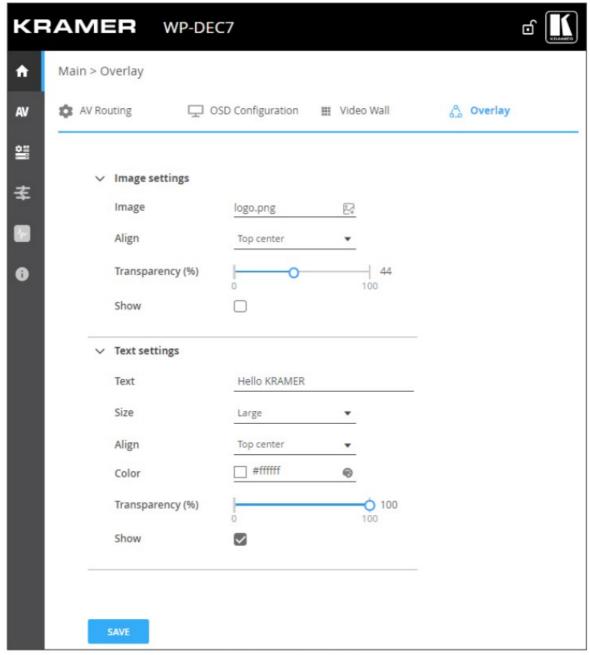


Figure 16: Main - Overlay Tab

- 3. Click image icon to upload an image.
 - The image format must be PNG, the resolution up to 640×360, and file size up to 256KB.
- 4. Set the image location from the drop-down box (default is Top center).
- 5. Use the slider to define the image transparency from 0 to 100% (invisible).
- 6. Check Show to display the image.
- 7. Click SAVE.

Image overlay is configured.

Configuring the Text Overlay

To configure the image overlay:

- 1. In the Navigation pane, Select Main>AV Routing. The AV Routing page appears (see Figure 10).
- 2. Select the Overlay tab (see Figure 16).



Figure 17: Main Page - Text Overlay Tab

- 3. Enter the overlay text.
- 4. Set the text size.
- 5. Set the text location from the drop-down box (default is Top center).
- 6. Set the text color.
- 7. Use the slider to define the text transparency from 0 to 100% (invisible).
- 8. Check Show to display the text.
- 9. Click SAVE.

Text overlay is configured.

Defining Video Settings

Define WP-DEC7 video settings.

To define Video settings:

1. In the Navigation pane, Select AV. The Video page appears.

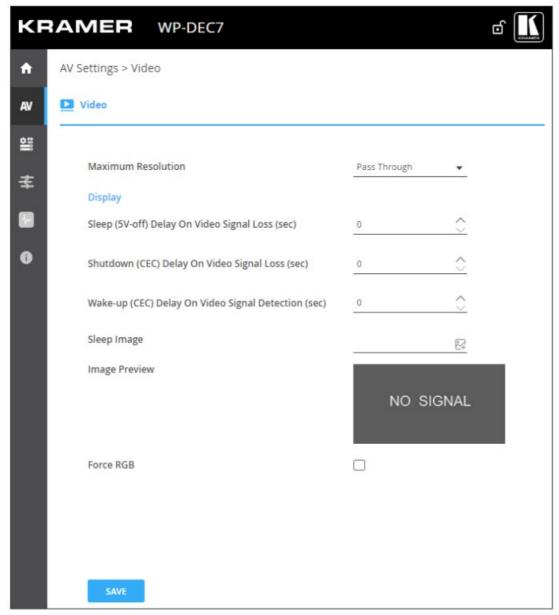
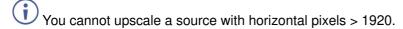


Figure 18: Video Settings

2. From the drop-down list, set the maximum output resolution: Pass Through (default, the output video resolution follows the input stream resolution), Full HD (720p60), Full HD (1080p60), Full HD (1080p50), Ultra HD 2160p25 or Ultra HD (2160p30).



For example, 2048×1080, 3840×2160 are not supported.

The output resolution can be downscaled by downscaling the horizontal + vertical resolutions by half.

For example: 4096×2160 can be downscaled to 1920×1080.

Meaning 128 horizontal pixels are missing (4096/2 - 1920 = 128).

For example, 3840×2160 can be downscaled to 1280×720.

Meaning 640 horizontal pixels are missing (3840/2 - 1280 = 640) 360 vertical pixels will be missing (2160/2 - 720 = 360).

- 3. Define display behavior:
 - Sleep (5V-off) Delay On Video Signal Loss (sec): when video signal is lost, define the delay time before setting 5V power off.
 - Shutdown (CEC) Delay On Video Signal Loss (sec): when video signal is lost, define the delay time before a CEC shutdown command is sent to the unit.
 - Wake-up (CEC) Delay on Video Signal Detection (sec): when the device detects a video signal, define the

delay time before a CEC wake up command is sent to the unit.

- 4. Click next to Sleep Image to upload the image to be displayed when there is no signal on the input.
- 5. View live stream preview.
- 6. Set Force RGB mode:
 - Check (default) to force RGB as the output video format.
 - Uncheck.
- 7. Click SAVE.

HDMI input settings are defined.

Setting General Preferences

Device Settings page, General tab (default) provides the following options:

- Changing Device Host Name on page 26.
- Hiding the Channel Number on page 27.
- Importing or Exporting Device Settings on page 27.
- Locating the Device (making the LEDs flash) on page 27.
- Managing the Firmware on page 28.
- Restarting or Resetting the Device on page 28.

Changing Device Host Name

To change the device's network ID (also known as the host name):

1. Open the General tab of the Device Setting page. The General tab appears.

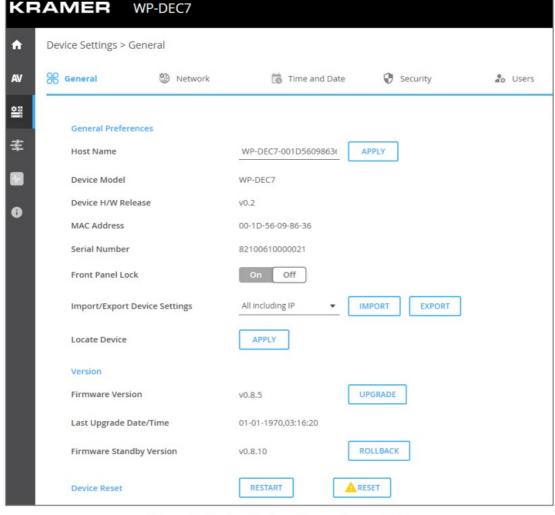


Figure 19: Device Settings Page - General Tab

2. Enter a new Host Name and click Apply.

The Host Name has a maximum 24 characters and can include the special characters hyphen "-" and underscore "_", but not at the start or end of the name.

The default host name is WP-DEC7-xxxxxxxxxxx ("xxxxxxxxxxx" = MAC address).

- 3. View the following identification fields:
 - Device Model: Displays the device model number.
 - Device H/W Release: Displays device hardware version.
 - MAC Address: Displays the device MAC address.

Note: Users can configure a second ethernet port using a separate IP for commands sent to the device. To define a second IP address, see the Managing Network

Settings on page 28. Both IP addresses use the same MAC number.

• Serial Number: Displays device serial number.

Hiding the Channel Number

The channel number displayed by the LCD on the front panel can be switched off.

To hide the channel number:

- 1. Go to the Device Setting page's General tab.
- 2. Set the Front Panel Lock to On.



Figure 20: Device Settings Page - Front Panel Lock

Importing or Exporting Device Settings

Device settings can be exported to a backup file and uploaded to the device. Settings are imported/exported in a series of JSON files zipped into a single file. Use the Export button to output examples.

To export the device settings:

- 1. Open the Device Setting page's (default) General tab.
- 2. Select the type of information you want to export or import:
 - All without IP All settings excluding IP addresses.
 - Streams Channel ID information for video, audio, CEC and RS232 streams, and the channel map.
 - AV Settings only Video and audio settings.
 - All including IP All settings including the IP addresses (default).



Figure 21: Device Settings Page - Import/Export Device Settings

3. Click the Export button to output a list of JSON files compressed into a single tar.gz file. Device Settings file is exported.

Locating the Device (making the LEDs flash)

To flash the LEDs on the WP-DEC7 front panel for 60 seconds, so that you can identify the device:

- 1. Open the Device Setting page's default General tab.
- 2. Click Apply on the Locate Device field.



Figure 22: Device Settings Page – Locating the Device

Device is located.

Managing the Firmware

To view or upgrade the firmware version:

- 1. Open the Device Setting page's default General tab.
- 2. Click Upgrade to run a firmware upgrade. For a detailed procedure, see Upgrading Firmware on page 43.
- 3. The system saves the Last Upgrade Date/Time and previous firmware version (the Standby Version) in memory:
 - Click Rollback to roll back the firmware to the last loaded version.

For example, if the current firmware version is v0.5.5, and the last is v0.5.4; After

"Rollback", the device will update firmware to the v0.5.4 version.



Figure 23: Device Settings Page – Firmware Upgrade

Restarting or Resetting the Device To restart or reset the device:

- 1. Open the Device Setting page's default General tab.
- 2. Next to Device Reset:
 - Click RESTART to reboot the device.
 - Click RESET to restore the device to its factory defaults settings.

Device is reset.

Managing Network Settings

The Network Settings tab in the Device Settings page controls the Ethernet port and IP settings of the WP-DEC7.

Perform the following actions:

- Using the Service Port for P3K & Gateway Transmissions on page 29.
- Defining IP Casting Mode Setting and TTL on page 30.
- Managing TCP/UDP Ports on page 30.

Using the Service Port for P3K & Gateway Transmissions

WP-DEC7 has two Ethernet ports (SERVICE 1G and MEDIA 1G). By default, all network connections are handled by MEDIA with DHCP enabled and 802.1Q disabled.

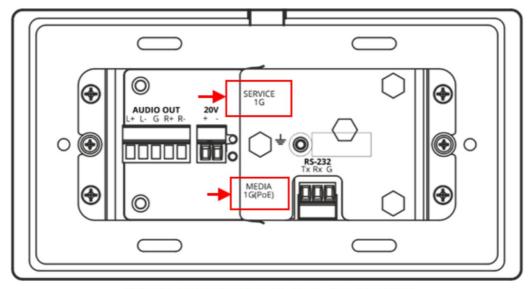


Figure 24: Ethernet ports on the Rear of the WP-DEC7

WP-DEC7 can maintain a separate IP address for P3K & Gateway traffic and receive that traffic on the Service ethernet port. Video and other types of streaming always use the MEDIA ethernet port.

To separate P3K & Gateway from the AV streams:

- 1. Open the Device Setting page's default General tab.
- 2. Select the Network tab.

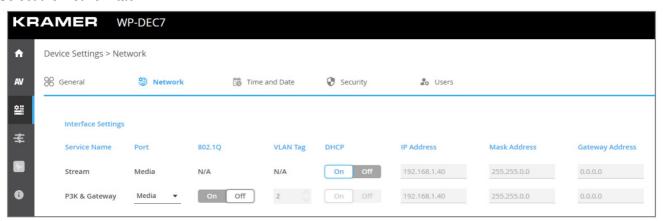


Figure 25: Device Settings Page - Network Tab

- 3. Change the following settings in the Interface Settings section:
 - In the Port column select Service and set 802.1Q to On.
 - In the VLAN ID column, enter an integer number (2 4093) for P3K & Gateway services. This separates the P3K & Gateway packets.
 - (i) 802.1Q and VLAN are not required for the Media port.
- 4. If you want the P3K & Gateway port to have a static IP set DHCP to Off and enter a subnet mask and gateway address. If there is no valid DHCP server in the system, it will look for the random unique IP in the range of 169.254.X.Y. The allocated IP address can be seen by attaching an HDMI screen (with no streamed input). P3K and Gateway are separated for streams.

Defining IP Casting Mode Setting and TTL

The IP Casting Mode is set by the Encoder. The setting on this field needs to be the same as that on the encoder:

- Unicast The encoded stream is intended for this decoder alone.
- Multicast (default) Any decoder can access the encoded stream.

TTL (time to live) limits the lifetime of the streamed data in the computer network. It prevents the IP packet from propagating endlessly through the network. The default value is 64, which means that after 64 hops the data packet is dropped.

Managing TCP/UDP Ports

TCP and UDP are protocols that define how data is streamed. The port on which the data is received must be defined in the system.

To manage TCP/UDP ports:

- 1. Open the Device Setting page's default Network tab.
- 2. Set the TCP Port (default value 5000) and UDP Port (default value 50000).

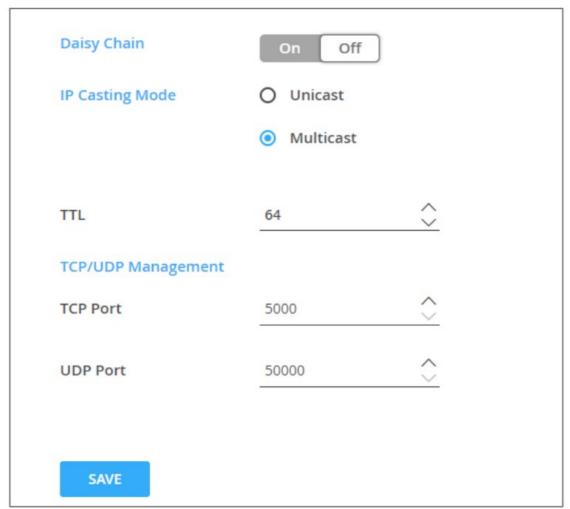


Figure 26: Device Settings - Port Management

The TCP and UDP ports are set.

Defining an NTP Time and Date Server

You can sync the device time and date to any server around the world. To sync device time and date to a server:

1. In the Device Settings page open the Time and Date tab:

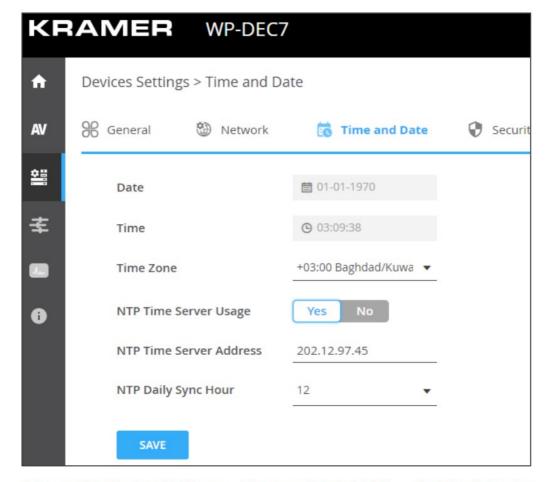


Figure 27: Device Settings – Time and Date Tab2. Set the following

- 2. Set the following:
 - Set NTP Time Server Usage to Yes. This enables the Time Server fields.
 - Enter the NTP Time Server Address and the NTP Daily Sync Hour.
- 3. Click SAVE.

The device's date and time is synchronized to the time server.

Configuring WP-DEC7 for HTTPS and 802.1x



Device Settings page, Security tab configures device 802.1x authentication access to the network, and HTTPS/TLS when an encrypted connection is used on the network.

This section describes the following actions:

- Configuring HTTPS on page 32.
- Defining 802.1x Authentication on page 33.

Contact your IT administrator for the network access authentication.

Configuring HTTPS

To enable HTTPS:

1. In the Device Settings page, select the Security tab.

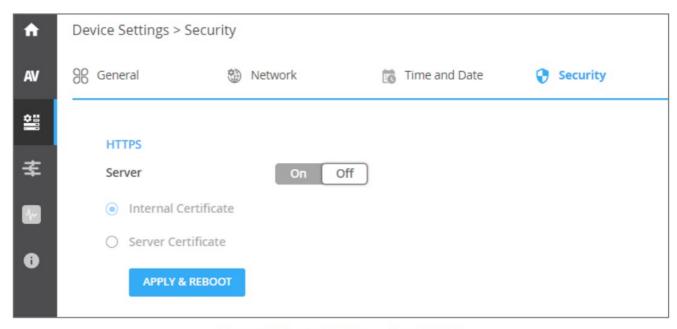


Figure 28: Device Settings - Security Tab

- 2. In the HTTPS area, set Server to On (default) to enable HTTPS authentication.
- 3. Select one of the following:
 - Internal Certificate Uses the factory default certificate for authentication.
 - Server Certificate Submits a public certificate for authentication, click to upload the certificate and enter the private key password (usually assigned by the IT administrator).

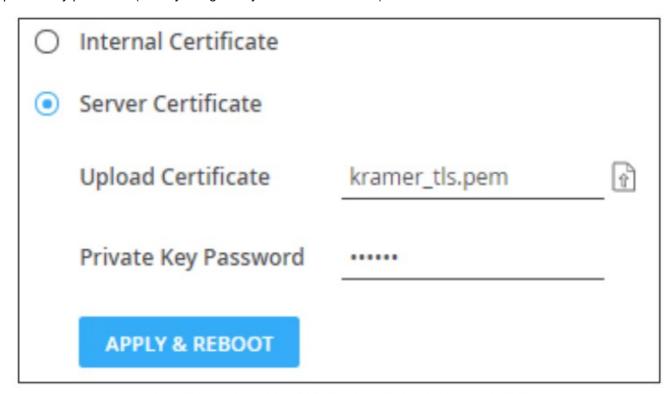


Figure 29: Security Tab - Server Certificate

4. Click APPLY & REBOOT.

HTTPS is enabled.

Defining 802.1x Authentication

To configure security for the device:

1. In the Device Settings page, select the Security tab:

- 2. In the 802.1x area, click ON to enable 802.1x authentication service. 802.1x supports authentication based on port and MAC address.
- 3. Select one of the following:
 - PEAP-MSCHAP V2 Enter a Username (up to 24 alphanumeric characters, including "_" and "-") and Password (up to 24 ASCII characters):

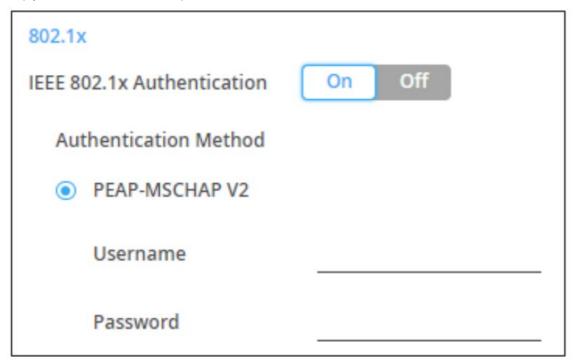


Figure 30: Security Tab – EAP-MSCHAP V2 Authentication

■ EAP-TLS – To submit a server certificate for authentication, enter the Username and click to upload the certificates and keys, then enter the private key password (assigned by IT administrator). Set Server Certificate On.

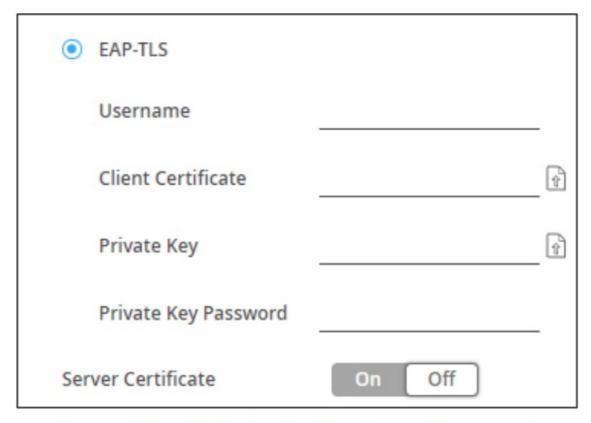


Figure 31: EAP-TLS - Certificates and Password

Security is configured.

Managing User Access

To activate logon authentication and restrict access to the Web UI, go to the Users tab of the Device Settings menu.

The default password is admin; By default, security is disabled.

Enabling Password Protection

To restrict device configuration to authorized users:

1. In the Device Settings page, select the Users tab.

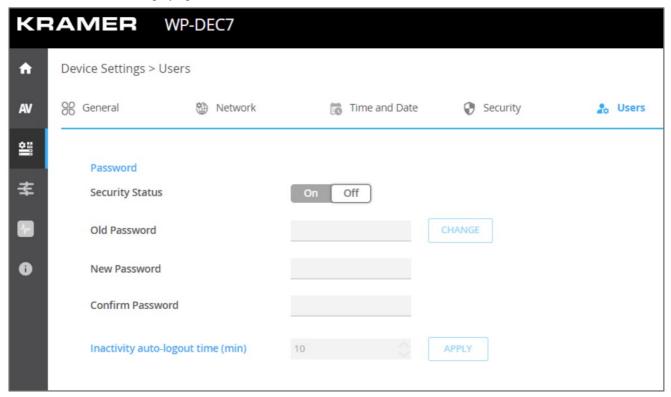


Figure 32: Device Settings – Users Tab

2. Set Security Status to On (Off by default). The following message appears:

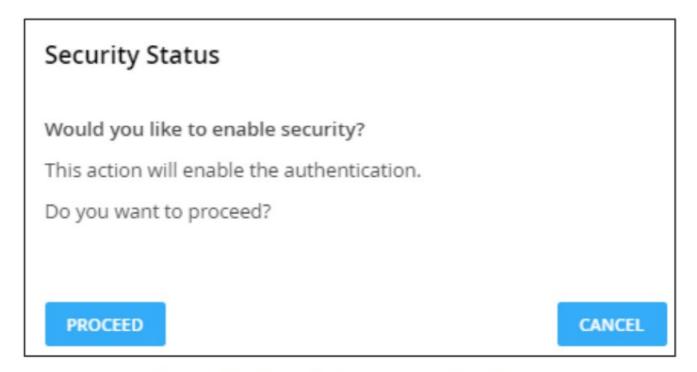


Figure 33: Security Tab - Security Status

3. Click PROCEED and enter a password (the default password is "admin").

Security is enabled and access requires authentication.

Password protection is active.

Setting Auto-Logout time

Set the Inactivity auto-logout time (in minutes), to cause the page to log out automatically.

This option requires password-controlled access to the embedded web pages (Security Status se

This option requires password-controlled access to the embedded web pages (Security Status set to On). The default password is admin (the user is always "admin").

To set inactivity locking:

- 1. Open the Device Settings page, Users tab.
- 2. Set Security Status to On (this activates password use).
- 3. In the Inactivity auto-logout time field, enter the number of minutes to wait before activating device locking (10 minutes by default).

The device locks automatically after the set period of inactivity.

Defining WP-DEC7 Gateway Settings

The Control page is used to configure CEC and/or RS-232. Remote devices connected to an encoder can use CEC or RS-232 to control or enter data to the HDMI device connected to WP-DEC7. You can perform the following actions:

- Configuring CEC Settings on page 36.
- Configuring RS-232 Settings on page 37.

Configuring CEC Settings

The WP-DEC7 can transmit CEC commands from the HDMI output device back to the CEC enabled devices connected to the encoder.

To enable CEC control commands:

1. Open the Control page.

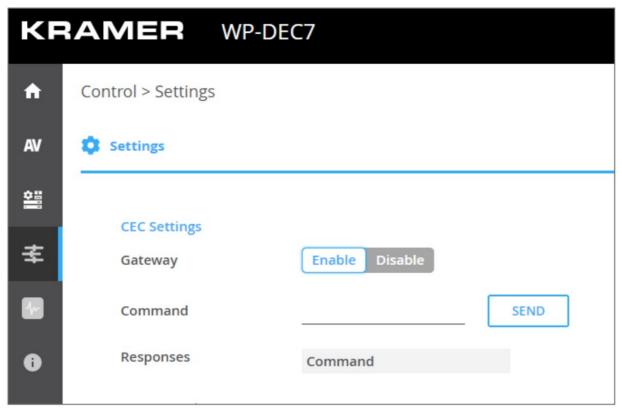


Figure 34: Control > Settings Page - CEC Settings

- 2. Under CEC Settings, set Gateway to Enable.
- 3. Enter the CEC command, in hex format, 32 hex digits.
- 4. Click SEND.
- 5. View the CEC-enabled device response.

CEC Gateway is configured.

Configuring RS-232 Settings

RS-232 commands can be transmitted from remote devices, through the WP-DEC7 to devices that are connected to the WP-DEC7 RS-232 port.

To enable RS-232 commands:

1. Open the Control page.

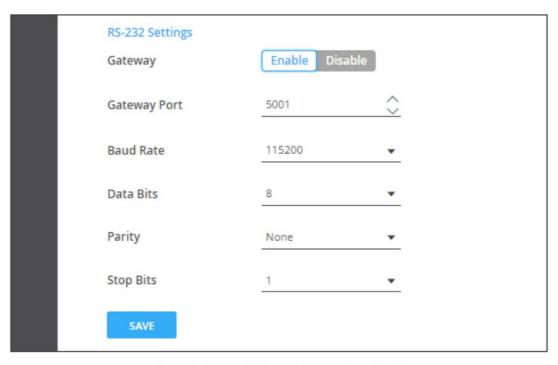


Figure 35: Control > Settings Page - RS-232 Settings

- 2. Under RS232 Settings, set Gateway to Enable.
- 3. Set the Gateway Port (5001, by default).
- 4. Enter the Baud Rate: 9600, 19200, 38400, 57600 or 115200 (default).
- 5. Enter the Data Bits: 5, 6, 7 or 8 (default).
- 6. Enter Parity: None (default), Odd or Even.
- 7. Enter Stop Bits: 1 (default) or 2.
- 8. Click SAVE.

RS-232 Gateway is configured.

Viewing WP-DEC7 Status

The Diagnostics page, Status tab displays general status information for the device.

To view general status information:

1. Open the Status tab in the Device Setting page.

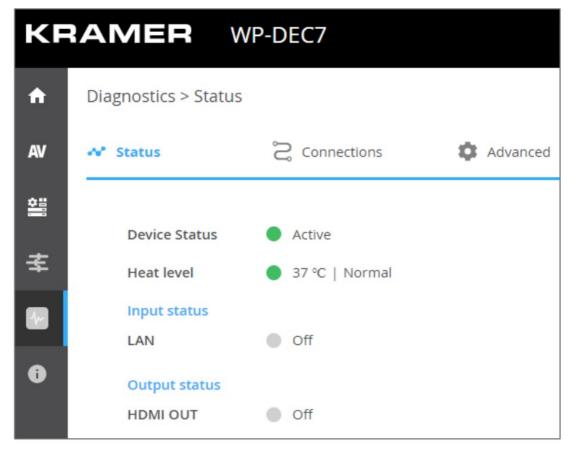


Figure 36: Diagnostics - Status Tab

2. View the Device Status:

- Active (green indicator) normal operation.
- Standby device is powered Off, booting or in standby mode (yellow indication).

3. View the Heat level:

- Normal (green indicator), temperature under 45°C.
- High (orange indicator), temperature between 45°C and 60°C.
- Overheat (red indicator), temperature higher than 60°C.

4. View the LAN input status:

- On (green indicator) input is transmitting a valid signal.
- Off (gray indicator) no input or no valid signal.

5. View the HDMI OUT status:

- On (green indicator) output is transmitting a signal.
- Off (gray indicator) no output.

General status information is viewed.

Viewing WP-DEC7 Connections Status

The Connections tab in the Diagnostics page shows the device connections status.

To view the connections status:

1. Open the Connections tab in the Diagnostics page.

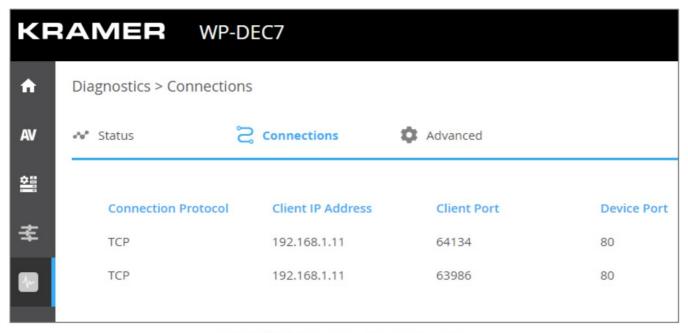


Figure 37: Diagnostics – Connections Tab

2. View the Connections protocol type, client IP address, client port, and the device (WP-DEC7) port.

Connections status is viewed.

Viewing the WP-DEC7 Logs

View the system log and gateway messages counter.

To view the log and a count of RS-232 and CEC messages:

1. Open the Diagnostics page, Advanced tab.

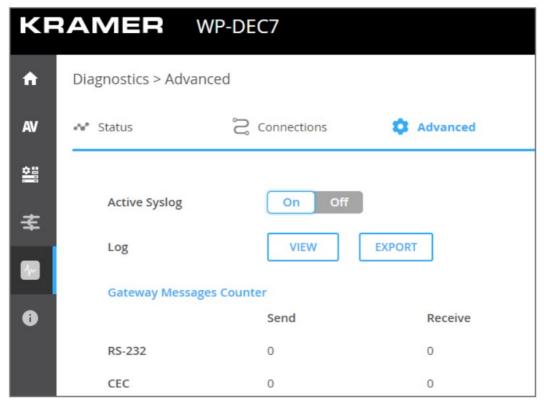


Figure 38: Diagnostics – Advanced Tab

- 2. To activate the log:
 - On, enables the WP-DEC7 system log.
 - Off (default), disables the system log.
- 3. Click VIEW to view the system log on the screen.

- 4. Click EXPORT to copy the system log to a (.txt) file.
- 5. To view a count of the RS-232 or CEC messages, see the Gateway Messages Counter: This shows the number of sent and received RS-232 and CEC messages.

You have viewed the log and gateway message counter.

Viewing the About Page

The About page shows the model number, hardware release, firmware version and Kramer Electronics Ltd details.

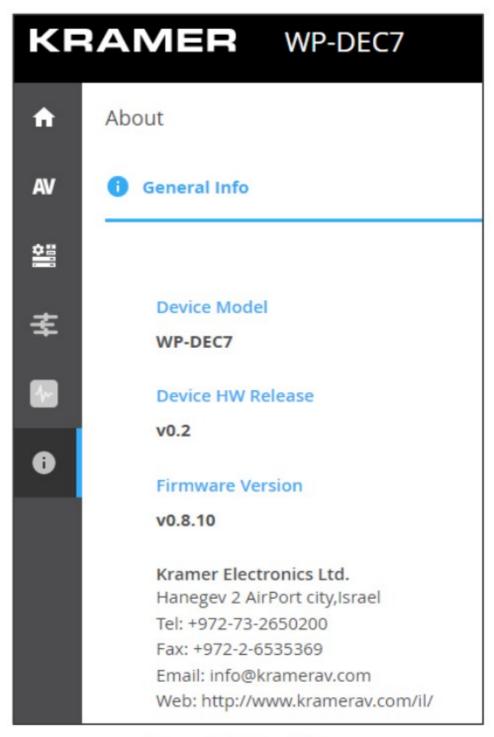


Figure 39: About Page

Fast Switching

Fast switching makes it simple to switch between different encoders and decoders. Before setting devices to fast

switching, make sure the network components are correctly configured.

To set the devices properly:

- 1. Ensure the system devices (WP-DEC7 and encoder) and PC are all connected to the same Network.
- 2. Power all the devices in the system.
- 3. Configure the Network switch as follows:
 - Jumbo Frames On. (at least 8000 bytes).
 - IGMP Snooping On.
 - IGMP Querier On.
 - IGMP Immediate/Fast Leave On.
 - Unregistered Multicast Filtering On.
- 4. Make sure that the PC sub-Network is the same as the system devices.

Fast switching configuration

To configure fast switching:

- 1. Access the various encoders' and decoders' web pages.
- 2. For each encoder, in the AV Routing page, set a unique Channel ID and Channel Name.

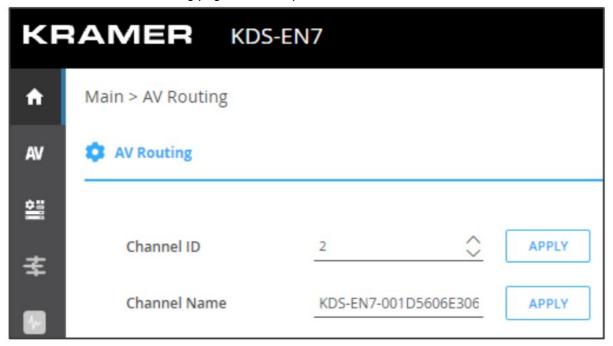


Figure 40: Setting Channel ID and Name on the Encoder Device

- 3. To configure fast switching between different encoders, the following settings need to be identical on the input sources:
 - HDCP Encryption
 - Resolution and Refresh rate
- 4. The following settings needs to be uniform on all the encoders and on the decoder:
 - Maximum Resolution (set on the AV Settings page).

Fast switching is configured.

Upgrading Firmware

Upgrade the firmware, view the date of the last upgrade, or rollback to the previous firmware revision in case of a

problem.

(i)

Click ROLLBACK to update to the previous FW version.

If the device firmware version is lower than 0.6.3, contact Kramer tech support team at support@kramerav.com or go to our Web site at k.kramerav.com/support/downloads.asp.

To upgrade the firmware:

1. In the Navigation pane, Select Device Settings. The General tab in the Device Settings page appears.

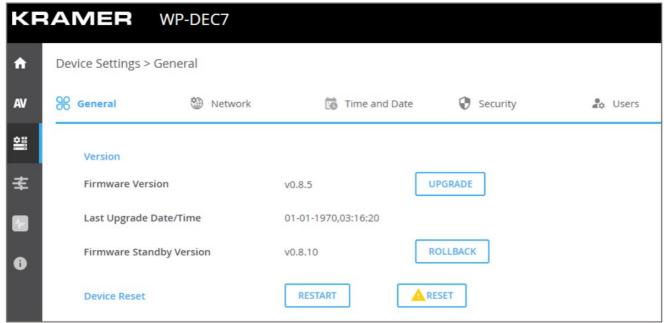


Figure 41: General Tab - Upgrading the Firmware

- 2. Next to Firmware Version, click UPGRADE. The Open window appears.
- 3. Select the firmware file and click Open. The firmware upgrade pop-up window appears. Wait for upgrade completion.
- 4. Once completed, refresh the web page and log-in. Firmware upgrade is complete.

Technical Specifications

Outputs	1 HDMI	On a female HDMI connector		
	2 Ethernet	On RJ-45 female connectors		
Ports	1 Balanced Audio	On a 5-pin terminal block connector		
	1 RS-232	On a 3-pin terminal block connector		
Video	Compression Standard	JPEG based, private stream		
Video	Max Resolution	4K@60Hz (4:2:0)		
Audio	Supported Formats	LPCM upto 7.1/24-bit/192kHz Dolby AtmosTM, Dolby TrueHD, Dolby Digital PlusTM, Dolby Digital EX, Dolby Digital 5.1, Dolby Digital 2/0 Sur round, Dolby Digital 2/0 DTS-HD Master AudioTM, DTS-HD, DTS-ES Discrete 6. 1, DTS-ES Matrix 6.1, DTS Digital Surround 5.1		
	Indicators	HDMI and ON LEDs, front panel LCD Display		
User Interface	Recessed Buttons	CH+/CH- and factory reset		
	Controls	Embedded web pages, P3K API commands via Etherne t		
	PoE	37V to 57V, maximum power consumption 12W		
Power	Optional Power Supply	20V DC, 6A Max.		
	Operating Temperature	0° to +45°C (32° to 113°F)		
Environmental Conditions	Storage Temperature	-20° to +70°C (-4° to 158°F)		
	Humidity	10% to 90%, RHL non-condensing		
Regulatory Co	Safety	CE, FCC		
p.ia.ioo	Environmental	RoHs, WEEE		
	Size	2 Gang		
Enclosure	Туре	Metal (SGCC)		
	Cooling	Convection Ventilation		
	US Dimensions (W, D, H)	12.1cm x 4.56cm x 12.1cm (4.8" x 1.8" x 4.8")		
Dimensions	EU & UK Dimensions (W, D, H)	15.1cm x 4.56cm x 8.6cm (5.9" x 1.8" x 3.4")		
Diffictions	US Shipping (W, D, H)	20cm x 13.7cm x 7.5cm (7.9" x 5.4" x 2.95")		
	EU & UK Shipping (W, D, H)	23.8cm x 13.7cm x 7.5cm (9.4" x 5.4" x 2.95")		
	Net Weight	US, EU, UK: 0.4kg (0.9lbs) approx.		
Weight	Shipping Weight	US: 0.6kg (1.3lbs) approx. EU, UK: 0.65kg (1.4lbs) approx.		
Specifications ar	re subject to change without notice a	www.kramerav.com		

Default Communication Parameters

P3K				
Example (stop encoder	decoder activity)	#WP-ACTION 0 <c R></c 		
Ethernet				
To reset the IP settings in	to the factory reset values go to: Menu->Setup -> Factor	ory Reset-> press Enter to confir		
DHCP	Default			
IP Address:	192.168.1.40			
Subnet mask:	255.255.0.0			
Default gateway:	0.0.0.0			
TCP Port #:	5000			
UDP Port #:	50000			
Default username:	admin			
Default password:	admin			
Full Factory Reset				
Embedded web pages	Device Settings > General > RESET			
Front panel recessed b uttons	Press the RESET button for 10 seconds			

Default Parameters

Page Nam e	Tab Name			Exporta ble Field	Default Values
		Channel ID	Yes	Yes	1
		Channel Name	Yes	Yes	ch_001
	AV Routing	Volume	Yes	Yes	80
		Mute	Yes	Yes	Off
		Play/Stop	Yes	Yes	Play
		Menu Timeout (sec)	Yes	Yes	30
		Channels per Page	Yes	Yes	5
		Maximum Channels	Yes	Yes	999
	OSD	Channel List	Yes	Yes	50 items display
	Configuration	Display Device Informatio	Yes	Yes	Off

		Device Information Timeo ut(min)	Yes	Yes	2
		Horizontal	Yes	Yes	1
		Vertical	Yes	Yes	1
		Stretch Type	Yes	Yes	Fit In
Main		Video Rotation	Yes	Yes	0
	Video Wall	Viewable Width	Yes	Yes	0
		Outside Width	Yes	Yes	0
		Viewable Height	Yes	Yes	0
		Outside Height	Yes	Yes	0
		Video Wall Test	Yes	Yes	Stop
		Image	Yes	Yes	logo.png
		Image Settings Align	Yes	Yes	Top Center
		Image Settings Transpare ncy%	Yes	Yes	50
		Image Settings Show	Yes	Yes	Unchecked
	Overlay	Text Settings Text	Yes	Yes	Hello KRAMER
	Overlay	Text Settings Size	Yes	Yes	Small
		Text Settings Align	Yes	Yes	Top Center
		Text Settings Color	Yes	Yes	#ffffff
		Text Settings Transparenc y%	Yes	Yes	50
		Text Settings Show	Yes	Yes	Unchecked

		Maximum Resolution	Yes	Yes	Pass Through
		Sleep (5V-off) Delay On V ideo Signal Loss (sec)	Yes	Yes	0
AV Setting	Video	Shutdown (CEC) Delay O n Video Signal Loss (sec)	Yes	Yes	0
		Wake-up (CEC) Delay On Video Signal Detection (s ec)	Yes	Yes	0
		Force RGB	Yes	Yes	Checked
		Host Name	Yes	Yes	WP-DEC7-xxxxxxxxxxx ("xxx xxxxxxxx" is the device's MA C address)
	Canaval	Front Panel Lock	Yes	Yes	Off
	General				

		Import/Export Device Sett ings	Yes	Yes	All including IP
		Front Panel Lock	Yes	Yes	Off
		Stream Port	No	Yes	Media
		Stream 802.1Q	No	Yes	N/A
		Stream VLAN Tag	No	Yes	N/A
		Stream DHCP	Yes	Yes	On
		P3K & Gateway Port	Yes	Yes	Media
		P3K & Gateway 802.1Q	Yes	Yes	Off
	Network	P3K & Gateway VLAN Ta	Yes	Yes	N/A
		P3K & Gateway DHCP	Yes	Yes	N/A
Device Set		Daisy Chain	Yes	Yes	Off
tings		IP Casting Mode	Yes	Yes	Multicast
		TTL	Yes	Yes	64
		TCP Port	Yes	Yes	5,000
		UDP Port	Yes	Yes	50,000
	Time and Dat	Date	Yes	Yes	01-01-1970
		Time	Yes	Yes	N/A
		Time Zone	Yes	Yes	00:00 Greenwich
		NTP Time Server Usage	Yes	Yes	No
		NTP Time Server Address	Yes	Yes	N/A
		NTP Daily Sync Hour	Yes	Yes	N/A
		HTTPS Server	Yes	Yes	On; Internal Certificate
	Security	IEE 802.1x Authentication	Yes	Yes	Off
		Server Certificate	Yes	Yes	Off
	Users	Security Status	Yes	Yes	Off
	03613	Inactivity auto-logout time	Yes	Yes	10
		CEC Gateway	Yes	Yes	Enable
		RS232 Gateway	Yes	Yes	Enable
		RS232 Port	Yes	Yes	5001
Control	Settings	RS232 Baud rate	Yes	Yes	115200
		RS232 Data Bits	Yes	Yes	8
T.		I			

		Parity	Yes	Yes	None
		Stop Bits	Yes	Yes	1
Diagnostic s	Advanced	Active Syslog	Yes	Yes	Off

Protocol 3000

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

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

Command format:

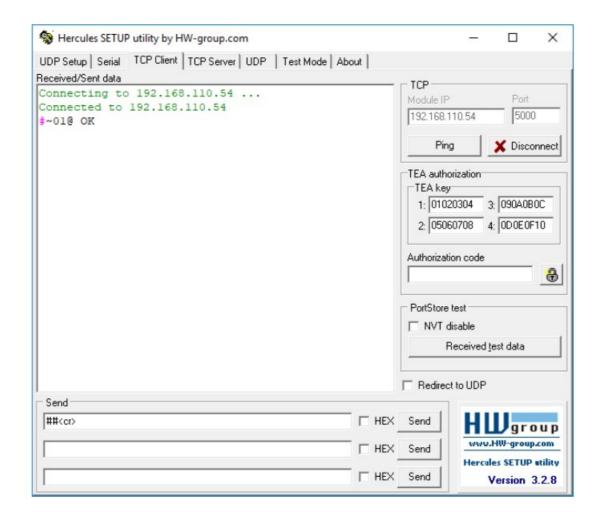
Prefix	Command Name	Constant (Space)	Parameter(s)	Suffix
#	Command	ш	Parameter	<cr></cr>

Feedback format:

Prefix	Device ID	Constant	Command Name	Parameter(s)	Suffix
~	nn	@	Command	Parameter	<cr><lf></lf></cr>

- Command parameters Multiple parameters must be separated by a comma (,). In addition, multiple parameters can be grouped as a single parameter using brackets ([and]).
- wParameters attributes Parameters may contain multiple attributes. Attributes are indicated with pointy brackets (<...>) and must be separated by a period (.).

The command framing varies according to how you interface with WP-DEC7. The following figure displays how the # command is framed using terminal communication software (such as Hercules):



Protocol 3000 Commands

Functio n	Description	Syntax	Response	Parameters/Attribute s	Example
#	Protocol han dshaking. N OTE: Validat es the Protocol 300 0 connection and gets the machine nu mber. Step-in master products use this command to identify the availability of a device.	# <cr></cr>	~nn@ OK <cr><l F></l </cr>		# <cr></cr>

BEACO N-EN	Set beacon r ate.	#BEACON-EN p ort_id, status,rat e <cr></cr>	~nn@BEACON-E N port_id, status,ra te <cr><lf></lf></cr>	port_id - ID of the Eth ernet port, and must b e same as KDS-GW-E TH's netw_id 0 - Media Port 1 - Service Port status - Enable/Disabl e beacon 0 - Disable (default) 1 - Enable rate - Repetition rate i n seconds 1 - 1 second (minimum) 10 - 10 seconds (deful t) 1800 - 30 minutes (ma ximum)	Set beacon inform ation: #BEACON- EN 0,1,10 <cr></cr>
#BEACO N- EN?	Get beacon r ate.	#BEACON-EN? <cr></cr>	~nn@BEACON-E N port_id, status,ra te <cr><lf></lf></cr>	port_id – ID of the Eth ernet port, and must b e same as KDS-GW-E TH's netw_id 0 – Media Port 1 – Service Port status – Enable/Disabl e beacon 0 – Disable (default) 1 – Enable rate – Repetition rate i n seconds 1 – 1 second (minimum) 10 – 10 seconds (default) 1800 – 30 minutes (maximum)	Get beacon inform ation: #BEACON- EN? <cr></cr>
BEACO N- INFO ?	Get beacon i nformation, i ncluding IP a ddress, UDP control port, TCP control port, MAC ad dress, model , name. NOTE: + There is no Set comman d. Get comm	#BEACON-INFO ? port_id <cr></cr>	~nn@BEACON-IN FO port_id, ip_strin g, udp_port, tcp_p ort, mac_address, model, name <cr> <lf></lf></cr>	port_id – ID of the Eth ernet port 0 – Media Port 1 – Service Port ip_string – Dot-separat ed representation of th e IP address udp_port – UDP control port tcp _port – TCP control port mac_address – D ash-separated mac ad dress model – Device model name – Device name	Get beacon inform ation: #BEACON-I NFO? 0 <cr></cr>

BUILD-D	Get device b	#BUILD-DATE?<	~nn@BUILD-DAT	date – Format: YYYY/	Get the device buil
ATE?	uild date	CR>	E date, time <cr> <lf></lf></cr>	MM/DD time – Format: hh:mm:ss	d date: #BUILD-D ATE? <cr></cr>
CEC-G W- POR T- ACTIV E	Set CEC Gat eway mode – Whether C EC commands c oming from HDMI stream to LAN	#CEC-GW-POR T-ACTIVE gw_m ode <cr></cr>	~nn@CEC-GW-P ORT- ACTIVE gw_mode <cr><lf></lf></cr>	gw_mode: 0 - CEC Passthrough mode 1 - CEC Gateway mod e - command to be to be sent to HDMI Input. 2 - CEC Gateway mod e - command to be se nt to HDMI Output	Set CEC Gateway mode: #CEC-GW- PORT-ACTIVE 1< CR>
CEC-G W- POR T- ACTIV E?	Get CEC Gat eway mode – Whether C EC commands c oming from HDMI stream to LAN	#CEC-GW-POR T- ACTIVE? <cr ></cr 	~nn@CEC-GW-P ORT- ACTIVE gw_ mode <cr><lf></lf></cr>	gw_mode: 0 - CEC Passthrough mode 1 - CEC Gateway mod e - command to be se nt to HDMI Input. 2 - CEC Gateway mod e - command to be to be sent to HDMI Outp ut.	Get CEC Gateway mode: #CEC-GW- PORT- ACTIVE?< CR>
CEC-NT FY	Notify about CEC comma nd retrieved f rom bus. NOTE: Notifi cation is sent to all com po rts upon CE C message r etrieval from CEC bus	N/A	~nn@CEC-NTFY port_index, len, <cec_command ><cr>< LF></cr></cec_command 	port_index - CEC port notifying the command len - 1-16 cec_command - CEC f ormat command (in H EX format, no leading zeros, no '0x' prefix)	Notify about CEC command retrieve d from bus.: ~01@CEC-NTFY 1,2,0F36 <cr></cr>
CEC-SN D	Send CEC c ommand to p ort.	#CEC-SND port _index, sn_id, c md_name, cec_l en, cec_command< CR>	~nn@CEC-SND p ort_index, sn_id, c md_name, cec_mode <cr><l F></l </cr>	port_index - CEC port transmitting the comm and (1 - number of por ts) sn_id - serial numb er of command for flow control and response c ommands from device cmd_name - command name cec_len - 1-1 6 cec_command - CE C format command (in HEX format, no leadin g zeros, no '0x' prefix) cec_mode - CEC mod e 0 - Sent (Only support Sent, other error feedb ack with common P3K error code)	Send CEC comma nd to port: #CEC- SND 1,1,1,2, E00 4 <cr></cr>

COM-R OUTE- A DD	Add a comm unication rou te tunnel con nection	#COM-ROUTE- ADD com_id, port_typ e, port_id, eth_rep_en, time out <cr></cr>	~nn@COM-ROUT E-ADD com_id, port_type, port_id, eth_rep_e n, timeout <cr><l F></l </cr>	com_id – Machine dep endent (number of por ts, only 1 accepted) po rt_type – TCP/UDP 0 – TCP port_id –port number (5000 to 5999) eth_rep _en – Ethernet Reply 0 – COM port does not send replies to new cli ents 1 – COM port sends re plies to new clients. timeout – Keep alive ti meout in seconds (1 to 3600)	Add a communication ro ute tunnel connect ion: #COM-ROUTE-A DD 1,0,5001,1,1< CR>
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COM-R OUTE- REMOV E	Remove a communicati on route tunnel conne ction.	#COM-ROUTE- REMOVE com_id <cr></cr>	~nn@COM-ROUT E-REMOVE com_id <cr><lf></lf></cr>	com_id – Machine dep endent (number of por ts, only 1 accepted)	Remove a commu nication route tunn el connection: #C OM-ROUTE-REM OVE 1 <cr></cr>
COM- R OUTE?	Get communicati on route tunnel conne ction state	#COM-ROUTE? com_id <cr></cr>	~nn@COM-ROUT E com_id, port_typ e, port_id, eth_rep _en, timeout <cr> <lf></lf></cr>	com_id – Machine dep endent (number of por ts, only 1 accepted), * (get all route tunnels) port_type – TCP/UDP 0 – TCP 1 – UDP port_id – TCP/UDP port number eth_rep_en – Ethernet Reply 0 – COM port does no t send replies to new clients 1 – COM port sends r eplies to new clients. timeout – Keep alive ti meout in seconds (1 to 3600)	Get tunneling port routing for all rout e tunnels: #COM-ROUTE? * <cr></cr>
CS-CON VERT	Set the "forc e RGB color space" convert mod e.	#CS-CONVERT out_index, cs_m ode <cr></cr>	~nn@CS-CONVE RT out_index, cs_mod e <cr><lf></lf></cr>	out_index - Number th at indicates the specifi c output: 1-N (N= the total numb er of outputs) cs_mode - Index in re solution table: 0 - Color space pass (default) 1 - Enable "force RG B color space" convert mode	Enable "force RG B color space" con vert mode for channel 1: #CS-CONVERT 1 ,1 <cr></cr>

CS- CO NVERT?	Get the "forc e RGB color space" convert mod e.	#CS-CONVERT ? out_index <cr></cr>	~nn@CS-CONVE RT out_index, cs_mod e <cr><lf></lf></cr>	out_index - Number th at indicates the specifi c output: 1-N (N= the total numb er of outputs) cs_mode - Index in re solution table: 0 - Color space pass (default) 1 - Enable "force RG B color space" convert mode	Get the "force RG B color space" con vert mode status f or channel 1: #CS -CONVERT? 1 <c R></c
ETH-PO RT	Set Ethernet port protocol. NOTE: If the port number you enter is already in us e, an error is returned. The port number must be within the following range: 0- (2^16-1).	#ETH-PORT por t_type, port_id< CR>	~nn@ETH-PORT port_type, port_id <cr><lf></lf></cr>	port_type: - TCP - UDP port_id - when port_ty pe = TCP: 5000~5099 when port_type = UDP : 50000~50999	Set the Ethernet p ort protocol for TC P to port 5000: #ETH-PORT TCP, 5000 <cr></cr>
ETH-PO RT?	Get Ethernet port protocol.	#ETH-PORT? port_type <cr></cr>	~nn@ETH-PORT port_type, port_id< CR> <lf></lf>	port_type: - TCP - UDP port_id - when port_ty pe = TCP: 5000~5099 when port_type = UDP : 50000~50999	Get the Ethernet p ort protocol for TC P: #ETH-PORT? TC P <cr></cr>
FACTOR Y	Reset device to factory def ault configur ation NOTE: 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.	#FACTORY <cr ></cr 	~nn@FACTORY o k <cr><lf></lf></cr>		Reset the device t o factory default c onfiguration: #FAC TORY <cr></cr>

GTW-MS G- NUM ?	Get Control Gateway Me ssages Coun ter from the device boot done. Add R ecv_Count a nd Send_Co unt NOTE: <dat e=""> is a legac y parameter and is ignore d.</dat>	#GTW-MSG-NU M? message_type, date <cr></cr>	~nn@GTW-MSG- NUM message_type, dat e, recv_counter, se nd_count <cr> <lf></lf></cr>	message_type - 1 = CEC 2 = IR 3 = RS232 date - Format: DD-M M-YYYY. Recv_counte r - counter of receive messages Send_counter - count er of send messages	Get Control Gateway Messages Counte r from certain peri od #GTW-MSG-NUM ? 1,01-01- 1970 <cr></cr>
HDCP-S TAT?	Get HDCP si gnal status. NOTE: io_m ode =1 - get the HDCP si gnal status o f the sink dev ice connecte d to the specified out put. io_mode =0 - get the HDCP signal status of the source devic e connected to the specified inp ut.	#HDCP-STAT? i o_mode, in_inde x <cr></cr>	~nn@HDCP-STAT io_mode, io_index, status <cr><lf></lf></cr>	io_mode – Input/Output t 0 – Input 1 – Output io_index – Number tha t indicates the specific number of inputs or ou tputs (based on io_mo de): 1-N (N=total numb er of inputs or outputs) status – Signal encrypt ion status – valid value s On/Off 0 – HDCP Off 1 – HDCP On	Get the output HD CP- STATUS of IN 1: #HDCP-STAT? 0,1 <cr></cr>
HELP	Get comman d list or help for specific c ommand.	#HELP <cr></cr>	1. Multi-line: ~nn@Device cmd_name, cmd_name <cr>< LF></cr>	cmd_name - Name of a specific command	Get the command list: #HELP <cr></cr>
HW- TEMP?	Get device h eat	#HW-TEMP? m ode <cr></cr>	~nn@HW-TEMP r egion_id, temperat ure <cr><lf></lf></cr>	mode – Celsius or Fah renheit 0 – Celsius 1 – Fahrenheit temperature – Temper ature of the region, rou nded down to the closest integer	Get temperature i n Celsius of first C PU #HW-TEMP? 0,0< CR>
HW- VE RSION?	Get hardwar e version	#HW- VERSION? <cr ></cr 	~nn@HW- VERSION hardware_version< CR> <lf></lf>	hardware_version – X X.XX.XXXX where the digit groups are: major. minor. versi on	Get hardware vers ion #HW-VERSIO N? <cr></cr>

IDV	Set visual in dication from device. NOTE: Usin g this command, s ome devices can light a sequence of buttons or L EDs to allow identification of a specific device froms imilar device s.	#IDV <cr></cr>	~nn@IDV ok <cr> <lf></lf></cr>		#IDV <cr></cr>
KDS-AC TION	Set action to perform by e ncoder/decod er.	#KDS-ACTION kds_mode <cr></cr>	~nn@KDS-ACTIO N kds_mode <cr><l F></l </cr>	kds_mode - Action (st ate) for encoder/decod er 0 - Stop 1 - Play 2 - Save config	Stop the encoder/ decoder: #KDS-A CTION 0 <cr></cr>
KDS- AC TION?	Get last actio n (state) perf ormed by en coder/decode r.	#KDS-ACTION? <cr></cr>	~nn@KDS-ACTIO N kds_mode <cr><l F></l </cr>	kds_mode - Action (st ate) for encoder/decod er 0 - Stop 1 - Play 2 - Save config	Get the last action performed by the encoder/decoder: #KDS-ACTION?< CR>
KDS- CH ANNEL- SELECT	Set decoder AV or IR cha nnel. Add sig nal_type	#KDS-CHANNE L-SELECT [signa l_type_1, signal_ type_2], ch_id <cr></cr>	~nn@KDS-CHAN NEL- SELECT [signal_ty pe_1, signal_type_ 2,], ch_id <cr>< LF></cr>	<signal_type> - Signal ID attribute: VIDEO AUDIO IR RS232 USB CEC ch_id - Number that in dicates the specific inp ut 0-999. 0 is to cancel the channel select.</signal_type>	Tune the decoder t o ch_id 1 #KDS-C HANNEL-SELECT [video,audio,rs232 ,ir,usb,cec], 1 <cr ></cr
KDS- CH ANNEL- SELECT ?	Get decoder AV or IR cha nnel Add si gnal_type	#KDS-CHANNE L- SELECT? signal_type <cr></cr>	~nn@KDS-CHAN NEL- SELECT signal_type, ch_id <cr><lf></lf></cr>	<signal_type> - Signal ID attribute: VIDEO AUDIO IR RS232 USB CEC ch_id - Number that in dicates the specific inp ut 0-999. 0 cancels the channel selection.</signal_type>	Get channel ID #KDS-CHANNEL- SELECT? video <cr></cr>

		T.			
KDS-DAI SY- CHA IN	Set daisy ch ain mode.	#KDS-DAISY-C HAIN daisy_mode <cr ></cr 	~nn@KDS-DAISY- CHAIN daisy_mode <cr> <lf></lf></cr>	daisy_mode 0 - OFF (disables dais y chain) 1 - ON (enables daisy chain)	Enable DAISY mo de #KDS-DAISY- CHAIN 1 <cr></cr>
KDS-DAI SY- CHA IN?	Get daisy ch ain mode.	#KDS-DAISY- C HAIN? <cr></cr>	~nn@KDS-DAISY- CHAIN daisy_mode <cr> <lf></lf></cr>	daisy_mode 0 - OFF (disables dais y chain) 1 - ON (enables daisy chain)	Get DAISY mode #KDS-DAISY- CHAIN? <cr></cr>
KDS-G W-ETH	Set gateway network port	#KDS-GW-ETH gw_type, netw_i d <cr></cr>	~nn@KDS-GW- ETH gw_type ,netw_id <cr><lf ></lf </cr>	gw_type: 0 - Control netw_id - Network ID- the device network inte rface (if there are more than one): 0 - Media Port 1 - Service Port	Set control port to eth1 #KDS-GW-E TH_0,1 <cr></cr>
KDS-G W- ETH?	Get gateway network port.	#KDS-GW- ETH? gw_type <cr></cr>	~nn@KDS-GW- ETH gw_type, net w_id <cr><lf></lf></cr>	gw_type: 0 - Control netw_id - Network ID- the device network inte rface (i f there are more than o ne).0 - Media Port 1 - Service Port	Get Control port #KDS-GW-ETH? 0 <cr></cr>
KDS- M ETHOD	Set unicast / multicast . A dd Set Com mand ; Add Multicast	#KDS-METHOD 1 <cr></cr>	~nn@KDS-METH OD method <cr><lf></lf></cr>	method – Streaming m ethod – 1 Unicast 2 M ulticast	Set current stream ing method of enc oder/decoder: #K DS-METHOD 1 <c R></c
KDS- M ETHOD?	Get unicast / multicast Ad d Multicast.	#KDS-METHOD ? <cr></cr>	~nn@KDS-METH OD method <cr><lf></lf></cr>	method – Streaming m ethod 1 – Unicast 2 – Multicast	Get current strea ming method of e ncoder/decoder: # KDS-METHOD <c R></c
KDS- M ULTICAS T	Set multicast group address and TTL value.	#KDS-MULTICA ST group_ip, ttl <cr ></cr 	~nn@KDS-MULTI CAST group_ip, ttl <cr>< LF></cr>	group-ip – Multicast gr oup IP is ignored. ttl – Time to Live of the streamed packets.	Set multicast grou p address and TT L value #KDS-MULTICAS T 0.0.0.0,64 <cr></cr>
KDS- M ULTICAS T?	Get multicast group address and TTL value.	#KDS-MULTICA ST? <cr></cr>	~nn@KDS-MULTI CAST group_ip, ttl <cr>< LF></cr>	group-ip – Multicast gr oup IP is ignored, so th e response is always 0 .0.0.0 ttl – Time to Live of the streamed packets.	Get multicast grou p address and TT L value #KDS-MULTICAS T? <cr></cr>

KDS-OS D- DISP LAY	Set decoder OSD display.	#KDS-OSD-DIS PLAY mode <cr></cr>	~nn@KDS-OSD_ DISPLAY mode <cr><lf></lf></cr>	osd mode 0 – off 1 – on 2 – display now + on	Set OSD Display mode on #KDS-O SD-DISPLAY 1 <c R></c
KDS-OS D- DISP LAY?	Get decoder OSD display status.	#KDS-OSD- DIS PLAY? <cr></cr>	~nn@KDS-OSD_ DISPLAY mode <cr><lf></lf></cr>	osd mode { 0 - off 1 - on }	Get OSD display mode #KDS-OSD- DISPLAY? <cr></cr>
KDS-RA TIO?	Get aspect r atio.	#KDS-RATIO?< CR>	~nn@KDS-RATIO value <cr><lf></lf></cr>	value – Streamer Deco der Aspect Ratio width :height, for example "1 6:9"	Get Aspect Ratio #KDS-RATIO? <c R></c

io_mode - Input/Outpu
t
0 – Input
1 – Output
io_index - Number tha
t indicates the specific i
nput or output port:
1-N (N= the total numb
er of input or output po
rts)
is_native – Native reso
lution flag
0 – Off
1 – On
resolution – Resolution
index 0=No Signal 1=6
40x480p@59.94Hz/60
Hz
2=720x480p@59.94Hz
/60Hz
3=(Reserved)
4=1280x720p@59.94H
z/60Hz
5=1920x1080i@59.94
Hz/60Hz
6=720(1440)x480i@59
.94Hz/60Hz
7-15=(Reserved) 16=1
920x1080p@59.94Hz/6 0Hz
17=720x576p@50Hz
18=(Reserved) 19=12
80x720p@50Hz
20=1920x1080i@50Hz
21-30=(Reserved) 31=
1920x1080p@50Hz
32=1920x1080p@23.9
7Hz/24Hz
33=1920x1080p@25Hz
34=1920x1080p@29.9
7Hz/30Hz
35-38=(Reserved) 39=

				1920x1080i@50Hz 40-64=(Reserved) 65= 800x600p@60Hz	
				66=1024×768@60Hz	
				67=1280x768p@60Hz	
				68=1280x1024p@60Hz	
				69=1600x1200p@60Hz	
				70=1680x1050p@60Hz	
				71=1920×1200@60Hz	
				72=3840x2160p@24Hz	
				73=3840x2160p@25Hz	
				74=3840x2160p@30Hz	
				75=3840x2160p@50Hz	
				76=3840x2160p@60Hz	
				77-97=(Reserved) 98= 4096x2160p@24Hz	
				99=4096x2160p@25Hz	
				100=4096x2160p@30	
				Hz	
				101=4096x2160p@50	
				Hz	
				102=4096x2160p@60	
				Hz	
				103-1000=(Reserved)	
				1000=640×350@85Hz	
				1001=640x400p@85Hz	
				1002=720x400p@85Hz 1003=(Reserved) 100	
				4=640x480p@72Hz	
				1005=640x480p@75Hz	
				1006=640x480p@85Hz	
				1007=(Reserved) 100	
				8=(Reserved)	
				1009=800x600p@72Hz	
				1010=800x600p@75Hz	
				1011=800x600p@85Hz	
				1012=848x480p@60Hz	
				1013=1024x768i@43H	
				z 1014=(Reserved) 101	
			~nn@KDS-	5=1024x768p@70Hz	
	Get actual A	#KDS-RESOL? i	RESOL? io_mode,	1016=1024x768p@75	
KDS-RE	V stream res	o_mode, io_inde	io_index,	Hz	
SOL?	olution.	X,	is_native, resolutio	1017=1024x768p@85	
		is_native <cr></cr>	n <cr><lf></lf></cr>	Hz	
				1018=1152x864p@75	
				Hz	
				1019=(Reserved) 102	
				0=(Reserved) 1021=1280x768p@85	
				Hz	
				1022=1280x800p@60	
				Hz	
				1023=1280x800p@75	
				Hz	
				1024=1280x800p@85	
				Hz	
				1025=1280x800p@120	
				Hz	

1026=1280x960p@60
Hz 1027=1280x960p@85
Hz
1028=(Reserved) 102
9=1280x1024p@75Hz
1030=1280x1024p@85
Hz
1031=1360x768p@60
Hz 1032=1366x768p@60
Hz
1033=1400x1050p@60
Hz
1034=1400x1050p@75
Hz 1035=1400x1050p@85
Hz
1036=1440x900p@60
Hz
1037=1440x900p@75
Hz
1038=1440x900p@85 Hz
1039=1600x900p@60
Hz
1040=(Reserved) 104
1=1600x1200p@65Hz
1042=(Reserved) 104
3=1600x1200p@75Hz
1044=1600x1200p@85
Hz
1045=(Reserved) 104
6=1680x1050p@75Hz
1047=1680x1050p@85
•
Hz 1048=1792x1344p@60
Hz
1049=1792x1344p@75
Hz
1050=1856x1392p@60
Hz
1051=1856x1392p@75 Hz
1052=1920x1200p@50
Hz
1053=(Reserved) 105
4=1920x1200p@75Hz1
055=1920x1200p@85
Hz
1056=1920x1440p@60
Hz
1057=1920x1440p@75
Hz
10E0 (Danamiral) 10E
1058=(Reserved) 105
9=2048x1152p@60Hz
1

				1060=2560x1600p@60 Hz	
				1061=2560x1600p@75 Hz	
				1062=2560x1600p@80 Hz	
			I		
KDS-SC ALE	Set scaling mode Add re s_type.	#KDS-SCALE va lue, res_type <c R></c 	~nn@KDS-SCALE value, res_type <c R><lf></lf></c 	value – Streamer Deco der Scaling Mode 0 – Pass Thru 1 – Scaling res_type[option] – res_ type refer to #KDS-RE SOL? Scaling should have a ' res_type'	Set scale to scalin g, resolution is 10 80P60 #KDS-SCA LE 1,16 <cr></cr>
KDS-SC ALE?	Get scaling mode Add re s_type.	#KDS-SCALE?< CR>	~nn@KDS-SCALE value, res_type <c R><lf></lf></c 	value – Streamer Deco der Scaling Mode 0 – Pass Thru 1 – Scaling res_type[option] – res_ type refer to #KDS-RE SOL? Scaling should have a ' res_type'	Get scaling mode #KDS-SCALE? <c R></c
KDS-VL	Set vlan tag	#KDS-VLAN-TA	~nn@KDS-VLAN- TAG	gw_type: 0 - Control	Set vlan tag
AN- TAG	of gateway p ort.	G gw_type, tag_i d <cr></cr>	gw_type, tag_id <c R><lf></lf></c 	tag_id – vlan tag (1 to 4093) 1 – No VLAN ta g	#KDS-VLAN-TAG <u>0,</u> 33 <cr></cr>
KDS-VL	Get vlan tag	#KDS-VLAN-TA G?	~nn@KDS-VLAN- TAG	gw_type: 0 - Control tag_id - vlan tag (1 to	Get vlan tag
AN- TAG ?	of gateway p ort.	gw_type <cr></cr>	gw_type, tag_id <c R><lf></lf></c 	4093) 1 – No VLAN ta	#KDS-VLAN-TAG ? <u>0</u> <cr></cr>
KDS-VW - BEZEL	Set Video W all bezel com pensation.	#KDS-VW-BEZE L vw, ow, vh, oh <cr></cr>	~nn@KDS-VW-BE ZEL vw, ow, vh, oh <cr><lf></lf></cr>	VW: 0~100000 ow: 0~100000 vh: 0~100000	Set bezel compen sation #KDS-VW- BEZEL 12210,123 10,6860,6960 <cr< td=""></cr<>

oh: 0~100000

	1	T.	T.	T	1
KDS-VW - BEZEL ?	Get Video W all bezel com pensation.	#KDS-VW-BEZE L? <cr></cr>	~nn@KDS-VW-BE ZEL vw, ow, vh, oh <cr><lf></lf></cr>	VW: 0~100000 ow: 0~100000 vh: 0~100000 oh: 0~100000	Get bezel compen sation #KDS-VW- BEZEL? <cr></cr>
KDS-VW - PATTE RN	Set test patte rn mode of vi deo wall	#KDS-VW-PATT ERN mode <cr></cr>	~nn@KDS-VW-PA TTERN mode <cr><lf></lf></cr>	mode 0 – OFF (Disable test pattern) 1 – On (Enable test pattern)	Set video wall test pattern on #KDS- VW-PATTERN 1< CR>
KDS-VW - PATTE RN?	Get test patt ern mode of video wall	#KDS-VW- PAT TERN? <cr></cr>	~nn@KDS-VW-PA TTERN mode <cr><lf></lf></cr>	mode 0 – OFF (Disable test pattern) 1 – On (Enable test pattern)	Get video wall test pattern on #KDS- VW-PATTERN?< CR>
LDFW	Load new fir mware file. NOTE: In m ost devices firmware data is saved to flash memory, but the memory does not update until receiving the "UPGRADE" command and is restarted.	Step 1: #LDFW size <cr> Step 2: If read y was received, send FIRMWAR E_DATA</cr>	Response 1: ~nn@LDFW size r eady <cr><lf> R esponse 2:~nn@L DFW size ok<cr><lf></lf></cr></lf></cr>	size – Size of firmware data that is sent firmware_data – HEX or KFW file in protocol packets Using the Packet Proto col Send a command: LD RV, LOAD, IROUT, LD EDID Receive Ready or ER R### If Ready: a. Send a packet, b. Receive OK on the I ast packet,c. Receive OK for the command P acket structure: Packet ID (1, 2, 3) (2 bytes in length) Length (data length + 2 for CRC) – (2 bytes in length) Data (data length -2 by tes) CRC – 2 bytes Response: ~nnnn ok< CR> <lf> (Where NN NN is the received packet</lf>	
LOCK-F P	Lock the fron t panel.	#LOCK-FP lock/unlock <cr></cr>	~nn@LOCK-FP loc k/unlock <cr><lf ></lf </cr>	Lock/Unlock – On/Off 0 – (Off) Unlocks 1 – (On) Locks	Unlock front panel : #LOCK-FP 0 <cr ></cr

LOCK-F P?	Get the front panel lock st ate.	#LOCK-FP? <u><cr< u=""> ≥</cr<></u>	~nn@LOCK-FP loc k/unlock <cr><lf ></lf </cr>	Lock/Unlock – On/Off 0 – Unlocked 1 – Locked	Get the front panel lock state: #LOCK -FP? <cr></cr>
LOG-AC TION	Reset events log.	#LOG-ACTION a ction, period <cr ></cr 	~nn@LOG-ACTIO N action, period <c R><lf></lf></c 	action – One of 1 – Start, start logging 2 – Pause, pause logging but keep log content 3 – Resume, resume t he logging 4 – Reset, clear all cur rent logs, keep logging period – Relevant for " start" 1 – Keep current 2 – Daily 3 – Weekly (default)	Reset events log : # LOG-ACTION 4,1 <cr></cr>

LOGIN	Set protocol permission. NOTE: Work s only if security is enable d with the "S ECUR" command. LOGIN allow s the user to run commands with an End User or Administrator permission level. When the permission system is enabled, LOGIN enables running commands with the User or Administrator permission level. When set, login must be performed upon each connection It is not mandatory to enable the permission system in order to use the device. In each device, some connections allow logging in to different le	#LOGIN login_le vel, password <c R></c 	~nn@LOGIN login _level, password o k <cr><lf></lf></cr>	login_level – Level of p ermissions required (U ser or Admin: only 'ad min' is acceptable on t his device). password – Predefined password (by PASS co mmand). Default pass word is 'admin'.	Set the protocol p ermission level to Admin (when the password defined in the PASS com mand is 33333): # LOGIN admin,333 33 <cr></cr>
	ssion system in order to us e the device. In each devic e, some con nections allo w logging in t				

	1	I	T		1
LOGIN?	Get current p rotocol permi ssion level. NOTE: Work s only if security is enable d with the "S ECUR" command. For devices t hat support s ecurity, LOGI N allows the user to run commands with an End User or Administrator permission I evel. In each device, some connections allow logging in to different levels. Some do not work with security at all. Connection may logout a fter timeout.	#LOGIN? <cr></cr>	~nn@LOGIN login _level <cr><lf></lf></cr>	login_level – Level of p ermissions required (U ser or Admin, only 'ad min' is acceptable on t his device).	Get current protoc ol permission level: #LOGIN? <c R></c
LOGOU T	Cancel curre nt permission I evel. NOTE: Logs out of End User or Administrator permission I evels to Not Secure.	#LOGOUT <cr></cr>	~nn@LOGOUT ok <cr><lf></lf></cr>		#LOGOUT <cr></cr>
LOGOU T- TIME OUT	Set inactivity auto- logout t ime.	# LOGOUT-TIM EOUT time <cr></cr>	~nn@ LOGOUT-TI MEOUT time <cr><lf></lf></cr>	time – minutes of logo ut time	Set Inactivity autologout time to 10 #LOGOUT-TIMEO UT 10 <cr></cr>
LOGOU T- TIME OUT?	Get inactivity auto- logout t ime.	#LOGOUT- TIM EOUT? <cr></cr>	~nn@LOGOUT-TI MEOUT time <cr><lf></lf></cr>	time – minutes of logo ut time	Get Inactivity auto -logout time #LOG OUT-TIMEOUT?< CR>
MODEL?	Get device m odel.	#MODEL? <cr></cr>	~nn@MODEL model_name <cr> <lf></lf></cr>	model_name – String of up to 24 printable A SCII chars	Get the device mo del: #MODEL? <c R></c

NAME	Set machine DNS name. NOTE: The machine name is not the same as the model name. The machine name is used to ident ify a specific machine or a network in use (with DN S feature on).	#NAME interface_id, hos t_name <cr></cr>	~nn@NAME interf ace_id, host_name <cr><lf></lf></cr>	interface_id: 0 – machi ne name host_name – String of up to 24 alph a-numeric chars (can i nclude hyphen, unders core, not at the beginni ng or end)	Set the machine D NS name of the d evice to room- 442: #NAME 0,roo m-442 <cr></cr>
NAME?	Get machine DNS name. NOTE: The machine na me is not the same as the model name. The machine name is used to ident ify a specific machine or a network in use (withDN S feature on).	#NAME? interfa ce_id <cr></cr>	~nn@NAME interf ace_id, host_name <cr><lf></lf></cr>	interface_id: 0 – machi ne name host_name – String of up to 24 alph a-numeric chars (can i nclude hyphen, not at t he beginning or end)	Get the DNS nam e of the device: #NAME? 0 <cr></cr>
NAME-R ST	Reset machi ne (DNS) na me to factory default. NOT E: Factory d efault of mac hine (DNS) n ame is "KRA MER_" + 4 la st digits of devi ce serial nu mber.	#NAME-RST <c R></c 	~nn@NAME-RST OK <cr><lf></lf></cr>		Reset the machine name (S/ N last digits are 0102): #NAME-R ST <cr></cr>

NET-CO NFIG	Set a network configuration. NOTE: For B ackward compatibility, the id param eter can be o mitted. In this case, the N etwork ID, by default, is 0, which is the Ethernet con trol port.NOTE: If the gate way address is not compliant to the subnet mask used for the host IP, the command will return an error. Subnet and gateway compliancy specified by R FC950. NOTE: This set the device to DH CP OFF automatically.	#NET-CONFIG netw_id, net_ip, net_mask, gateway <cr></cr>	~nn@NET-CONFI G netw_id, net_ip, net_mask, gatewa y <cr><lf></lf></cr>	netw_id – Network ID– ID of the Ethernet port: 0 – Media Port 1 – Service Port net_ip – Network IP net_mask – Network mask gateway – Netw ork gateway	Set the device net work parameters t o IP address 192. 168.113.10, net m ask 255.255.0.0, and gateway 192.168.0.1: #NET-CONFIG 0, 192.168.113.10,25 5.255.0. 0,192.168.0.1 <cr></cr>
NET- CO NFIG?	Get a networ k configuration	#NET-CONFIG? netw_id <cr></cr>	~nn@NET-CONFI G netw_id, net_ip, net_mask, gatewa y <cr><lf></lf></cr>	netw_id – Network ID– ID of the Ethernet port: 0 – Media Port 1 – Service Port net_ip – Network IP net_mask – Network mask gateway – Netw ork gateway	Get network confi guration: #NET-C ONFIG? 0 <cr></cr>

NET-DH CP	Set DHCP m ode. NOTE: Only 1 is rele vant for the mode value. To disable D HCP, the use r must config ure a static I P address fo r the device. Connecting Ethernet to d evices with DHCP may t ake more tim e in some ne tworks. To connect w ith a randoml y assigned I P by DHCP, specify the d evice DNS n ame (if avail able) using t he NAME co mmand. You can also get an assigned IP by direct c onnection to USB or RS-2 32 protocol p ort, if available e. For proper settings cons ult your netw ork administr ator.NOTE: ForB ackwar d compatibilit y, the id para meter can be omitted. In th is case, the Network ID, by default, is 0, which is the Entrol port.	#NET-DHCP net w_id, dhcp_state <cr></cr>	~nn@NET-DHCP netw_id, dhcp_stat e <cr><lf></lf></cr>	netw_id – Network ID— the device network inte rface (if there are more than one). Counting is 0 based, meaning the control port is '0', additi onal ports are 1,2,3 dhcp_state – 1 – Try to use DHCP. (I f unavailable, use the I P address set by the fa ctory or the net-ip com mand).	Enable DHCP mo de for port 1, if av ailable: #NET-DHCP 1,1< CR>
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	Get DHCP m			netw_id – Network ID–	
NET-DH CP?	NOTE: For B ackward compatibility, the id param eter can be o mitted. In thi s case, the N etwork ID, by default, is 0, which is the Ethernet con trolport.	#NET-DHCP? netw_id <cr></cr>	~nn@NET-DHCP netw_id, dhcp_stat e <cr><lf></lf></cr>	the device network inte rface (if there are more than one). Counting is 0 based, meaning the control port is '0', additi onal ports are 1,2,3 dhcp_state – 1 – Try to use DHCP. (If unavaila ble, use the IP address set by the factory or the net-ip command).	Get DHCP mode f or port 1, if availab le: #NET-DHCP? 1< CR>
NET-MA C?	Get MAC ad dress.	#NET-MAC? <c R></c 	~nn@NET-MAC m ac_address <cr>< LF></cr>	mac_address - Uniqu e MAC address. Format: XX-X X-XX-XX-XX wher e X is hex digit	#NET-MAC? <cr></cr>
NET-ST AT?	Get net conn ection list of this machine. NOTE: The response is returned in one line and terminated with CR>CLF>. The response format lists signal IDs separated by commas. This is an Extended Protocol 3000 command.	#NET-STAT? <c R></c 	~nn@NET-STAT [(<port_type>: <port _index="">, <client_ip>:<client_port>),st ate],,<cr><lf></lf></cr></client_port></client_ip></port></port_type>	port_type - TCP/UDP 0 - TCP 1 - UDPport_index - Device port client_ip - Dot-separated represe ntation of the IP addre ss client_port - Client port state - listen or es tablished	Get net connection list of t his machine: #NET-STATE? <c r=""> ~01@NETSTAT [(TCP:80,0.0.0:0), LISTEN],[(TCP:5 000,0.0.0:0), LIS TEN], [(TCP:80,19 2.168.114.3:5240 0),ESTABLISHED],[(TCP:5000,192.1 68.1.100:51647), EST ABLISHED]< CR><lf></lf></c>
NET-IP?	Get the devic e's network I P address. F or UDP proto col only.	#NET-IP? <cr></cr>	~nn@NET-IP net_i p <cr><lf></lf></cr>	net_ip – Network IP	Get network ip ad dress: #NET-IP?< CR>

PASS	Set passwor d for login lev el. The default p assword is " admin".	#PASS login_lev el, password <cr></cr>	~nn@PASS login_level, passw ord <cr><lf></lf></cr>	login_level – Level of I ogin to set (admin sup port only). password – Password for the login_level. 8 to 24 characters (letters, nu mbers, and symbols w ithout spaces or comm as), at least including o ne number, one symbols without space s or commas, one upp ercase letter and one I owercase letter.	Set the password f or the admin proto col permission lev el to 33333: #PASS admin,333 33 <cr></cr>
PASS?	Get passwor d for login lev el. The default p assword is " admin".	#PASS? login_le vel <cr></cr>	~nn@PASS login_level, passw ord <cr><lf></lf></cr>	login_level – Level of I ogin to set (End User o r Administrator). password – Password for the login_level.	Get the password for the admin prot ocol permission le vel: #PASS? admin <c R></c
PORT- D IRECTIO N	Set port dire ction as input or output.	#PORT-DIRECTI ON <direction_type> .<port_for mat="">. <port_index>.<si gnal_type>,direct ion<cr></cr></si </port_index></port_for></direction_type>	~nn@PORT-DIRE CTION <direction_type>.< port_format>. <por t_index>. <signal_t ype>,dir ection<c R><lf></lf></c </signal_t </por </direction_type>	The following attribute s comprise the signal I D: <direction_type> - Direction of the port: { I N - Input; OUT - Output; BOTH - Bi-dir ectional } <port_format> - Type of signal on the port: { HDMI; ANALOG-AUDI O; IR } <port_index> - The port number as printed on the front or rear pane I <signal_type> - Signal ID attribute: { AUDIO; IR } <direction> - Direction of the port: { IN - Input; OUT - Output; }</direction></signal_type></port_index></port_format></direction_type>	Set audio analog port direction as in put #PORT-DIRE CTION both.analog.1.audi o,IN <cr></cr>

PORT- D IRECTIO N?	Get port dire ction.	#PORT-DIRECTI ON? <direction_type> .<port_for mat="">. <port_index>.<si gnal _type><cr></cr></si </port_index></port_for></direction_type>	~nn@PORT-DIRE CTION <direction_type>.< port_format >. <port_index>.<sig nal_type>,dir ectio n<cr><lf></lf></cr></sig </port_index></direction_type>	The following attribute s comprise the signal I D: <direction_type> - Dir ection of the port: { IN - Input; OUT - Output; BOTH - Bi-directional } <port_format> - Type of signal on the port: { HDMI; ANALOG-AUDIO; IR } <port_index> - The port number as printed on the front or rear pane I < signal_type> - Signal ID attribute: { AUDIO; IR } <direction> - Direction of the port: { IN - Input; OUT - Output;}</direction></port_index></port_format></direction_type>	Get audio analog port direction #PORT-DIRECTI ON?both.analog.1 .audio <cr></cr>
PORTS- LIST?	Get the port I ist of this ma chine. NOTE: The r esponse is r eturned in on e line and ter minated with <cr><lf>. The respons e format lists port IDs separated by commas. This is an Ex tended Proto col 3000 command.</lf></cr>	#PORTS-LIST? <cr></cr>	~nn@PORTS-LIS T [<direction_type>. <port_format >.<port_index>,,] <cr><lf></lf></cr></port_index></port_format </direction_type>	The following attribute s comprise the port ID: <direction_type> - Dir ection of the port: · IN · OUT · BOTH <port_format> - Type of signal on the port: · HDMI · HDBT · ANALOG_AUDIO · AMPLIFIED_AUDIO · TOS · SPDIF · MIC · RS-232 · IR · USB_A · USB_B <port_index> - The port number as printed on the front or rear pane I</port_index></port_format></direction_type>	Get the ports list: #PORTS-LIST?< CR>

RESET	Reset device NOTE: To av oid locking th e port due to a USB bug in Windows, dis connect USB connections i mmediately after running this comman d. If the port was locked, disconnect a nd reconnect th e cable to re open the port	#RESET <cr></cr>	~nn@RESET ok< CR> <lf></lf>		Reset the device: #RESET <cr></cr>
ROLLBA CK	Rollback firm ware to stan dby version.	#ROLLBACK <c R></c 	~nn@ROLLBACK ok <cr><lf></lf></cr>		Perform firmware rollback: # ROLLB ACK <cr></cr>
SECUR	Start/stop se curity. NOTE: The permission s ystem works only if securit y is enabled with the "SE CUR" comm and.	#SECUR security_state <c r=""></c>	~nn@SECUR security_state <cr ><lf></lf></cr 	security_state - Security state 0 - OFF (disables security) 1 - ON (enables security)	Enable the permis sion system: #SECUR 0 <cr></cr>

SIGNAL S- LIST?	Get signal ID list of this ma chine. NOTE: The r esponse is r eturned in on e line and ter minated with <cr><lf>. The respons e format lists signal IDs se parated by c ommas. This is an Ex tended Proto col 3000 command.</lf></cr>	#SIGNALS-LIST ? <cr><lf ></lf </cr>	~nn@SIGNALS-LI ST [<direction_type>. <port_format >.<port_label>.<si gnal_type>.< index >,]<cr><lf></lf></cr></si </port_label></port_format </direction_type>	The following attribute s comprise the signal I D: <direction_type> - Direction of the port: IN - Input OUT - Output BOTH - Bi-directional (e.g. for RS-232) <port_format> - Type of signal on the port: HDMI HDBT ANALOG_AUDIO AMPLIFIED_AUDIO TOS SPDIF MIC RS-232 IR USB_A USB_B <port_index> - The po rt number as printed o n the front or rear pane I < signal_type> - Sign al ID attribute: VIDEO AUDIO ARC RS232 IR USB <index> - Indicates a specific channel numb er when there are multiple channels of th e same type</index></port_index></port_format></direction_type>	Get signal ID list: #SIGNALS-LIST? <cr></cr>
SN?	Get device s erial number.	#SN? <cr></cr>	~nn@SN serial_nu m <cr><lf></lf></cr>	serial_num – 14 decim al digits, factory assign ed	Get the device ser ial number: #SN? <cr></cr>
STANDB Y- VERSIO N?	Get standby firmware ver sion.	#STANDBY- VERSION? <cr ></cr 	~nn@STANDBY-V ERSION? standby_version <c R><lf></lf></c 	standby_version – XX. XX.XXXX where the digit groups are: major.minor.build version	Get standby versi on #STANDBY-VERS ION? <cr></cr>

TIME	Set device ti me and date. NOTE: The year must be 4 digits. The device does not validate the day of we ek from the date. Time for mat – 24 hours. Date form at – Day, Month, Year.	#TIME day_of_w eek, date, data< CR>	~nn@TIME day_of _week, date, data <cr><lf></lf></cr>	day_of_week - One of {SUN,MON,TUE,WED, THU,FRI,SAT} date - Format: DD-M M-YYYY. data - Format: hh:mm:ss whe re hh = hours mm = mi nutes ss = seconds	Set device time and date to December 5, 2018 at 2:30 pm: #TIME mon 05-12-2018,14:30:00 <cr></cr>
TIME?	Get device ti me and date. NOTE: The year must be 4 digits. The device does not validate the day of we ek from the date. Time for mat – 24 hours. Date format – Day, Month, Year.	#TIME? <cr></cr>	~nn@TIME day_of _week, date, data <cr><lf></lf></cr>	day_of_week - One of {SUN,MON,TUE,WED, THU,FRI,SAT} date - Format: YYYY/MM/DD where YYYY = Year, MM = Month, DD = Day data - Format: hh:mm: ss where hh = hours mm = minutes ss = sec onds	Get device time a nd date: #TIME?< CR>

TIME-LO C	Set local tim e offset from UTC/GMT. N OTE: If the ti me server is configured, d evice time ca lculates by a dding UTC_o ff to UTC tim e (that it got f rom the time server) + 1 h our if daylight savi ngs time is in effect. TIME command se ts the device time without considering t hese settings. NOTE: Dayli ght saving ti me not supp ortNOTE: Restart unit t o take effect	#TIME-LOC utc_ off, dst_state <c R></c 	~nn@TIME-LOC u tc_off, dst_state <c R><lf></lf></c 	utc_off – Offset of device time from UTC/GM T (without daylight time correction), Format HH:MM (':MM' is optional) HH – Hours, -12 ~ 13 MM – Minutes, 00 ~ 59 dst_state – Daylight saving time state 0 – nodaylight saving time	Set local time offs et to 3 with no day light-saving time: #TIME-LOC 3,0< CR> or#TIME-LO C 03:00,0 <cr></cr>
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TIME-LO C?	Get local tim e offset from UTC/GMT. N OTE: If the ti me server is configured, d evice time ca lculates by a dding UTC_o ff to UTC tim e (that it got f rom the time server) + 1 h our if daylight savi ngs time is in effect. TIME command se ts the device time without considering t hese settings. NOTE: Dayli ght saving ti me not supp ort	#TIME-LOC? <c R></c 	~nn@TIME-LOC u tc_off, dst_state <c R><lf></lf></c 	utc_off – Offset of device time from UTC/GM T (without daylight time correction), Format HH:MM (':MM' is optional)" HH – Hours, -12 ~ 13 MM – Minutes, 00 ~ 59 dst_state – Daylight saving time state 0 – nodaylight saving time	Get local time offs et from UTC/GMT: #TIME-LOC? <cr ></cr
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				mode – On/Off	
TIME- SRV	Set time serv er. NOTE: T his command is needed for s etting UDP ti meout for the current client list.	#TIME-SRV mode, time_server_ip, sync_hour <cr></cr>	~nn@TIME-SRV mode, time_server _ip, sync_hour, ser ver_status <cr><l F></l </cr>	0 - Off	Set time server wit h IP address of 12 8.138.140.44 to O N: #TIME-SRV 1,128 .138.140.44,0,1 <c R></c
				1 – On	
				time_server_ip - Time server IP address	
				sync_hour – Hour in d	
				ay for time server sync	
				server_status - On/Off	
				mode – On/Off	
TIME- SRV?	Get time ser ver. NOTE: This comma nd is needed for setting U DP timeout f or the curren t client list.	#TIME-SRV? <u><c< u=""> R≥</c<></u>	~nn@TIME-SRV mode, time_server _ip, sync_hour, ser ver_status <cr><l F></l </cr>	0 – Off	me Get time server: #
				1 – On	
				time_server_ip - Time	
				server IP address	TIME-SRV? <cr></cr>
				sync_hour – Hour in d ay for time server sync	
				server status – On/Off	
				- 55.135tata5	

UART?	Get com port configuration . NOTE: In the FC-2x the serial port is selectable to RS-232 or RS-485 (usually serial port 1). If Serial is configured when RS-485 is selected, the RS-485 UART port automatically changes. The command is backward compatible, meaning that if the extraparameters donot exist, FW goes to. RS-232. Stop_bits 1.5 is only relevant for 5 data_bits.	#UART? com_id <cr></cr>	~nn@UART com_i d,baud_rate,data_b its,pa rity,stop_bits _mode,serial_type ,485_term <cr><l F></l </cr>	com_id – 1 to n (machi ne dependent) baud_r ate – 9600 – 115200 data_bits – 5-8 parity – Parity Type 0 – No 1 – Odd 2 – Even 3 – Mark 4 – Space stop_bits_ mode – 1/1.5/2 serial_t ype – 232/485 0 – 232 1 – 485 485_term – 485 termin ation state 0 – disable 1 – enable (optional – this exists o nly when serial_type is 485)	Set baud rate to 9 600, 8 data bits, p arity to none and s top bit to 1: #UART 1,9600,8,n ode,1 <cr></cr>
UPG-TI ME?	Get firmware version last u pgrade date/ time Add Ne w Command fo r KDS-7	#UPG-TIME? <c R></c 	~nn@UPG-TIME d ate, data <cr><lf ></lf </cr>	date – Format: DD-M M-YYYY. data – Format: hh:mm:ss whe re	Get last upgrade d ate/time #UPG-TI ME? <cr></cr>

UPGRA DE	Perform firm ware upgrad e. NOTE: Not necessary fo r some devices. Firmware us ually uploads to a device via a command like LDFW. Reset the device to complete the process.	#UPGRADE <cr< th=""><th>~nn@UPGRADE ok<cr><lf></lf></cr></th><th></th><th>Perform firmware upgrade: #UPGR ADE<cr></cr></th></cr<>	~nn@UPGRADE ok <cr><lf></lf></cr>		Perform firmware upgrade: #UPGR ADE <cr></cr>
VERSIO N?	Get firmware version num ber.	#VERSION? <c R></c 	~nn@VERSION fir mware_version <c R><lf></lf></c 	firmware_version – XX .XX.XXXX where the digit groups are: major.minor.build version	Get the device fir mware version number: # VERSION? <cr></cr>
VIDEO- WALL- S ETUP	Define devic e video wall r elative positi on and video alignment. NOTE: MUS T setup with "#VIEW-MO D 15" to video wall mode fir stly	#VIDEO-WALL- SETUP out_id, rotation< CR>	~nn@VIDEO-WAL L-SETUP out_id, rotation <c R><lf></lf></c 	out_id – Number of out put (1-256) rotation – Repetition rate in seco nds 0 – 0 degrees 1 – 90 degrees 2 – 180 degrees 3 – 270 degrees	Set video alignme nt: #VIDEO-WALL -SETUP 10,1 <cr ></cr
VIDEO- WALL- S ETUP?	Get device vi deo wall rela tive position and video ali gnment.	#VIDEO-WALL- SETUP? out_id <cr></cr>	~nn@VIDEO-WAL L-SETUP out_id, rotation <c R><lf></lf></c 	out_id – Number of out put (1-256) rotation – Repetition rate in seco nds 0 – 0 degrees 1 – 90 degrees 2 – 180 degrees 3 – 270 degrees	Get video alignme nt: #VIDEO-WALL - SETUP? <cr></cr>

VIEW-M OD	Set view mo de. In case o f KDS-7 only Video wall m ode is suppo rted. Second and third par ameters are "mode" speci fic. In case of video wall, th ey define vid eo wall layou t, use "VIEW -MOD 15,1,1 " to disable th e -video wall.	#VIEW-MOD mo de, vw_hsize, vw_vs ize <cr></cr>	~nn@VIEW-MOD mode <cr><lf></lf></cr>	mode – View Modes 1 5 – Video wall vw_hsiz e – video wall horrible size, only required wh en mode is 15 vw_vsiz e – video wall vertical size, only required wh en mode is 15	Set view mode: #VIEW-MOD 15,2 ,2 <cr></cr>
VIEW-M OD?	Get view mo de. In case o f KDS-7 only Video wall m ode is suppo rted.	#VIEW-MOD?< CR>	~nn@VIEW-MOD mode, vw_hsize, v w_vsize <cr><lf></lf></cr>	mode – View Modes 1 5 – Video wallvw_hsi ze – video wall horrible size, only required wh en mode is 15 vw_vsize – video wall vertical size, only requi red when mode is 15	Get view mode: # VIEW-MOD? <cr ></cr
WND- S TRETCH	Set video wa Il stretch type Add New Co mmand for K DS-7	#WND-STRETC H out_index, mode <cr></cr>	~nn@WND-STRE TCH out_index, mode< CR> <lf></lf>	out_index - Number th at indicates the specifi c output 1-256: 1-N (N= the total numb er of outputs) mode - Stretch mode: 0 - fit in 1 - fit out	Set Video Wall Str etch Type is Fit In #WND-STRETCH 1, 0 <cr></cr>
WND- S TRETCH ?	Get video wa Il stretch type Add New Co mmand for K DS-7	#WND-STRETC H? out_index <cr></cr>	~nn@WND-STRE TCH out_index, mode< CR> <lf></lf>	out_index - Number th at indicates the specifi c output 1-256: 1-N (N= the total numb er of outputs) mode - Stretch mode: 0 - fit in 1 - fit out	Get Video Wall Str etch Type #WND- STRETCH? 1 <cr ></cr

X-AUD- DESC?	Get audio sig nal info NOTE: + Thi s is an Exten ded Protocol 3000 comma nd.	#X-AUD-DESC? <direction_type> .<port_for mat="">. <port_index><c r=""></c></port_index></port_for></direction_type>	~nn@X-AUD-DES C? <direction_type>.< port_format >. <po rt_label>.<signal_t ype>.<index>,ch_t ot, samp_rate, aud _format<cr><lf></lf></cr></index></signal_t </po </direction_type>	The following attribute s comprise the signal I D: <direction_type> - Dir ection of the port: · IN - Input · OUT - Output · BOTH - Bi- directional (e.g. for RS -232) <port_format> - Type of signal on the port: · HDMI · HDBT · ANALOG_AUDIO · AMPLIFIED_AUDIO · TOS · SPDIF ·MIC · RS-232 · IR · USB_A · USB_B <port_index> - The port number as printed on the front or rear pane I ch_tot - Total number of channels samp_rate - Sample rate aud_for mat -</port_index></port_format></direction_type>	Get the audio sign al info: #X-AUD-D ESC? out.hdmi.1 <cr></cr>
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X-AUD-L VL	Set audio lev el of a specifi c signal. NOTE: This i s an Extende d Protocol 3000 comma nd.	#X-AUD-LVL <direction_type> .<port_ion mat="">.<port_index>.<si _type="" gnal="">.<index>, audio_level<cr></cr></index></si></port_index></port_ion></direction_type>	~nn@X-AUD-LVL< dire ction_type>. <port_ format="">. <port_index>.<sig nal_type="">.<i ndex=""> ,audio_level<cr> <lf></lf></cr></i></sig></port_index></port_>	The following attribute s comprise the signal I D: <direction_type> - Direction of the port:</direction_type>	Set the audio level of a specific signal to 10: #X-AUD-LV L in.analog_audio. 1.audio.1,10 <cr></cr>
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X-MUTE	Set mute ON /OFF on a sp ecific signal.	#X-MUTE <direction_type> .<port_for mat="">. port_index>.<sig _type="" nal="">.<index>, state<cr></cr></index></sig></port_for></direction_type>	~nn@ X-MUTE <direction_type>.< port_format >.<port_index>.<si gnal_type>. <index>,state<cr ><lf></lf></cr </index></si </port_index></direction_type>	<pre><direction_type> - Dir ection of the port: { IN - Input; OUT - Ou tput; BOTH - Bi-directi onal } <port< th=""><th>Mute the video on HDMI OUT 1: #X-MUTE out.hdmi.1.video.1 ,on<cr></cr></th></port<></direction_type></pre>	Mute the video on HDMI OUT 1: #X-MUTE out.hdmi.1.video.1 ,on <cr></cr>
X-MUTE ?	Get mute ON /OFF on a sp ecific signal.	#X-MUTE? <direction_type> .<port_for mat="">. <port_index>.<si _type="" gnal="">.<index>< CR></index></si></port_index></port_for></direction_type>	~nn@ X-MUTE <direction_type>.< port_format >.<port_index>.<si gnal_type>. <index>,state<cr ><lf></lf></cr </index></si </port_index></direction_type>	<pre><direction_type> - Dir ection of the port: { IN - Input; OUT - Ou tput; BOTH - Bi-directi onal } <port_format> - Type of signal on the port:{ HDMI,USB_C,ANALO G_AUDIO } <port_index> - The po rt number as printed o n the front or rear pane I <signal_type> - Signal ID attribute: { VIDEO, AUDIO} <index> - Indicates a specific channel numb er when there are mult iple channels of the sa me type state - OFF/O N (not case sensitive)</index></signal_type></port_index></port_format></direction_type></pre>	Get the mute the v ideo on HDMI OU T 1: #X-MUTE? out.hdmi.1.video.1 <cr></cr>

Send routing command. NOTE: It is r ecommended to use the command #SIG NALS-LIST to outling get the list of all signal IDs available in the system and which can be used in the is command. Video 1 is the default porting this command and is implied even if not written: #X-ROUTE out.sdi.5,in.s di.1 #X-ROUTE out.sdi.5.vide o.1,in.s di.1.v ideo.1	is and. It is remended the co of #SIG and IDs ble in testem a commend is indeven in the commend is indeventable. It is the commend in the commend	_index1>. <signal_t ype 1>.<index1>,],<direction_typ e2>.<port_type2>. <port_index 2="">.<signal_type2> <index< th=""><th>The following attribute s comprise the signal I D: <direction_type> - Dir ection of the port: · IN - Input · OUT - Output · BOTH - Bi- directional (e.g. for RS -232) <port_format> - Type of signal on the port:H DMI HDBT ANALOG_AUDIO AM PLIFIED_AUDIO TOS SPDIF MIC RS-232 IR USB_A USB_B STREAM <port_index> - The po rt number as printed o n the front or rear pane I <signal_type> - Signal ID attribute: VIDEO AUDIO ARC RS232 IR USB <index> - Indicates a specific channel number when there are multiple chan nels of the same type</index></signal_type></port_index></port_format></direction_type></th><th>Route HDMI IN 2 to HDMI OUT 3:#X-ROUTE out.hdmi.3.video.1,in.hdmi.2.v ideo.1 <cr> Route an ARC au dio signal to HDB T input #1 from HDMI output #1: #X-ROUTE in.hdbt.1.arc.1,out.hdmi.1.arc. 1 < CR > Route of audio hdmi.1.audio.1 signal to HDMI output, analog: #X-ROUT E [out.hdmi.1.audio.1,out.analog_audio.1.audio.1, in.hdmi.1.audio.1,laudio.1],in.hdmi.1.audio.1</cr></th></index<></signal_type2></port_index></port_type2></direction_typ </index1></signal_t 	The following attribute s comprise the signal I D: <direction_type> - Dir ection of the port: · IN - Input · OUT - Output · BOTH - Bi- directional (e.g. for RS -232) <port_format> - Type of signal on the port:H DMI HDBT ANALOG_AUDIO AM PLIFIED_AUDIO TOS SPDIF MIC RS-232 IR USB_A USB_B STREAM <port_index> - The po rt number as printed o n the front or rear pane I <signal_type> - Signal ID attribute: VIDEO AUDIO ARC RS232 IR USB <index> - Indicates a specific channel number when there are multiple chan nels of the same type</index></signal_type></port_index></port_format></direction_type>	Route HDMI IN 2 to HDMI OUT 3:#X-ROUTE out.hdmi.3.video.1,in.hdmi.2.v ideo.1 <cr> Route an ARC au dio signal to HDB T input #1 from HDMI output #1: #X-ROUTE in.hdbt.1.arc.1,out.hdmi.1.arc. 1 < CR > Route of audio hdmi.1.audio.1 signal to HDMI output, analog: #X-ROUT E [out.hdmi.1.audio.1,out.analog_audio.1.audio.1, in.hdmi.1.audio.1,laudio.1],in.hdmi.1.audio.1</cr>
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X-ROUT E?	Get routing s tatus. NOTE: It is recomm ended to use the comman d #SIGNALS -LIST to get the list of all signal IDs available in the system and which can be used in this command. VIDEO.1 are the default < signal_type> and <index> in this command and are implied even if not written: #X-ROUTE out.sdi.5,in.s di.1<cr> is interpreted as: #X-ROUTE out.sdi.5.vide o.1,in.s di.1.v ideo.1<cr> This is an Extended Proto col 3000 command.</cr></cr></index>	#X-ROUTE? <direction_type1>.<port_ty pe1="">. <port_index1>.< signa l_type1>.< index1><cr></cr></port_index1></port_ty></direction_type1>	~nn@X-ROUTE <direction_type1>. <port_type1>.<port_index1>.< signal_type1 >.<index1>,<direct ion_type2="">. <port_type2>.<port_index2>.< signal_type2>.<index2>.< CR>< LF></index2></port_index2></port_type2></direct></index1></port_index1></port_type1></direction_type1>	The following attribute s comprise the signal I D: <direction_type> - Dir ection of the port: IN - Input OUT - Outp ut BOTH - Bi-directional (e.g. for RS- 232) <port_format> - Type of signal on the port: HDMI HDBT ANALOG_AUDIO AM PLIFIED_AUDIO TOS SPDIF MIC RS-232 IR USB_A USB_B USB_C <port_index> - The port number as printed on the front or rear pane I <signal_type> - Signal ID attribute: VIDEO AU DIO ARC RS232 IR U SB AV_TEST_PATTERN <index> - Indicates a specific channel number when there are multiple chan nels of the same type</index></signal_type></port_index></port_format></direction_type>	Get the routing sta tus: #X-ROUTE? out.hdmi.5.video.1 <cr></cr>
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Result and Error Codes

Syntax

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

- $\bullet\,$ NN@ERR XXX<CR><LF> when general error, no specific command
- ~NN@CMD ERR XXX<CR><LF> for specific command
- NN machine number of device, default = 01
- XXX error code

Error Codes

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

ERR_SAME_CRC	32	File has the same CRC – not changed
ERR_WRONG_MODE	33	Wrong operation mode
ERR_NOT_CONFIGURED	34	Device/chip was not initialized

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

What is Covered

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

What is Not Covered

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

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

How Long this Coverage Lasts

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

- 1. All Kramer VIA hardware products are covered by a standard three (3) year warranty for the VIA hardware and a standard three (3) year warranty for firmware and software updates; all Kramer VIA accessories, adapters, tags, and dongles are covered by a standard one (1) year warranty.
- 2. Kramer fiber optic cables, adapter-size fiber optic extenders, pluggable optical modules, active cables, cable retractors, ring mounted adapters, portable power chargers, Kramer speakers, and Kramer touch panels are covered by a standard one (1) year warranty. Kramer 7-inch touch panels purchased on or after April 1st, 2020 are covered by a standard two (2) year warranty.
- 3. 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 lifetime 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.

- 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. If a direct or similar replacement product is supplied, the original product's end warranty date remains unchanged and is transferred to the replacement 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 reinstallation of this product from or into any installation. Kramer Electronics will not be responsible for any costs related to any setting up this product, any adjustment of user controls or any programming required for a specific installation of this product.

How to Obtain a Remedy Under This Limited Warranty

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

In order to pursue any remedy under this limited warranty, you must possess an original, dated receipt as proof of purchase from an authorized Kramer Electronics reseller. If this product is returned under this limited warranty, a return authorization number, obtained from Kramer Electronics, will be required (RMA number). You may also be directed to an authorized reseller or a person authorized by Kramer Electronics to repair the product. If it is decided that this product should be returned directly to Kramer Electronics, this product should be properly packed, preferably in the original carton, for shipping. Cartons not bearing a return authorization number will be refused.

Limitation of Liability

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

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Other Conditions

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

This limited warranty is void if (i) the label bearing the serial number of this product has been removed or defaced, (ii) the product is not distributed by Kramer

Electronics or (iii) this product is not purchased from an authorized Kramer Electronics reseller. If you are unsure whether a reseller is an authorized Kramer

Electronics reseller, visit our web site at www.kramerav.com or contact a Kramer Electronics office from the list at the end of this document.

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



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 website where updates to this user manual may be found.

We welcome your questions, comments, and feedback.

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Documents / Resources



kramer WP-DEC7 Avoip Decoder [pdf] User Manual WP-DEC7 Avoip Decoder, WP-DEC7, Avoip Decoder, Decoder

References

O Downloads - Kramer Electronics

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