CDPS-P314EDC
HDMI over H.264/H.265 Transceiver

Operation Manual

HDMI®
HIGH-DEFINITION MULTIMEDIA INTERFACE

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SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack, install or operate this equipment and before connecting the power supply. Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.

- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.

- Never spill liquid of any kind on or into this product.

- Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.

- Do not attach the power supply cabling to building surfaces.

- Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.

- Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person walk on it.

- To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.

- Please completely disconnect the power when the unit is not in use to avoid wasting electricity.

VERSION HISTORY

REV.	DATE	SUMMARY OF CHANGE
RDV1	2020/06/02	Preliminary release

CONTENTS

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1. INTRODUCTION

As an increasing number of people share videos across the Internet, a simple to configure and easy to use transceiver that supports native H.265/ H.264 encoding and decoding will be indispensable. This HDMI over H.264/ H.265 Transceiver, in Encoder mode, can encode any standard UHD HDMI source and generate a high quality, low latency, video stream for distribution over standard Gigabit Ethernet networks while also supporting archival storage. In Decoder mode it can decode any standard H.264/H.265 video stream for output over its HDMI output and can support resolutions up to 4K@60Hz.

This transceiver's flexible settings allow streaming bitrates from 1,000 to 20,000kbps and provides controls that let the user to adjust video quality easily. This unit also supports the simultaneous distribution of both unicast and multicast streams of the HDMI source allowing for a flexible mixture of one-to-one and one-to-many distribution styles, as each network section allows or requires. In Decoder mode, output supports a variety of formats allowing for the creation of advanced presentations such as multiview displays and video walls. Additionally, the independent extension of CEC, IR, RS-232 and audio is provided. Integrated support for all of the most common security protocols including HTTPS, SSH, and 802.1X is also provided to ensure that your streams only reach their intended audience and that your login connection is secure.

This transceiver can be powered locally, or via the connected Ethernet switch if it supports the IEEE 802.3at PoE (Power over Ethernet) standard. Basic unit configuration is provided via front panel buttons with an On Screen Display (OSD) menu and streaming configuration controls are via WebGUI and Telnet. Enhanced configuration and control is available when combined with the IP Master Controller unit.

2. APPLICATIONS

- Webcasting & Social Media Broadcasting
- Live Event Streaming
- Video on Demand Streaming
- Live recording and storage
- Distributed video matrix system
- Distributed video wall system

3. PACKAGE CONTENTS

- 1× HDMI over H.264/H.265 Transceiver
- 1× 12V/3A DC Power Adapter (Optional)
- 1× Power Cord (Optional)
- 1× 5-pin Terminal Block
- 1× 3-pin Terminal Block
- 1× Shockproof Feet (Set of 4)

4. SYSTEM REQUIREMENTS

- HDMI source equipment such as a media player, video game console, PC, or set-top box.
- HDMI receiving equipment such as an HDTV, monitor or audio amplifier.
- The use of Premium High Speed HDMI cables, and industry standard Cat.6, Cat.6A or Cat.7, is highly recommended.
- Available streaming server destination such as YouTube or Facebook or a recording storage target such as a NAS or USB thumb drive.
- To view RTSP streams directly on the local network, RTSP stream compatible video player software (such as VLC Media Player or PotPlayer) must be used.

  Note: For security reasons it is strongly advised to maintain a firewall between this unit and the internet.

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5. FEATURES

- HDMI 2.0 and DVI 1.0 compatible
- HDCP 1.x and HDCP 2.2 compliant

  Note: HDCP encrypted sources cannot be streamed over the Internet or recorded and will be blacked out

- 1 HDMI input and 1 HDMI output
- Video, audio, and control transmission over in unicast (point-to-point) and multicast (single-to-many) modes
- In transmitter mode, generates streams using H.264 or H.265
- Supports multiple transport protocols: RTSP, RTP, RTMP, and FLV
- Low latency streaming (1080P@60 100~160ms, 4K@30 200~250ms)
- Supports extension of CEC, RS-232 and IR over Ethernet
- Supports independent recording to a user-determined destination
- Recorded video can be stored on locally connected USB storage (FAT or exFAT format) or to a designated network drive supporting NFS or CIFS
- Supports encrypting streams using 802.1X security (PEAP, TLS, TTLS)
- Supports secure logins using HTTPS and SSH
- Independent breakaway A/V matrix switching (requires optional IP Master Controller)
- Video wall generation
- Multi-view compositing (requires optional IP Master Controller)
- May be powered directly by PoE when connected to a Gigabit Ethernet switch that provides PoE (802.3at)
- Basic unit configuration is provided via front panel buttons with an OSD menu and streaming configuration controls are via WebGUI and Telnet
- Supports the use of an external control center (IP Master Controller) to provide expanded functionality (Contact your authorized dealer for more information)

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel
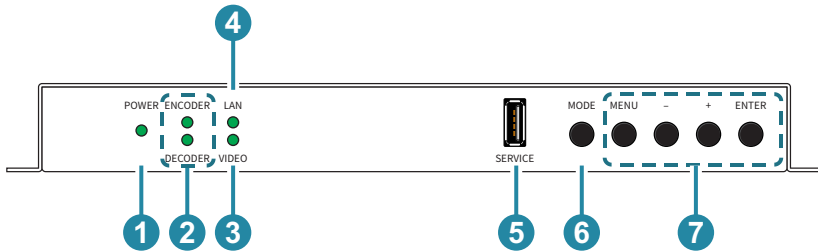
1 POWER LED: This LED will illuminate to indicate the unit is on and receiving power.

2 ENCODER/DECODER LEDs: These LEDs will illuminate to indicate if the unit is in Encoder or Decoder mode.

3 VIDEO LED: This LED will illuminate when the currently selected video source is connected and active.

4 LAN LED: This LED will illuminate when a live Ethernet connection is detected.

5 SERVICE Port (USB 3.0 Type-A): Attach a standard USB thumb drive or external hard drive for storage of recorded video. (Optional)

Note: Storage media must be formatted as FAT32 or exFAT. Video files are stored in *.mp4 format. Up to 1A is available to power an external USB device.

6 MODE button: Press and hold for 2 seconds to toggle between the Encoder and Decoder operational modes.

Note: After changing modes the unit will automatically reboot.

7 MENU Button: Press to enter the OSD menu, or to back out from menu items.

- (MINUS)/+ (PLUS) Buttons: Press to move up and down or adjust selections within OSD menus.

Note: In Decoder mode, pressing and holding the + (PLUS) button will force the output to switch to 1080p60.

ENTER Button: Press to confirm a selection within the OSD or to go deeper into a menu item.

![CYP logo]

6.2 Rear Panel
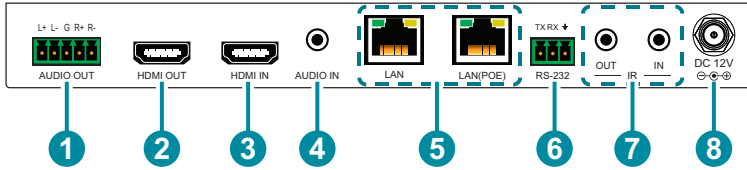
1 AUDIO OUT 5-pin Terminal Block: Connect to powered speakers or an amplifier for analog stereo audio output.

Note: Only LPCM 2.0 sources are supported.

2 HDMI OUT Port: Connect to an HDMI TV, monitor, or amplifier for digital video and audio output.

3 HDMI IN Port: Connect to HDMI source equipment such as a media player, game console, or set-top box.

4 AUDIO IN Port: Connect to the analog stereo output of a device such as an audio player or PC.

5 LAN Ports: Both ports are linked by an internal 2 port switch. Connect either of these ports to a network switch, router, PC, or another transceiver for transmission/reception of streamed video as well as to control the unit via Telnet or WebGUI.

Note: This unit can be powered via PoE when the LAN(PoE) port is directly connected to a Gigabit Ethernet switch that provides PoE (802.3at).

6 RS-232 3-pin Terminal Block: Connect to a PC, laptop, or serial controllable device for the extension of RS-232 signals.

7 IR OUT Port: Connect to an IR Blaster to transmit IR signals from a connected transceiver to devices within direct line-of-sight of the IR Blaster.

IR IN Port: Connect to an IR Extender to receive local IR control signals and extend them to devices located near a connected transceiver. Ensure that the remote being used is within direct line-of-sight of the IR Extender.

8 DC 12V Port: Plug the 12V DC power adapter into this port and connect it to an AC wall outlet for power.

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6.3 IR Cable Pinouts

IR Blaster Cable

1 Power
2 Infrared
3 Not Used

IR Extender Cable

1 Infrared
2 Power
3 Ground
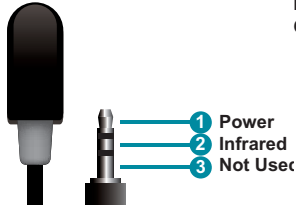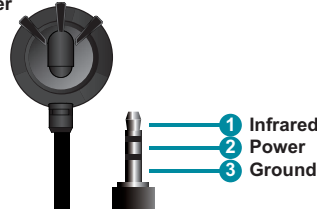
6.4 RS-232 Pinout and Defaults

Serial Port Default Settings	
Baud Rate	19200
Data Bits	8
Parity Bits	None
Stop Bits	1
Flow Control	None

3-pin Terminal Block

1 GND
2 RxD
3 TxD

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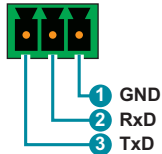
6.5 OSD Menu

All functions of this unit can be controlled by using the OSD (On Screen Display) which is activated by pressing the MENU button on the front of the unit. Use the + (PLUS), − (MINUS), and ENTER buttons to navigate the OSD menu. Press the MENU button to back out from any menu item and then press it again to close the menu.

MAIN MENU
Video
Audio
OSD
Ethernet
Factory
Information

The individual functions of the OSD will be introduced in the following section. Items marked in **BOLD** are the factory default settings.

VIDEO	
2ND LEVEL	**3RD LEVEL**
Decoder Video Source	**STREAMING**
	HDMI
Output Resolution	**NATIVE**
	Auto
	1280x720p50
	1280x720p60
	1920x1080p30
	1920x1080p50
	1920x1080p60
	3840x2160p25
	3840x2160p30
	3840x2160p50
	3840x2160p60
HDMI EDID	**COPY SINK**
	FHD 2Ch
	UHD 2Ch
	UHD+ 2Ch
	User

1) **Decoder Video Source:** Select the input source, between Streaming or local HDMI, to output to the connected display.

   Note: Only available in decoder mode.

2) **Output Resolution:** Select the output resolution to use for the currently selected source. Selecting "Native" will attempt to output at the native resolution requested by the connected display. Selecting "Auto" will output using the current source's resolution.

   Note: Only available in decoder mode.

3) **HDMI EDID:** Select the EDID to use with the local HDMI input.

AUDIO	
2ND LEVEL	**3RD LEVEL**
HDMI Mute	**OFF**
	On
Line Out Mute	**OFF**
	On
Line Out Volume	0~100 **(80)**

1) **HDMI Mute:** Enable or disable muting the HDMI output's audio.

2) **Line Out Mute:** Enable or disable muting the analog audio output.

3) **Line Out Volume:** Set the volume level of the analog audio output.

OSD	
2ND LEVEL	**3RD LEVEL**
H Position	0~60 **(30)**
V Position	0~60 **(30)**
Timer	**OFF**
	5s
	10s
	15s
	20s
	25s
	30s
	35s
	40s
	45s
	50s
	55s
	60s
Transparency	0~7 **(0)**

OSD	
2ND LEVEL	**3RD LEVEL**
Display	**10S**
	5s
	On
	Off

1) **H/V Position:** Set the horizontal and vertical position of the OSD menu.

2) **Timer:** Set how long to wait before automatically closing the OSD menu if there is no user activity. The timeout can be set to up to 60 seconds, or disabled completely.

3) **Transparency:** Set the transparency level of the OSD menu's background. The available range is from 1 (fully opaque) to 7 (fully transparent).

4) **Display:** Set how long to display the OSD information window. Selecting "Off" will disable the OSD information window. Selecting "On" will always display the OSD information window.

ETHERNET		
2ND LEVEL	**3RD LEVEL**	**4TH LEVEL**
IP Mode	Static IP	
	DHCP	
Setup Static IP	Static IP	0~255 **(192)**
		0~255 **(168)**
		0~255 **(1)**
		0~255 **(50)**
	Netmask	0~255 **(255)**
		0~255 **(255)**
		0~255 **(0)**
		0~255 **(0)**
	Gateway	0~255 **(192)**
		0~255 **(168)**
		0~255 **(1)**
		0~255 **(254)**

ETHERNET		
2ND LEVEL	**3RD LEVEL**	**4TH LEVEL**
IP	[Current IP Address]	
MAC	[Unit's MAC Address]	

1) **IP Mode:** Set the unit to Static or DHCP mode. When DHCP mode is selected, all IP address information will be assigned automatically by the local DHCP server. When Static is selected, the IP address, netmask and gateway must be set manually using the "Setup Static IP" menu.

   Note: The unit is set to DHCP by default.

2) **Static IP Setting:** The unit's static IP address, netmask, and gateway address can be set here. Press the "Enter" button to begin editing the address and use the "+" and "-" buttons to adjust each value. Press the "Enter" button to store the current number segment and move to the next segment.

   Note: These values can be set even when the unit is in DHCP mode, but they will not be used until the mode is changed to Static IP.

3) **IP**: Displays the unit's current IP address.

4) **MAC:** Displays the unit's MAC address.

FACTORY	
2ND LEVEL	**3RD LEVEL**
Reset	

1) **Reset:** Pressing the "Enter" button will cause a reset confirmation window to pop up. Press the "Enter" button again, within 10 seconds, to reset all of the unit's settings back to their factory defaults.

INFORMATION	
2ND LEVEL	**3RD LEVEL**
SN	[Unit's Serial Number]
Version	[Current Firmware Version]

1) **Information:** This screen displays information about the unit's serial number and the current firmware version.

6.6 WebGUI Control

- **Device Discovery**

Please obtain the "Device Discovery" software from your authorized dealer and save it in a directory where you can easily find it.

Connect the unit and your PC/Laptop to the same active network and execute the "Device Discovery" software. Click on "Find Devices on Internet" and a list of devices connected to the local network will show up indicating their current IP address.

Note: This unit defaults to DHCP mode. The current IP address can be verified using the OSD if the Device Discovery software is not available.
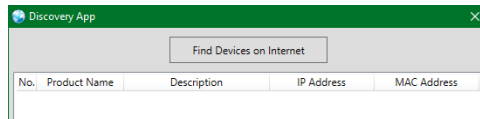
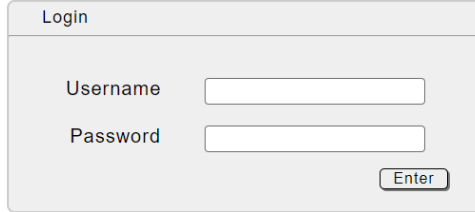By clicking on one of the listed devices you will be presented with the network details of that particular device.
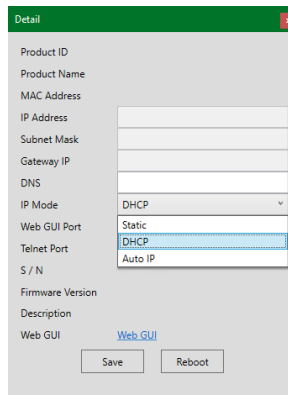
1) **IP Mode:** If you choose, you can alter the static IP network settings for the device, or switch the unit into DHCP mode to automatically obtain proper network settings from a local DHCP server. To switch to DHCP mode, please select DHCP from the IP mode drop-down, then click "Save" followed by "Reboot".

2) **WebGUI Hotkey:** Once you are satisfied with the network settings, you may use them to connect via Telnet or WebGUI. The network information window provides a convenient link to launch the WebGUI directly.

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- **WebGUI Overview**

After connecting to the WebGUI's address in a web browser, the login screen will appear. Please enter the appropriate user name and password then click "Submit" to log in.

Note: The default user name and password is "admin".

Login	
Username	
Password	
	Enter

On the left side of the browser you will see one of the two following menu tab sets, depending on if the unit is in transmitter or receiver mode, where all primary functions of the unit are controllable via the built in WebGUI. The individual functions will be introduced in the following sections.

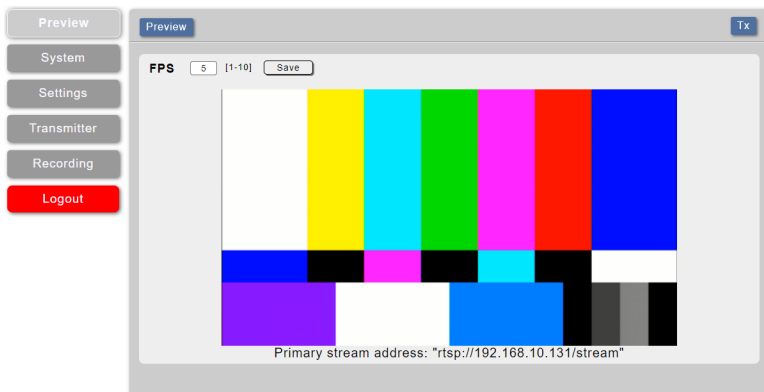| Preview	Preview
System	System
Settings	Settings
Transmitter	Receiver
Recording	Logout
Logout	
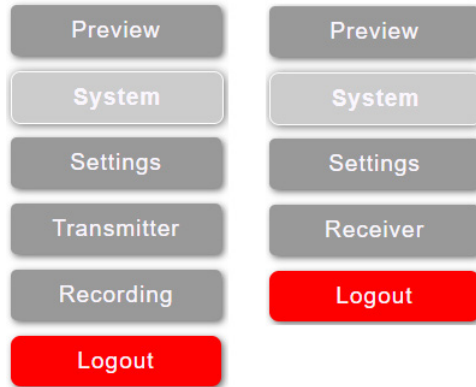
Clicking the red "Logout" tab will automatically log the currently connected user out of the WebGUI and return to login page.

6.6.1 Preview Tab

In Encoder mode, this tab provides a limited framerate preview window of the primary video stream channel generated by the unit. At the bottom of the tab a connection address for video stream 1 is displayed in the format: "rtsp:// x.x.x.x/stream" (x.x.x.x= the unit's current IP address). When 3rd party video player software with RTSP streaming support is used to view streams from this unit, this is the URL that should be used to connect. To view streaming channel 2, change "stream" in the address to "stream2".

In Decoder mode, this tab will display the video stream currently being received and output. If the unit is in video wall mode, only this unit's portion of the video will be displayed.

Note: The primary stream's configuration is set on the video profile section of the source unit's transmitter tab.
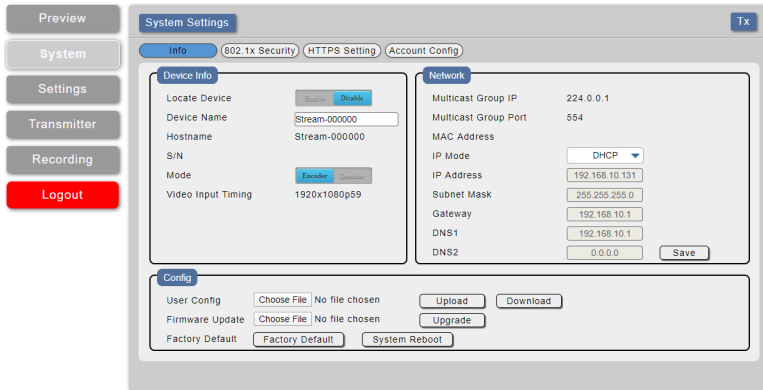

1) **FPS:** The framerate of the preview window can be set from 1 to 10 frames per second. Click "Save" to save and activate the new preview frame rate.

6.6.2 System Tab

This tab provides access to system configuration options including device information and network configuration, firmware update, security configuration, and account configuration.

1) **Info:** This section provides information and control over the unit's operational mode, device name, and network configuration. Options for updating the firmware, saving/restoring the unit's configuration, and performing a factory reset is also provided.

■ **Device Info:**

Locate Device: Clicking this switch will enable or disable the unit's "Hello" mode. When enabled it will cause the unit's current mode LED to immediately begin flashing on the front of the unit to make it easy to find.

Device Name: A custom name to identify the unit can be set here. After changing the name, press the enter key to store the change.

Note: The default device name is the same as the hostname.

Hostname: Displays the unit's network hostname.

Note: The hostname is based on the unit's MAC address to avoid potential network conflicts and cannot be changed.

S/N: Displays the unit's serial number.

Mode: Click the button to switch the unit between Encoder and Decoder mode. After changing modes the unit will reboot.

Video Input Timing (Encoder Mode Only): Displays the resolution of the current HDMI video source.

Video Output Timing (Decoder Mode Only): Displays the unit's current output resolution.

■ **Network:** The unit's IP mode may be switched between Static IP and DHCP. In Static IP mode the IP, netmask and gateway addresses may be manually set. When in DHCP mode, the unit will attempt to connect to a local DHCP server and obtain IP, netmask and gateway addresses automatically. Please press "Save" after making any changes to the IP configuration or mode. The unit's multicast group IP address, multicast port, and MAC address is also displayed here.

Note: If the IP address is changed then the IP address required for WebGUI/Telnet access will also change accordingly.

■ **Config:**

User Config: The user can download or upload the unit's complete configuration. The system configuration is stored as a *.json file. To save the current configuration, click the "Download" button to save the current system configuration to your local PC. To upload a previously saved configuration, click the "Choose File" button to locate the saved *.json file on your PC, then click the "Upload" button.

Firmware Update: To update the unit's firmware, click the "Choose File" button to open the file selection window and then select the firmware update file (*.bin format) located on your local PC. After selecting the file, click the "Upgrade" button to begin the firmware update process. After the upgrade is complete, the unit will reboot automatically.

Factory Default: Press this button to return the unit to its factory default state. After the factory reset is complete, the unit will reboot automatically.

System Reboot: Press this button to reboot the unit.

2) 802.1x Security: This section provides a way to enable network security support for the video streams, if desired.

Note: If an incoming video stream has security enabled, all receiving units must be configured to support the same security method as the transmitter.
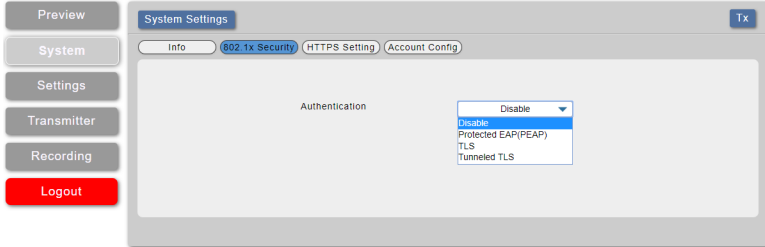
■ **Authentication:** Use the dropdown to select the network security protocol, if any, to use for stream transmission. Available choices are: Disabled, PEAP, TLS, and Tunneled TLS.

Protected EAP (PEAP): After selecting PEAP, the following settings must be configured and saved in order to enable PEAP authentication on this unit. Press "Save" to save the current configuration. Press "Revert" to undo all unsaved changes made to the current configuration. Press "Test" to test the PEAP authentication.

- **Anonymous Identity:** Set the publicly viewable identification name for the connection.

  Note: This is optional, but highly recommended to be set.

- **CA Certificate:** Click on the "Browse" button and locate the CA Certificate file on your local PC then click "Open" to install the certificate in the unit. To remove an installed CA Certificate, click on the "Remove" button.

- **Username:** Set the shared username required for authentication.

- **Password:** Set the shared password required for authentication.

TLS: After selecting TLS, the following settings must be configured and saved in order to enable TLS authentication on this unit. Press "Save" to save the current configuration. Press "Revert" to undo all unsaved changes made to the current configuration. Press "Test" to test the TLS authentication.

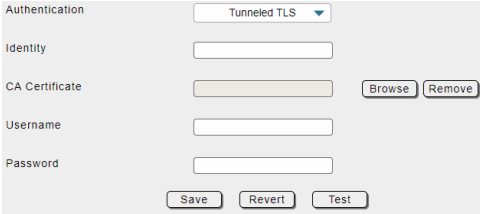| Authentication	TLS ▼	
Anonymous Identity		
CA Certificate		Browse Remove
User Certificate		Browse Remove
Private Key		Browse Remove
Private key password		
	Save Revert Test	

- **Anonymous Identity:** Set the publicly viewable identification name for the connection.

  Note: This is optional, but highly recommended to be set.

- **CA Certificate:** Click on the "Browse" button and locate the CA Certificate file on your local PC then click "Open" to install the certificate in the unit. To remove an installed CA Certificate, click on the "Remove" button.

- **User Certificate:** Click on the "Browse" button and locate the User Certificate file on your local PC then click "Open" to install the certificate in the unit. To remove an installed User Certificate, click on the "Remove" button.

- **Private Key:** Click on the "Browse" button and locate the Private Key file on your local PC then click "Open" to install the key in the unit. To remove an installed Private Key, click on the "Remove" button.

- **Private Key Password:** Set the shared password required for authentication.

Tunneled TLS: After selecting Tunneled TLS, the following settings must be configured and saved in order to enable TTLS authentication on this unit. Press "Save" to save the current configuration. Press "Revert" to undo all unsaved changes made to the current configuration. Press "Test" to test the TTLS authentication.

- **Identity:** Set the publicly viewable identification name for the connection.
- **CA Certificate:** Click on the "Browse" button and locate the CA Certificate file on your local PC then click "Open" to install the certificate in the unit. To remove an installed CA Certificate, click on the "Remove" button.
- **Username:** Set the shared username required for authentication.
- **Password:** Set the shared password required for authentication.

3) HTTPS Setting: This section provides a way to enable network security support for the WebGUI connection, if desired. After making changes, press the "Save" button to activate them.

Note: Enabling HTTPS support will NOT disable access via normal HTTP.
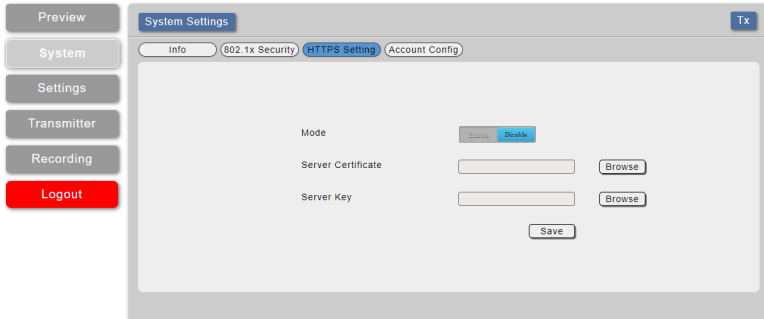
- **Mode:** Enable or disable HTTPS support for WebGUI access.
- **Server Certificate:** Click on the "Browse" button and locate the Server Certificate file on your local PC then click "Open" to install the certificate in the unit.
- **Server Key:** Click on the "Browse" button and locate the Server Key file on your local PC then click "Open" to install the key in the unit.

4) Account Config: This section provides control over login authentication and access to the WebGUI itself.
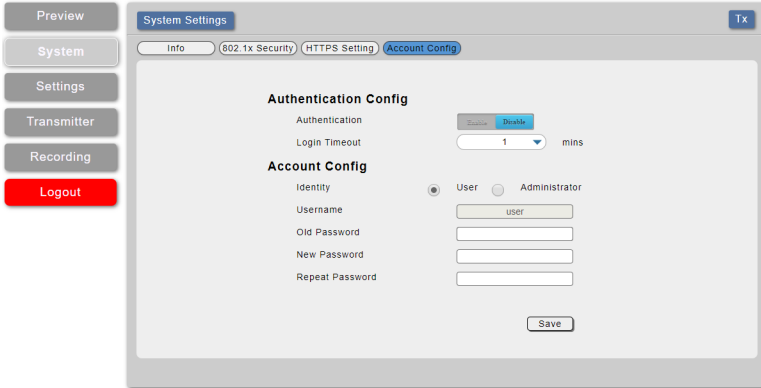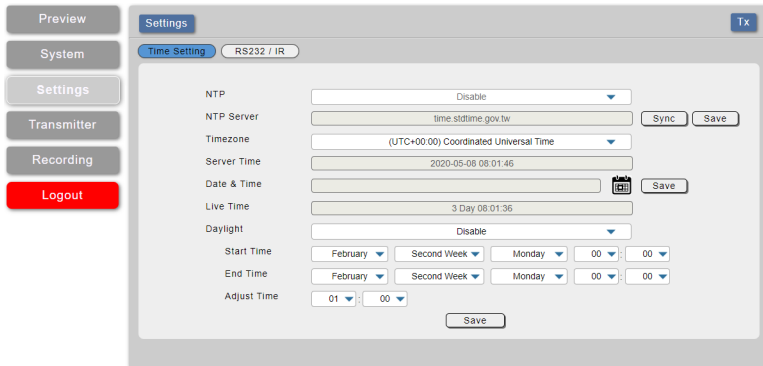
- ■ **Authentication Config:** Settings related to requiring authentication to connect to the WebGUI.
    - **Authentication:** Enable or disable requiring a login to access the WebGUI.
    - **Login Timeout:** Select the length of time to wait before logging the user out of the WebGUI due to inactivity. Available range is from 1 to 30 minutes.
- ■ **Account Config:** The WebGUI access passwords are set here and two management levels are available: "Administrator" and "User". The "Administrator" user has access to all tabs and can change all settings. The "User" user only has access to the "Preview" tab to allow easy remote video stream viewing. Only their passwords may be changed, the usernames are locked. After making a change to an account's password, click on the "Save" button to activate the change.

    Note: The default admin password is "admin" and the default user password is "user".

6.6.3 Settings Tab

This tab provides access to system configuration options including time settings and RS-232/IR routing configuration.

1) **Time Setting:** This section provides a way to set the system's time, date, and time zone. The system time can be set manually, or automatically using a defined NTP server. If your country uses DST (Daylight Saving Time), you can enable or disable it here and configure the start and end times/dates so that your scheduled events will always occur at the correct times throughout the year.
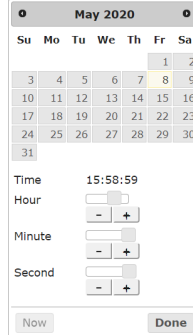
- **NTP Server:** Enter the address of the network time server to use for automatic time and date configuration. Click the "Save" button to set and store the address in the unit. Click the "Sync" button to force synchronization of the unit's time and date with the defined server.

  Note: Time synchronization occurs automatically when the unit is first powered on, and every 24 hours afterwards, if an NTP server has already been defined. Synchronization requires a live connection to the internet.

- **Time zone:** Select the preferred time zone from the options in the dropdown.

- **Server Time:** Shows the unit's current time and date.

- **Date & Time:** The unit's time and date can be manually configured here if an internet connection, or NTP server is not available. Click on the calendar icon (🔳) to open the time and date configuration screen and select the preferred values or click "Now" to auto-fill in the PC's current time and date then click on "Done". After entering a new time and date, click the "Save" button to store it in the unit and start the

clock running.

- **Live Time:** Displays how long since the unit was most recently powered on.
- **Daylight:** Enable or disable the use of Daylight Saving Time (DST) adjustments for the unit's time.

  Note: Enabling Daylight Saving Time while outside the configured DST range will result in no change to the current time.

- **Start Time:** Set the month, week, day and time for the start of DST in the current time zone.
- **End Time:** Set the month, week, day and time for the start of DST in the current time zone.
- **Adjust Time:** Set the amount of time to add when DST is active.

2) **RS-232/IR:** This section controls the free routing behavior of the IR and RS-232 streams as well as configuring the RS-232 settings.

Note: Independent routing control is only available via the optional IP Master Controller hardware.
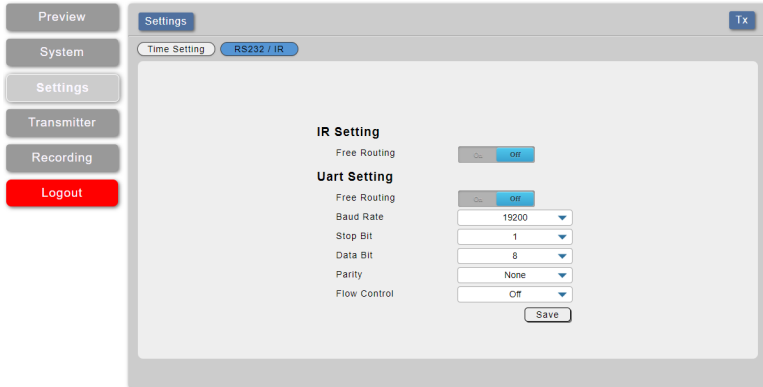
- **IR Setting:** Enable or disable the ability to freely route IR signals on this unit. When free routing is disabled, the IR stream will follow the video stream's routing.

- **UART Setting:** Enable or disable the ability to freely route RS-232 signals on this unit. When free routing is disabled, the RS-232 stream will follow the video stream's routing.

  Note: All connected units must have their UART configuration set the same.

  Baud Rate: Set the baud rate. The available range is from 4800 to 115200 baud.

  Stop Bit: Set the number of stop bits. The available range is from 1 to 2.

  Data Bit: Set the number of data bits. The available range is from 5 to 8.

  Parity: Set the connection parity bit. The available options are: none, odd, and even.

  Flow Control: Enable or disable flow control.

6.6.4 Transmitter Tab (Encoder Mode)

This tab is only available when the unit is in Encoder mode. This tab provides access to multicast and port configuration, video profile control, service streaming configurations, EDID settings, and Audio routing control.

1) Casting Mode: Set the encoder's multicast IP configuration for use by decoders in the video wall configuration and the unit's streaming port. After making changes, press the "Save" button to activate them.
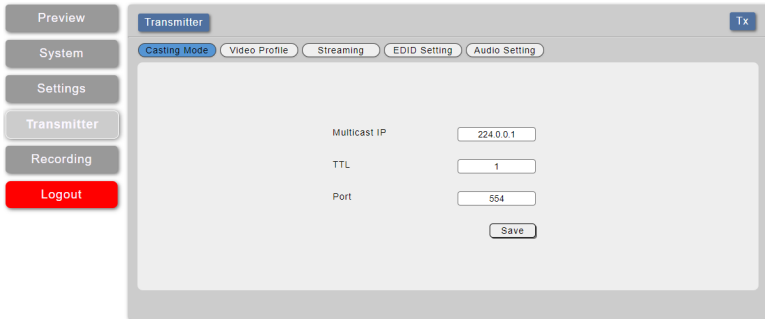
- **Multicast IP:** Set the multicast group IP address used by decoders in video wall mode.

  Note: It is recommended to select an address between 224.2.0.1 and 224.2.255.255.

- **TTL:** Set the Time to Live routing value for the multicast group.

- **Port:** Set the unit's general streaming port.

  Note: All connected decoders must be set to the same port.

2) **Video Profile:** This section provides access to the settings which are used when streaming to standard network targets such as transceivers in decoder mode, web browsers or PCs running video software. The Primary and Secondary stream's settings can be configured here. Pressing the "Save" button will activate the settings for the associated stream.

Note: Both streaming channels are always active and available to be viewed directly by connecting to the unit using 3rd party video player software such as VLC or PotPlayer.
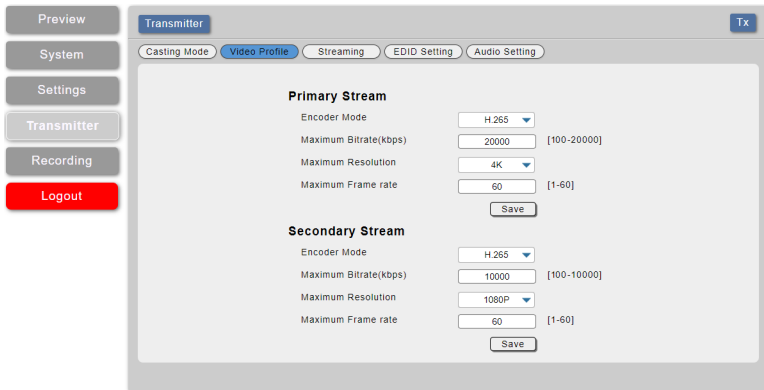
■ **Primary Stream:** This are the settings for the main, high resolution/ bitrate stream.

Encoder Mode: Set the codec to use when transmitting this stream.

Note: H.265 is recommended for 4K streams and H.264 is recommended for 1080p and below.

Maximum Bitrate (kbps): Select the maximum bitrate available for use by the primary stream. Available bitrate is from 100 to 20000kbps.

Maximum Resolution: Select the maximum resolution for the primary stream. Available resolutions are: 4K(3840x2160) and 1080p(1920x1080).

Note: The streaming resolution will not exceed the original source's resolution even if a higher maximum is selected.

Maximum Frame rate: Select the maximum framerate to use for this stream. Valid frame rate choices are: 1~60 fps.

Note: 4K streams can only support a frame rate up to 30fps. 4K@60Hz sources will automatically be converted to 1080p@60Hz.

■ **Secondary Stream:** These are the settings for the alternate, lower resolution/bitrate stream.

Encoder Mode: Set the codec to use when transmitting this stream.

Maximum Bitrate (kbps): Select the maximum bitrate available for use by the secondary stream. Available bitrate is from 100 to 10000kbps.

Maximum Resolution: Select the maximum resolution for the secondary stream. Available resolutions are: 1080p(1920x1080), 720p(1280x720), 480p(640x480).

Note: The streaming resolution will not exceed the original source's resolution even if a higher maximum is selected.

Maximum Frame rate: Select the maximum framerate to use for this stream. Valid frame rate choices are: 1~60 fps.

3) **Streaming:** This section provides access to controls for the streaming channel which is used when streaming directly to a streaming service such as YouTube or Facebook. Pressing the "Save" button will store any changes made to these settings.
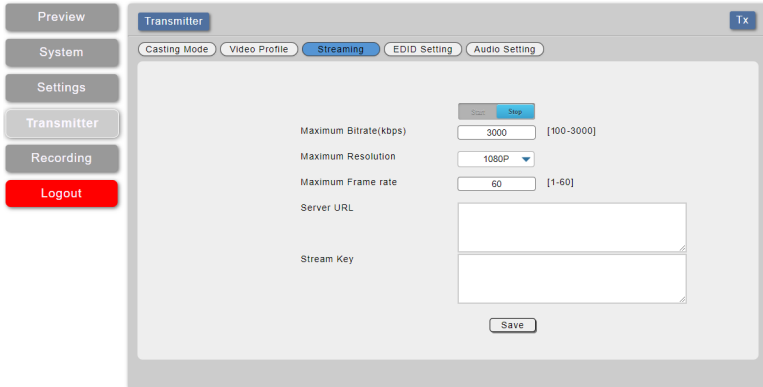
- ■ **Start/Stop:** Click on this toggle switch to immediately start or stop streaming to the currently configured streaming target.

- ■ **Maximum Bitrate(kbps):** Select the maximum bitrate to use for the direct streaming channel. Available bitrate is from 100 to 3000kbps.

- ■ **Maximum Resolution:** Select the maximum resolution for the direct streaming channel. Available resolutions are: 1080p(1920x1080), 720p(1280x720), 480p(640x480).

  Note: The streaming resolution will not exceed the original source's resolution even if a higher maximum is selected.

- ■ **Maximum Frame rate:** Select the maximum framerate to use for this stream. Valid frame rate choices are: 1~60 fps.

- ■ **Stream URL:** Please enter the Stream URL provided by the target streaming service. This is the address of the specific target streaming server. Type the Stream URL EXACTLY as provided by the streaming service. The URL will start with "rtmp://", "rtmps://", or "rtsp://" followed by the specific destination information of the server.

- ■ **Stream Key:** Please enter the Stream Key provided by the target streaming service. This is an encrypted key that provides the streaming server with your unique login and identification credentials. Type the Stream Key EXACTLY as provided by the streaming service. A typical stream key is a very long string of letters, numbers and symbols.

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4) EDID Setting: This section provides the option of three standard EDIDs, one sink sourced EDID and one customer uploaded EDID that can be assigned to the HDMI input port.
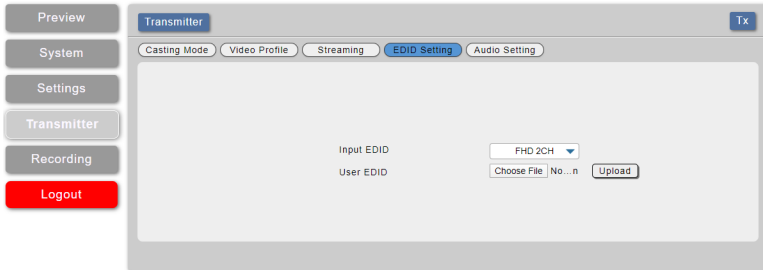
■ **Input EDID:** Use the dropdown to select the EDID to use with the input. The new EDID source will be used immediately.

Note: In most cases, assigning a new EDID to an input will cause the affected input to briefly blink out while the source adapts to the new information.

This unit provides the following 3 default EDIDs:

Unit's default EDIDs	
FHD 2CH	1920×1080p@60Hz (4.95Gbps) & 8-bit color, LPCM 2.0
UHD 2CH	3840×2160p@30Hz (10.2Gbps) & Deep Color (8/10/12-bit), LPCM 2.0
UHD+ 2CH	3840×2160p@60Hz (18Gbps) & Deep Color (8/10/12-bit), LPCM 2.0

Note: In some rare cases it is possible for custom or external EDIDs to cause compatibility issues with certain sources. If this happens, it is recommended to switch to one of the 3 default EDIDs for maximum compatibility.

■ **User EDID:** To upload a new User EDID, click the "Choose File" button to open the file selection window and then select an appropriate EDID file (*.bin format) located on your local PC. After selecting the file, click the "Upload" button to load the firmware into the unit.

5) Audio Setting: This section provides control over the local HDMI and analog audio output of the unit.
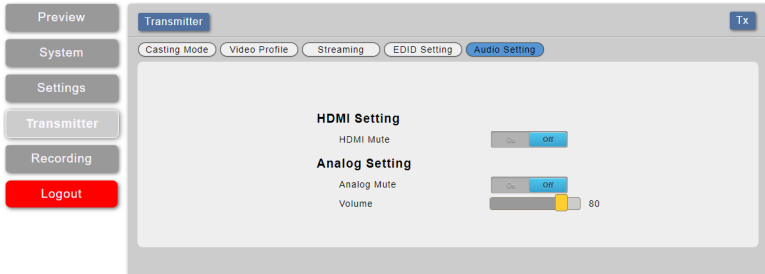
- ■ **HDMI Mute:** Enable or disable muting the local HDMI output's audio.
- ■ **Analog Mute:** Enable or disable muting the local analog audio output.
- ■ **Volume:** Use the slider to set the volume level of the local analog audio output. The available range is from 0 to 100.

6.6.5 Receiver Tab (Decoder Mode)

This tab is only available when the unit is in Decoder mode. This tab provides access to video output format settings, audio source routing, and video wall configuration.

1) Video Setting: This section provides controls over the HDMI output mode, output resolution, video source settings, and local HDMI EDID.
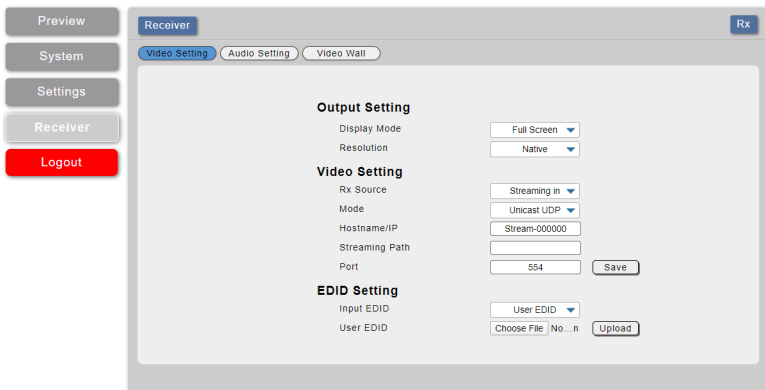
- ■ **Output Setting:** Provides controls to set the display mode and resolution for the local HDMI output. Changes made to these settings will occur immediately.

Display Mode: Use the dropdown to set the unit's video output mode. Available options are: Full Screen, Video Wall, Multiview, and Disable.

Note: Control over multiviewer mode is only available via the optional IP Master Controller hardware.

Resolution: Use the dropdown to select the resolution to use for video output. Selecting "Auto" will output using the current source's native resolution, selecting "Native" will output using the detected native resolution of the connected display.

Note: In Auto mode, if the display can't support the source's original resolution, video will be output at 720p, 1080p, or 4K, depending on the display's detected capability.

■ **Video Setting:** Provides controls over the video source, and streaming reception configuration. Pressing the "Save" button will activate changes made to these settings.

Rx Source: Use the dropdown to select the local HDMI input or streaming as the video source for the decoder.

Mode: Select the broadcasting mode for the decoder to receive. Available modes are: Unicast TCP, Unicast UDP, and Multicast.

Note: If the decoder's Display Mode is set to video wall, the broadcast mode will be restricted to Multicast.

Hostname/IP address: Type the hostname or IP address of the streaming source to display.

Note: The hostname of an Encoder can be found on the System tab in the Info section. Generally speaking, when receiving a stream from outside of your local network, an IP address will be required.

Streaming Path: Type the streaming path of the video stream from the connected source to display (for example, "stream", stream2").

Note: If this space is left blank the unit will automatically use "stream" as the stream path.

Port: Type the streaming port used by the streaming source.

■ **EDID Setting:** This section provides the option of three standard EDIDs, one sink sourced EDID and one customer uploaded EDID that can be assigned to the HDMI input port.

Input EDID: Use the dropdown to select the EDID to use with the HDMI input. The new EDID source will be used immediately.

User EDID: To upload a new User EDID, click the "Choose File" button

to open the file selection window and then select an appropriate EDID file (*.bin format) located on your local PC. After selecting the file, click the "Upload" button to load the firmware into the unit.

2) **Audio Setting:** This section provides control over the local HDMI and analog audio output of the unit including independent routing selection. Pressing the "Save" button will activate the associated settings.
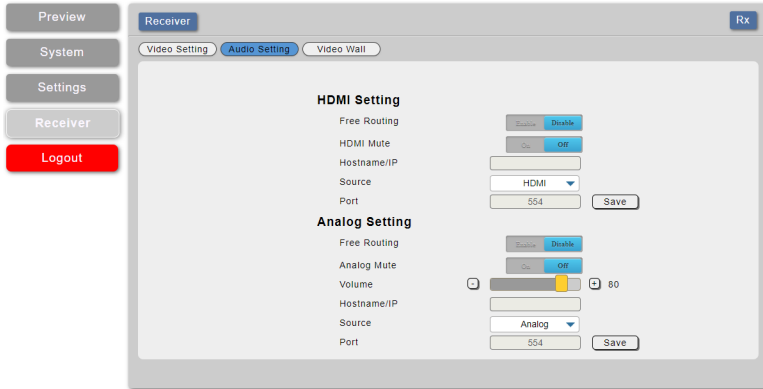
■ **HDMI Setting:** Provides control over the unit's HDMI output's audio.

Free Routing: Enable or disable independent audio routing for the HDMI output's audio source. When free routing is disabled, audio sources will be selected from the currently routed video stream's encoder.

HDMI Mute: Enable or disable muting the local HDMI output's audio.

Hostname/IP: Type the hostname or IP address of the Encoder to stream audio from.

Note: The hostname of an Encoder can be found on the System tab in the Info section. Generally speaking, when receiving a stream from outside of your local network, an IP address will be required.

Source: Select which audio input from the currently selected audio source to output.

Note: When free routing is disabled, audio will be selected from the local analog and HDMI inputs.

Port: Type the streaming port used by the streaming source.

■ **Analog Setting:** Provides control over the unit's analog audio output.

Free Routing: Enable or disable independent audio routing for the analog audio output's source. When free routing is disabled, audio

sources will be selected from the currently routed video stream's encoder.

Analog Mute: Enable or disable muting the local analog audio output.

Volume: Use the slider to set the volume level of the local analog audio output. The available range is from 0 to 100.

Hostname/IP: Type the hostname or IP address of the Encoder to stream audio from.

Note: The hostname of an Encoder can be found on the System tab in the Info section. Generally speaking, when receiving a stream from outside of your local network, an IP address will be required.

Source: Select which audio input from the currently selected audio source to output.

Note: When free routing is disabled, audio will be selected from the local analog and HDMI inputs.

Port: Type the streaming port used by the streaming source.

3) **Video Wall:** This section allows the user to design, edit and manipulate the video wall settings of this unit. Video walls should be created using multiple receiver units connected to identical displays. The bezel size of the displays being used, as well as the horizontal and vertical monitor count, is defined here. Pressing the "Save" button will activate the associated settings.

Note: These settings will only be used when the decoder's display mode is set to "Video Wall".
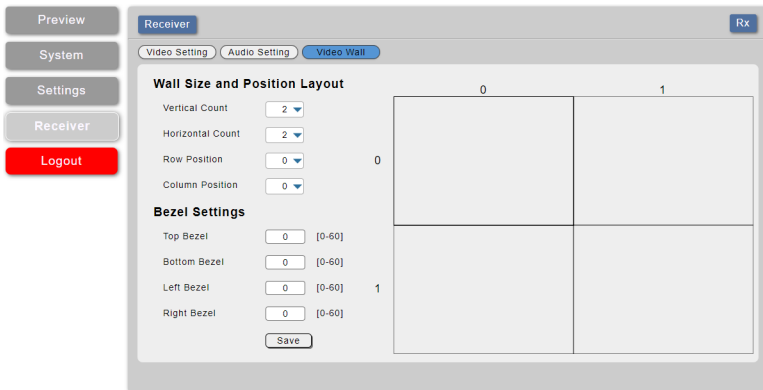
- **Vertical/Horizontal Monitor Count:** Use the dropdowns to select the size of the video wall, measured in number of monitors tall by number of monitors wide. The maximum number of displays in a single video wall is 256 (16×16).

  Note: It is strongly recommended to use the same make and model for all displays within a video wall to avoid bezel and panel size discrepancies.

- **Row/Column Position:** Use the dropdowns to select the row and the column location, within the above defined video wall, of this specific decoder's display. It is also possible to click on the section of the visual representation of the video wall to select the display's position. The selected position will have its outline highlighted.

- **Top/Bottom/Left/Right Bezel:** Enter the bezel compensation amount, in pixels, for all four sides of the display.

6.6.6 Recording Tab (Encoder Mode)

This tab provides access to the settings and controls for configuring and making a recording of the primary broadcast stream to a local or network storage location. When recording is enabled, the stream is saved as a *.mp4 file, encoded with the same settings as the primary stream, to one of three possible target destinations: USB storage, network storage using NFS, or network storage using CIFS. The file will be placed within an automatically named folder structure based on the current date and time of the recording to facilitate easy sorting and file management. It is also possible to set up automatic daily recording times based on a repeating weekly schedule structure.

1) **Recording:** This section provides configuration options for recording. Pressing the "Save" button will update and activate the associated settings.
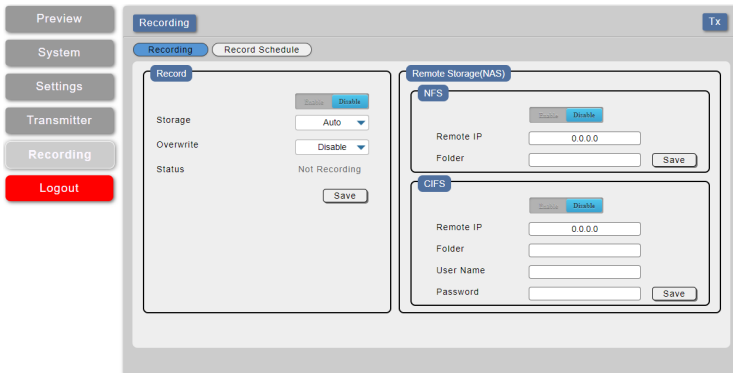
- **Record:** Click on the toggle switch to enable or disable recording the primary video stream. When enabled, recording will begin immediately to the selected storage location.

  Note: HDCP encrypted sources cannot be recorded.

  Storage: Use the drop-down to select the storage target to use when recording. Available choices are: Auto, USB (USB storage), NFS (NFS based network storage), and CIFS (CIFS based network storage). Selecting "Auto" will use the first available valid storage location using the following priority order: NFS > CIFS > USB.

  Overwrite: Enables or disables the file overwrite function. When enabled, the unit will automatically delete older recordings, when space runs out on the selected storage location, to make room for new recordings.

  Status: Displays the current recording status.

- **Remote Storage (NAS) NFS:** This section provides a way to configure access to a NAS (Network Attached Storage) device using the NFS protocol.

  Enable/Disable: Enable or disable access to the defined NFS based network storage server.

  Remote IP: Enter the IP address of the target NFS based NAS device.

  Folder: Enter a valid share name on the target server. The share name cannot contain spaces or special characters. This is where the recording folder structure and video files will be created.

  Note: The target folder on the NFS server must, at a minimum, provide anonymous read, write and delete permissions.

- **Remote Storage (NAS) CIFS:** This section provides a way to configure access to a NAS (Network Attached Storage) device using the CIFS protocol.

  Enable/Disable: Enable or disable access to the defined CIFS based network storage server.

  Remote IP: Enter the IP address of the target CIFS based NAS device.

  Folder: Enter a valid share name on the target server. The share name cannot contain spaces or special characters. This is where the recording folder structure and video files will be created.

  Note: The target folder on the CIFS server must, at a minimum, provide read, write and delete permissions for the designated user.

  Username/Password: Enter the user name and password required for access to the specified server.

2) Record Schedule: This section provides a way to enable or disable the scheduled time recording function and configure the times to record. Each hour of each day is divided into two half-hour blocks. Currently selected recording times are indicated by orange blocks. Gray blocks indicate that no recording is currently scheduled. Blocks may be activated or deactivated by clicking on them. To easily select multiple blocks, you may click and drag across the preferred range. After setting the preferred recording blocks, press the "Save" button. To undo changes and return to the previous schedule configuration, press the "Revert" button.
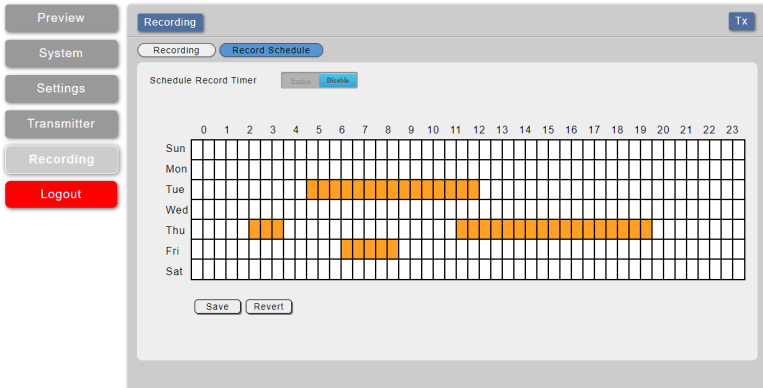
6.7 Telnet Control

Before attempting to use Telnet control, please ensure that both the unit and the PC are connected to the same active networks.

Start your preferred Telnet/Console client, or use the built in client provided by most modern computer operating systems. After starting the client, connect by using the current IP address of the unit and port 23 (if the communication port number used by the unit has not been changed previously). This will connect us to the unit we wish to control and commands may now be entered directly.

Note 1: If the IP address of the unit is changed then the IP address required for Telnet access will also change accordingly.

Note 2: This unit defaults to DHCP mode. The current IP address can be verified using the OSD. The default communication port is 23.

6.8 Telnet Commands

COMMAND
Description and Parameters
help↵
Show the full command list.
help N1↵
Show details about the specified command.
N1 = {Command}
? ↵
Show the full command list.
? N1↵
Show details about the specified command.
N1 = {Command}
get fw ver↵
Show the unit's current firmware version.

COMMAND
Description and Parameters
get command ver↵
Show the unit's current command version.
get mac addr↵
Show the unit's MAC address.
get model name↵
Show the unit's model name.
get model type↵
Show the unit's product type.

Possible response values:

1	[Matrix]
2	[Scaler]
3	[Splitter]
4	[Repeater]
5	[Extender]
6	[Transceiver]
7	[Switch]
8	[Controller]

COMMAND
set factory default↵
Reset the unit to the factory defaults.
set factory ipconfig default↵
Reset the unit's network settings to the factory defaults.
set factory out route default↵
Reset the unit's routing to the factory defaults.
set feedback broadcast N1↵
Enable or disable the broadcast of console command feedback.

Available values for **N1**:

ON	[Enable]
OFF	[Disable]

COMMAND
get feedback broadcast↵
Show the current console command feedback broadcast state.

COMMAND
Description and Parameters

set system reboot↵

Reboot the unit.

set uart 1 reset↵

Reset the unit's RS-232 settings to the factory defaults.

set uart 1 baudrate N1↵

Set the baud rate of the RS-232 port.

Available values for **N1**:
4800	[4800 baud]
9600	[9600 baud]
19200	[19200 baud]
38400	[38400 baud]
57600	[57600 baud]
115200	[115200 baud]

get uart 1 baudrate↵

Show the current baud rate of the RS-232 port.

set uart 1 stop bit N1↵

Set the number of stop bits for the RS-232 port.

Available values for **N1**:
1	[1 stop bit]
2	[2 stop bits]

get uart 1 stop bit↵

Show the current number of stop bits of the RS-232 port.

set uart 1 data bit N1↵

Set the data bits for the RS-232 port.

Available values for **N1**:
5	[5 data bits]
6	[6 data bits]
7	[7 data bits]
8	[8 data bits]

get uart 1 data bit↵

Show the current number of data bits of the RS-232 port.

COMMAND

Description and Parameters

set uart 1 parity N1↵

Set the parity of the RS-232 port.

Available values for **N1**:
0	[None]
1	[Odd]
2	[Even]

get uart 1 parity↵

Show the current parity setting of the RS-232 port.

get webgui username↵

Show the current WebGUI login administrator username.

set webgui password N1↵

Set the WebGUI administrator password.

N1 = {Password}   [16 characters max]

get webgui password↵

Show the current WebGUI administrator password.

set telnet login N1↵

Enable or disable requiring a login to access the unit via Telnet.

Available values for **N1**:
ON	[Login authentication required]
OFF	[No login required]

get telnet login↵

Show the current state of the Telnet login requirement.

get hostname↵

Show the unit's current hostname.

set webgui login timeout N1↵

Set the WebGUI inactivity timeout value.

Available values for **N1**:
0	[No timeout]
1~30	[Timeout in minutes]

COMMAND
Description and Parameters
get webgui login timeout↵
Show the current WebGUI inactivity timeout value.
set lan 1 ip mode N1↵
Set the unit's IP address assignment mode.
Available values for **N1**: STATIC   [Static IP mode] DHCP   [DHCP mode]
get lan 1 ip mode↵
Show the current IP address assignment mode.
get lan 1 ipaddr↵
Show the unit's current IP address.
get lan 1 netmask↵
Show the unit's current netmask.
get lan 1 gateway↵
Show the unit's current gateway address.
set lan 1 static ipaddr N1↵
Set the unit's static IP address.
N1 = X.X.X.X   [X = 0~255, IP address]
get lan 1 static ipaddr↵
Show the unit's current static IP address.
set lan 1 static netmask N1↵
Set the unit's static netmask.
N1 = X.X.X.X   [X = 0~255, Netmask]
get lan 1 static netmask↵
Show the unit's current static netmask.
set lan 1 static gateway N1↵
Set the unit's static gateway address.
N1 = X.X.X.X   [X = 0~255, Gateway address]

CYP

COMMAND
Description and Parameters
get lan 1 static gateway↵
Show the unit's current static gateway address.
set out A route N1↵
Select the input to be output over HDMI and streamed.
Available values for **N1**: 1   [Streaming input] 2   [HDMI input]
get out A route↵
Show the currently selected input.
get in name list↵
List the names of all inputs on the unit.
get out name list↵
List the names of all outputs on the unit.
get in 1 hactive↵
Show the horizontal active pixel value of the HDMI input's current video source.
get in 1 vactive↵
Show the vertical active pixel value of the HDMI input's current video source.
get in 1 refresh rate↵
Show the refresh rate of the HDMI input's current video source.
get in 1 interlace↵
Show the interlace state of the HDMI input's current video source.
Possible response values: 0   [No sync] 1   [Sync active]
get in 1 sync status↵
Show the current sync state of the HDMI input.

COMMAND
Description and Parameters
get out A sync status↵
Show the current sync state of the HDMI output.
Possible response values: 0   [No sync] 1   [Sync active]
set transceiver device mode N1↵
Configure the transceiver to behave as either a transmitter or receiver.
Available values for **N1**: 1   [Encoder mode] 2   [Decoder mode]
get transceiver device mode↵
Show the current transceiver signaling mode.
set hello mode N1↵
Enable or disable Hello Mode to flash the unit's LEDs for easy visual detection.
Available values for **N1**: ON   [Enable] OFF   [Disable]
get hello mode↵
Show the current Hello Mode state.
set out A osd timeout N1↵
Set the menu OSD's timeout value for the HDMI output (in seconds).
Available values for **N1**: 0   [Timeout disabled] 5~60   [Timeout in seconds]
get out A osd timeout↵
Show the current menu OSD timeout value for the HDMI output.

COMMAND

Description and Parameters

set out A osd info display N1↵

Enable or disable the info OSD for the HDMI output.

Available values for **N1**:
0	[Always off]
1	[Always on]
2	[On for 5 seconds]
3	[On for 10 seconds]

get out A osd info display↵

Show the current info OSD state for the HDMI output.

set out A osd vposition N1↵

Set the vertical position of the menu OSD on the HDMI output.

N1 = 0~60   [Vertical position]

get out A osd vposition↵

Show the current vertical position of the menu OSD on the HDMI output.

set out A osd hposition N1↵

Set the horizontal position of the menu OSD on the HDMI output.

N1 = 0~60   [Horizontal position]

get out A osd hposition↵

Show the current horizontal position of the menu OSD on the HDMI output.

set out A osd transparency level N1↵

Set the transparency level of the menu OSD on the HDMI output.

N1 = 0~7   [Transparency level]

get out A osd transparency level↵

Show the current transparency level of the menu OSD on the HDMI output.

COMMAND
Description and Parameters
set audio out N1 mute N2↵
Enable or disable muting the specified audio output.
Available values for **N1**: A   [HDMI output] B   [Analog audio output] Available values for **N2**: ON   [Mute] OFF   [Unmute]
get audio out N1 mute↵
Show the current mute state of the specified output.
Available values for **N1**: A   [HDMI output] B   [Analog audio output]
set audio out all mute N1↵
Enable or disable muting on all audio outputs.
Available values for **N1**: ON   [Mute] OFF   [Unmute]
set audio out N1 route N2↵
Route the specified audio input to the specified audio output.
Available values for **N1**: A   [HDMI output] B   [Analog audio output] Available values for **N2**: 1   [HDMI input] 2   [Line audio input]
get audio out N1 route↵
Show the current audio input routed to the specified audio output.
Available values for **N1**: A   [HDMI output] B   [Analog audio output]

CYP

COMMAND
Description and Parameters
set audio out B volume N1↵
Set the volume level of the analog audio output.
N1 = 0-100   [Volume level]
get audio out B volume↵
Show the current volume level of the analog audio output.
set audio out B volume up↵
Increase the volume level of the analog audio output by 1 unit.
set audio output B volume down↵
Decrease the volume level of the analog audio output by 1 unit.
set audio out N1 name N2↵
Set the name for the specified output's audio.
Available values for **N1**: A   [HDMI output] B   [Analog audio output]
N2 = {Name}   [16 characters max]
get audio out N1 name↵
Show the current name for the specified output's audio.
Available values for **N1**: A   [HDMI output] B   [Analog audio output]
get audio in type list↵
List all available audio input sources.
get audio out type list↵
List all available audio output destinations.

COMMAND
Description and Parameters
set in 1 edid N1↵
Set the EDID to use on the HDMI input.
Available values for **N1**: 1   [FHD 2CH] 2   [UHD 2CH] 3   [UHD+ 2CH] 4   [User EDID] 5   [Sink EDID]
get in 1 edid↵
Show the EDID currently being used on the HDMI input.
get in edid list↵
List all available EDID selections.
set user 1 edid data N1↵
Upload a new EDID (in hex format) for use as the User EDID.
N1 = {EDID data}   [Comma delimited hex pairs]
get user 1 edid data↵
Show the current contents of the User EDID as hex data.
get sink A edid data↵
Show the EDID from the display connected to the HDMI output as hex data.
get in 1 edid data↵
Show the EDID currently used by the HDMI input as hex data.
get all in edid list↵
List the EDIDs assigned to all inputs.

CYP

COMMAND
Description and Parameters

set encoder 1 profile N1 resolution N2

Set the maximum resolution for the specified streaming channel on the encoder.

Available values for **N1**:
1	[Primary channel]
2	[Secondary channel]

Available values for **N2**:
0	[4K (3840×2160)]
1	[1080p (1920×1080)]
2	[720p (1280×720)]
3	[480p (640×480)]

get encoder 1 profile N1 resolution↵

Show the current maximum resolution used by the specified streaming channel on the encoder.

Available values for **N1**:
1	[Primary channel]
2	[Secondary channel]

set encoder 1 profile N1 bitrate N2↵

Set the maximum bitrate (in Kbps) for the specified streaming channel on the encoder.

Available values for **N1**:
1	[Primary channel]
2	[Secondary channel]

Available values for **N2**:
1~6000	[Bitrate in Kbps]

get encoder 1 profile N1 bitrate↵

Show the current maximum bitrate (in Kbps) used by the specified streaming channel on the encoder.

Available values for **N1**:
1	[Primary channel]
2	[Secondary channel]

| COMMAND |
|---|
| **Description and Parameters** |
| **set encoder 1 profile N1 framerate N2**↵ |
| Set the frame rate for the specified streaming channel on the encoder. |
| Available values for **N1**:
1   [Primary channel]
2   [Secondary channel] |
| Available values for **N2**:
1~60   [Frames per second] |
| **get encoder 1 profile N1 framerate**↵ |
| Show the current frame rate used by the specified streaming channel on the encoder. |
| Available values for **N1**:
1   [Primary channel]
2   [Secondary channel] |
| **set live stream url N1**↵ |
| Set the URL used to access the current live streaming target service. |
| **N1** = {Server URL}   [Target service Server URL] |
| **get live stream url**↵ |
| Show the URL used to access the current live streaming target service. |
| **set live stream key N1**↵ |
| Set the stream key used to authenticate with the current live streaming target service. |
| **N1** = {Stream Key}   [Target service Stream Key] |
| g**et live stream key** ↵ |
| Show the stream key used to authenticate with the current live streaming target service. |

COMMAND

Description and Parameters

set live encode resolution N1↵

Set the encoding resolution to use with the current live streaming target service.

Available values for **N1**:
1	[1080p (1920×1080)]
2	[720p (1280×720)]
3	[480p (640×480)]

get live encode resolution↵

Show the encoding resolution used with the current live streaming target service.

set live encode bitrate N1↵

Set the maximum streaming bitrate (in Kbps) to use with the current live streaming target service.

Available values for **N1**:
1~3000	[Bitrate in Kbps]

get live encode bitrate↵

Show the maximum streaming bitrate (in Kbps) used with the current live streaming target service.

set live encode framerate N1↵

Set the frame rate to use with the current live streaming target service.

Available values for **N1**:
1~60	[Frames per second]

get live encode framerate↵

Show the frame rate used with the current live streaming target service.

set live stream mode N1↵

Start or stop live streaming to the pre-set target service.

Available values for **N1**:
ON	[Start streaming]
OFF	[Stop streaming]

get live stream mode↵

Show the current state of the live stream to the pre-set target service.

COMMAND
Description and Parameters
set record mode N1↵
Start or stop recording video to the currently set target destination.
Available values for **N1**: ON   [Start recording] OFF   [Stop recording]
g**et record mode**↵
Show the current recording status.
set record overwrite N1↵
Enable or disable the record overwrite function.
Available values for **N1**: ON   [Enable overwrite] OFF   [Disable overwrite]
get record overwrite↵
Show the current state of the record overwrite function.
set record media path N1↵
Set the target destination for video recording.
Available values for **N1**: AUTO   [Automatic selection] USB   [Local recording to USB port] NFS   [Network recording via NFS] CIFS   [Network recording via CIFS]
g**et record media path**↵
Show the current target destination for recording.
set schedule record mode N1↵
Enable or disable scheduled recording support.
Available values for **N1**: ON   [Enable scheduled recordings] OFF   [Disable scheduled recordings]
g**et schedule record mode**↵
Show the current state of scheduled recording support.

COMMAND
Description and Parameters
set record profile path N1↵
Set the source stream profile to use when recording video.
Available values for **N1**: 0   [Primary stream] 1   [Secondary stream]
get record profile path↵
Show the currently selected source stream profile used when recording video.

Note: Commands will not be executed unless followed by a carriage return. Commands are not case-sensitive.

7. CONNECTION DIAGRAM
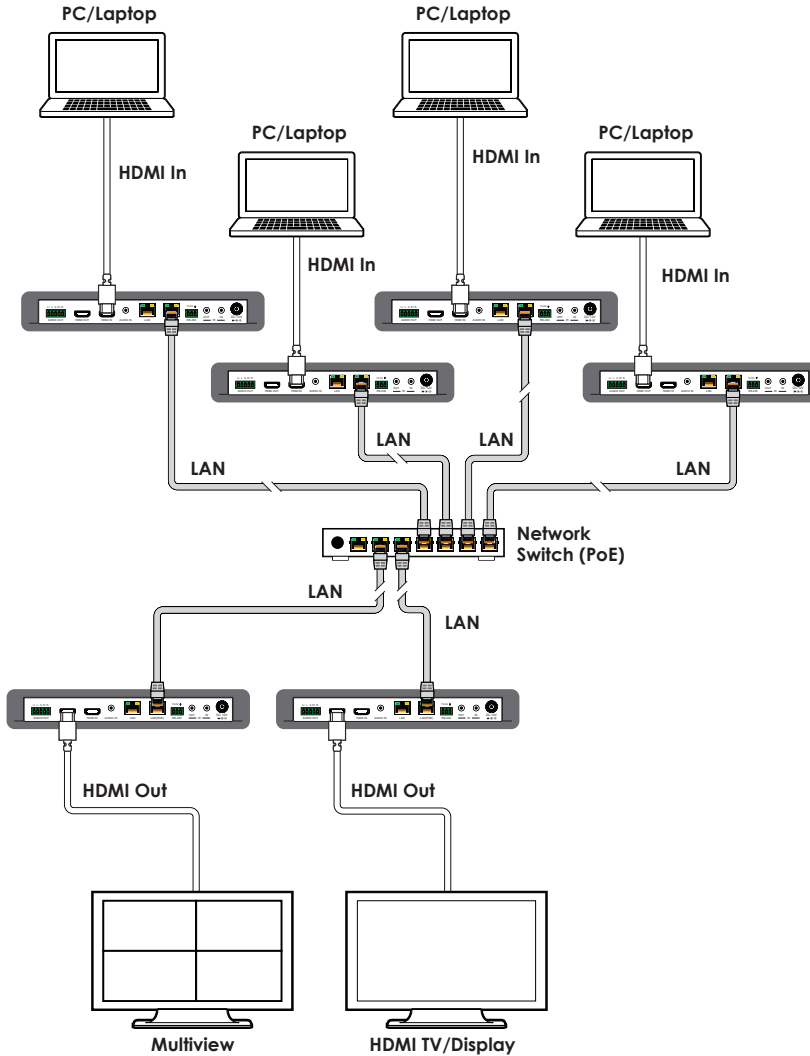
8. SPECIFICATIONS

8.1 Technical Specifications

HDMI Bandwidth	18Gbps
Ethernet Bandwidth	1Gbps
Streaming Input Max	3840x2160@60Hz (YUV, 4:4:4)
Streaming Output Max	3840x2160@30Hz (YUV, 4:4:4)
Input Ports	1×HDMI (Type-A) 1×Stereo Audio (3.5mm)
Output Ports	1×HDMI (Type-A) 1×Stereo Audio (5-pin Terminal Block)
Pass-through Ports	1×IR Extender (3.5mm) 1×IR Blaster (3.5mm) 1×RS-232 (DE-9)
Bi-directional/Control Ports	2×GbE LAN (RJ-45)
Service Port	1×USB 3.0 (Type-A)
IR Frequency	30 ~ 50kHz (30 ~ 60kHz under ideal conditions)
Baud Rate	Up to 115200
Power Supply	12V/3A DC or PoE (802.3at) (US/EU standards, CE/FCC/UL certified)
ESD Protection (HBM)	±8kV (Air Discharge) ±4kV (Contact Discharge)
Dimensions (W×H×D)	231mm×116mm×25mm [Case Only] 231mm×117mm×25mm [All Inclusive]
Weight	661g
Chassis Material	Metal (Steel)
Chassis Color	Black
Operating Temperature	0˚C – 40˚C/32˚F – 104˚F
Storage Temperature	-20˚C – 60˚C/-4˚F – 140˚F
Relative Humidity	20 – 90% RH (Non-condensing)
Power Consumption	12.1W

8.2 Video Specifications

Supported Resolutions (Hz)	Input HDMI	Input Streaming	Output HDMI	Output Streaming
720×400p@70/85	✓	✓	✓	✓
640×480p@60/72/75/85	✓	✓	✓	✓
720×480i@60	✓	✓	✓	✓
720×480p@60	✓	✓	✓	✓
720×576i@50	✓	✓	✓	✓
720×576p@50	✓	✓	✓	✓
800×600p@56/60/72/75/85	✓	✓	✓	✓
848×480p@60	✓	✓	✓	✓
1024×768p@60/70/75/85	✓	✓	✓	✓
1152×864p@75	✓	✓	✓	✓
1280×720p@50/60	✓	✓	✓	✓
1280×768p@60/75/85	✓	✓	✓	✓
1280×800p@60/75/85	✓	✓	✓	✓
1280×960p@60/85	✓	✓	✓	✓
1280×1024p@60/75/85	✓	✓	✓	✓
1360×768p@60	✓	✓	✓	✓
1366×768p@60	✓	✓	✓	✓
1400×1050p@60	✓	✓	✓	✓
1440×900p@60/75	✓	✓	✓	✓
1600×900p@60RB	✓	✓	✓	✓
1600×1200p@60	✓	✓	✓	✓
1680×1050p@60	✓	✓	✓	✓
1920×1080i@50/60	✓	✓	✓	✓
1920×1080p@24/25/30	✓	✓	✓	✓
1920×1080p@50/60	✓	✓	✓	✓
1920×1200p@60RB	✓	✓	✓	✓

Supported Resolutions (Hz)	Input		Output	
	HDMI	Streaming	HDMI	Streaming
2560×1440p@60RB	✓	✓	✓	✓
2560×1600p@60RB	✓	✓	✓	✓
2048×1080p@24/25/30	✓	✓	✓	✓
2048×1080p@50/60	✓	✓	✓	✓
3840×2160p@24/25/30	✓	✓	✓	✓
3840×2160p@50/60 (4:2:0)	✓	✓	✓	×
3840×2160p@24, HDR10	✓	×	✓	×
3840×2160p@50/60 (4:2:0), HDR10	✓	×	✓	×
3840×2160p@50/60	✓	✓	✓	×
4096×2160p@24/25/30	✓	×	✓	×
4096×2160p@50/60 (4:2:0)	✓	×	✓	×
4096×2160p@24, HDR10	✓	×	✓	×
4096×2160p@50/60 (4:2:0), HDR10	✓	×	✓	×
4096×2160p@50/60	✓	×	✓	×

8.3 Audio Specifications

8.3.1 Digital Audio

HDMI Input / Output	
LPCM	
Max Channels	2 Channels
Sampling Rate (kHz)	32, 44.1, 48, 88.2, 96, 176.4, 192
Bitstream	
Supported Formats	None

8.3.2 Analog Audio

Analog Input	
Max Audio Level	2Vrms
Impedance	10kΩ
Type	Unbalanced

Analog Output	
Max Audio Level	4Vrms
THD+N	< −92dB@0dBFS 1kHz (A-wt)
SNR	> 80dB@0dBFS
Frequency Response	< ±0.5dB@20Hz~20kHz
Crosstalk	< −60dB@10kHz
Impedance	499Ω
Type	Balanced

8.4 Cable Specifications

Cable Length	1080p		4K30	4K60
	8-bit	12-bit	(4:4:4) 8-bit	(4:4:4) 8-bit
High Speed HDMI Cable				
HDMI Input	15m	10m	5m	3m
HDMI Output	15m	10m	5m	3m

Bandwidth Category Examples:

• **1080p (FHD Video)**
  - Up to 1080p@60Hz, 12-bit color
  - Data rates lower than 5.3Gbps or below 225MHz TMDS clock

• **4K30 (4K UHD Video)**
  - 4K@24/25/30Hz & 4K@50/60Hz (4:2:0), 8-bit color
  - Data rates higher than 5.3Gbps or above 225MHz TMDS clock but below 10.2Gbps

• **4K60 (4K UHD⁺ Video)**
  - 4K@50/60Hz (4:4:4, 8-bit)
  - 4K@50/60Hz (4:2:0, 10-bit HDR)
  - Data rates higher than 10.2Gbps

9. ACRONYMS

ACRONYM	COMPLETE TERM
ADC	Analog-to-Digital Converter
ASCII	American Standard Code for Information Interchange
AVoIP	Audio/Video over IP
Cat.5e	Enhanced Category 5 cable
Cat.6	Category 6 cable
Cat.6A	Augmented Category 6 cable
Cat.7	Category 7 cable
CEC	Consumer Electronics Control
CLI	Command-Line Interface
DAC	Digital-to-Analog Converter
dB	Decibel
DHCP	Dynamic Host Configuration Protocol
DVI	Digital Visual Interface
EDID	Extended Display Identification Data
GbE	Gigabit Ethernet
Gbps	Gigabits per second
GUI	Graphical User Interface
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
HDR	High Dynamic Range
IEEE	Institute of Electrical and Electronics Engineers
IP	Internet Protocol
IR	Infrared
kHz	Kilohertz
KVM	Keyboard/Video/Mouse
LAN	Local Area Network
LED	Light-Emitting Diode
LPCM	Linear Pulse-Code Modulation

ACRONYM	COMPLETE TERM
MAC	Media Access Control
MHz	Megahertz
OSD	On-Screen Display
PD	Powered Device
PiP	Picture in Picture
PoE	Power over Ethernet
PoP	Picture outside of Picture
SNR	Signal-to-Noise Ratio
TCP	Transmission Control Protocol
THD+N	Total Harmonic Distortion plus Noise
TMDS	Transition-Minimized Differential Signaling
4K UHD	4K Ultra-High-Definition (10.2Gbps max)
4K UHD[+]	4K Ultra-High-Definition (18Gbps max)
UHDTV	Ultra-High-Definition Television
USB	Universal Serial Bus
VLAN	Virtual LAN
VoIP	Video over IP
Ω	Ohm