CPLUS-44SM

4K60 4x4 HDMI Seamless Matrix

Operation Manual

Ver 1.00

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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
Ver 1.00	2025/10/7	Initial Release

CONTENTS

1. INTRODUCTION

This unit allows the signal from 4 different input sources to be freely selected and arranged on 4 displays, providing output modes (Matrix, Multiview and TV Wall) for various applications. It is an ideal solution for monitoring or displaying multiple sources simultaneously for use in control rooms, conference rooms or classrooms. Video resolutions supports up to 4K@60Hz and is fully compatible with the HDCP up to 2.2 standards.Pass-through of multiple digital audio formats such as LPCM (up to 8 channels), bitstream and HD bitstream at 192kHz are supported. Standard control is available via front panel controls with LCD menu, information OSD, remote control, RS-232, Telnet, and WebGUI making it exceptionally versatile.

2. APPLICATIONS

- Entertainment Room & Home Theater
- Show Room & Demo Room
- Lecture Room & Hall Presentation
- Public Commercial Display

3. PACKAGE CONTENTS

- 1× 4K60 4x4 HDMI Seamless Matrix
- 1× 24V/4A DC Power Adapter
- 1× Remote Control (CR-33)
- 1× Shockproof Feet (Set of 4)
- 1× Operation Manual

4. SYSTEM REQUIREMENTS

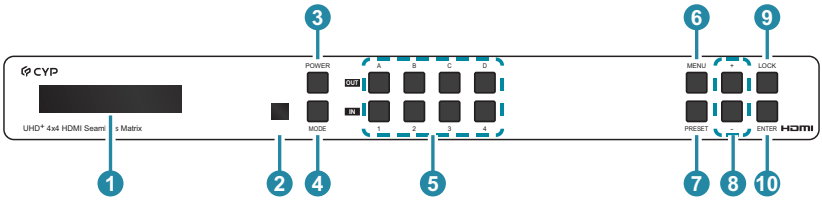
- HDMI source equipment such as media players, video game consoles or set-top boxes.
- HDMI receiving equipment such as HDTVs, monitors or audio amplifiers.

5. FEATURES

- 4 HDMI inputs and 4 HDMI outputs supports up to 4K UHD (4K@50/60Hz 4:4:4)
- Controllable via front panel controls with LCD menu, information OSD, remote control, RS-232, Telnet, and WebGUI
- Seamless switching (no loss of sync to display) when switching sources in Matrix mode
- Supports up to four simultaneous, freely scalable, windows in multiwindowing mode
- Supports the ability to store a multi-window arrangement as a preset that can be recalled later
- Auto-window mode that will automatically change the number of visible windows based on the number of live sources
- Uploadable and freely positionable graphic logo support
- Uploadable freerun logo for video mute and standby
- Front panel lock support
- Comprehensive EDID and HDCP management
- HDMI 2.0 compliant
- HDCP 1.x and 2.2 compliant

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel



1. **LCD WINDOW:** Displays the unit's menu, settings, and information.
2. **IR WINDOW:** Accepts IR signals from the included IR remote for control of this unit only.
3. **POWER Button:** Press this button to power the unit on or place it into stand-by mode.

   Note: Ethernet and RS-232 remain active when the unit is in stand-by mode.
4. **MODE LED-Button:** Press this button to sequentially switch the unit's operational mode between Matrix (blue LED), PiP, PoP, Quad, video wall, and Auto (all red LED).
5. **OUT A~D/IN 1~4 LED-Buttons:** These buttons behave differently depending on the current video mode in use.

   Note: Take mode is not active when using front panel buttons.

   In Matrix Mode:

   Press any OUT button (A–D) to select an output (LED flashes blue), then press an IN button (1–4) to assign the source immediately.

   In PiP / PoP / Quad Modes:

   Press any OUT button (A–D) to select a window (LED flashes red), then press an IN button (1–4) to assign the source immediately.

   In Video Wall Mode:

   Press any IN button (1–4) to switch to that source immediately. The LED will shows the active input in red.
6. **MENU Button:** Press to enter the LCD menu, or to back out from menu items.

7. **PRESET:** Press this button to recall sequentially through the saved presets. Presets are created and stored via the WebGUI.

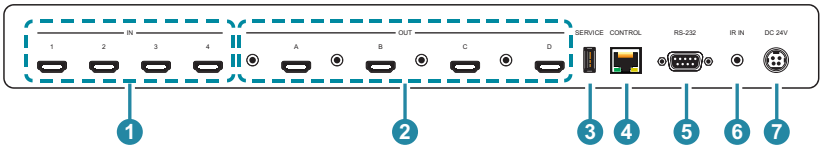
   Note: See Section 6.7.2.1 for advanced preset settings

8. **PLUS/MINUS(-/+) Button:** Press to navigate or to adjust selections within the LCD menu.

9. **LOCK LED-Button:** Press to lock all button functions on the front panel. Press the button again to release the lock function. The LED will illuminate red to indicate lock mode is on.

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

6.2 Rear Panel



1. **IN 1~4 Ports:** Connect to HDMI source equipment such as media players, game consoles, or set-top boxes.
2. **OUT A~D Ports:** Connect to HDMI TVs, monitors, or amplifiers for digital video and audio output.

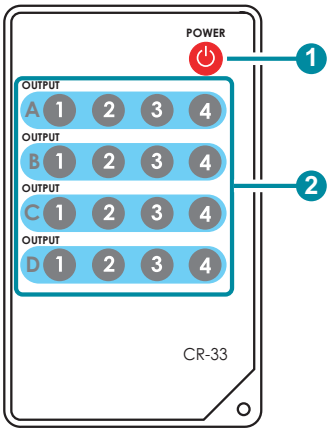
   LINE OUT A~D Port: Connect to powered speakers, headphones, or an amplifier for analog stereo audio output extracted from the paired HDMI output (LPCM 2.0 sources only).
3. **SERVICE Port:** This port is reserved for firmware update use only.
4. **CONTROL Port:** Connect directly, or through a network switch, to your PC/laptop to control the unit via Telnet/WebGUI.
5. **RS-232 Port:** Connect directly to a PC, laptop, or other serial control device to send RS-232 commands to control the unit.
6. **IR IN:** Connect to the provided IR Extender to extend the IR control range of the unit. Ensure that the remote being used is within direct line-of-sight of the IR Extender.
7. **DC 24V Port:** Plug the 24V DC power adapter into this port and connect it to an AC wall outlet for power.

6.3 Remote Control

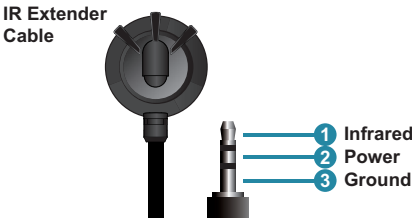
1. **POWER Button:** Press this button to power the unit on or place it into stand-by mode.

   Note: Ethernet and RS-232 remain active when the unit is in stand-by mode.

2. **OUTPUT Buttons:** Press any of these buttons to switch immediately to the corresponding input of the four outputs.

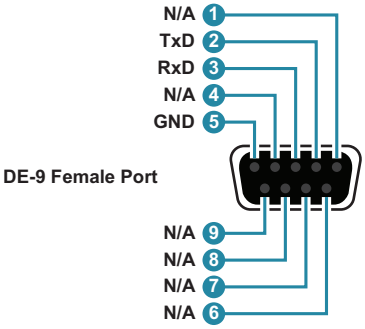


6.4 IR Cable Pinouts



6.5 Serial Pinout and Defaults

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



6.6 LCD Menu

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

MAIN MENU
ROUTING
AUDIO
EDID
HDCP
IPCONFIG
VERSION

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

ROUTING		
2ND LEVEL	**3RD LEVEL**	**4TH LEVEL**
OUT: A~D IN: 1~4 [VIDEO MODE]	Set Window Layout Mode N	Mode: [MODE Button]
	Set Route Preset N	Preset: [PRESET Button]
Matrix Mode		
OUT: A~D IN: 1~4 **[MATRIX]**	Set OUT X Route N	OUT: [Alphabetical Selection] IN: [Numerical Selection]
PiP/PoP/Quad/Preset Mode		
WIN: A~D IN: 1~4 [MULTIVIEW]	Set Window X Route N	WIN: [Alphabetical Selection] IN: [Numerical Selection]

ROUTING		
2ND LEVEL	**3RD LEVEL**	**4TH LEVEL**
Video Wall Mode		
OUT: A~D IN: 1~4 **[1]** [TV WALL]	Set OUT X Route N	IN: [Numerical Selection]
Auto Mode		
OUT: A~D IN: 1~4 [AUTO]		

1) **Set Window Layout Mode N:** Allows setting the preferred video mode to use with the unit. Use the “MODE” button to sequentially switch the unit’s operational mode between Matrix, PiP, PoP, Quad, video wall, and Auto.
2) **Set Route Preset N:** Allows setting the preferred preset to use with the unit. Use the “PRESET” button to recall sequentially through the saved presets.
3) **Set OUT X Route N:** Allows setting the preferred routing to use with matrix mode. Press any OUT button (A–D) to select an output, then press an IN button (1–4) to assign the source immediately.
4) **Set Window X Route N:** Allows setting the preferred routing to use with Multiview mode. Press any OUT button (A–D) to select a window, then press an IN button (1–4) to assign the source immediately.
5) **Set OUT X Route N (Video Wall):** Allows setting the preferred input to use with video wall. Press any IN button (1–4) to switch to that source immediately.

AUDIO		
2ND LEVEL	**3RD LEVEL**	**4TH LEVEL**
AO(Audio Out): A~D AI(Audio In): 1~8	Set Audio OUT X Route N	AI: [Up/Down Selection]

1) **Set Audio OUT X Route N:** Allows setting the preferred audio input to use with each audio outputs. Use the “ENTER” & +/- keys to navigate. Enter the number of the audio input to use next to the “AI:” prompt and then press “ENTER” to activate the new audio input.

This unit provides the following 8 audio choices:

#	Audio Routing Select	#	Audio Routing Select
1	Input 1 Source	5	Follow Window A
2	Input 2 Source	6	Follow Window B
3	Input 3 Source	7	Follow Window C
4	Input 4 Source	8	Follow Window D

EDID		
2ND LEVEL	**3RD LEVEL**	**4TH LEVEL**
IN: 1~4 MODE: 1~8 **[3]**	Set IN X EDID N	Mode: [Up/Down Selection]

1) **Set IN X EDID N:** Allows setting the preferred EDID to use with each inputs. Use the “ENTER” & +/- keys to navigate. Enter the number of the EDID to use next to the “MODE:” prompt and then press “ENTER” to activate the new EDID.

This unit provides the following 14 EDID choices:

#	Default EDIDs	
1	FHD/PCM/2CH	1920×1080p@60Hz (4.95Gbps) & 8-bit color, LPCM 2.0
2	UHD/PCM/2CH	3840×2160p@30Hz (10.2Gbps) & Deep Color (8/10/12-bit), LPCM 2.0
3	**UHD+/PCM/2CH**	3840×2160p@60Hz (18Gbps) & Deep Color (8/10/12-bit), LPCM 2.0
4	FHD/PCM/MCH	1920×1080p@60Hz (4.95Gbps) & 8-bit color, LPCM 7.1
5	UHD/PCM/MCH	3840×2160p@30Hz (10.2Gbps) & Deep Color (8/10/12-bit), LPCM 7.1
6	UHD+/PCM/MCH	3840×2160p@60Hz (18Gbps) & Deep Color (8/10/12-bit), LPCM 7.1

#	Sink EDIDs	#	User EDIDs
7	Output A Sink	**11**	User EDID 1
8	Output B Sink	**12**	User EDID 2
9	Output C Sink	**13**	User EDID 3
10	Output D Sink	**14**	User EDID 1

HDCP		
2ND LEVEL	**3RD LEVEL**	**4TH LEVEL**
IN: 1~4 MODE: 0~2 **[2]**	Set IN X HDCP Mode N	Mode: [Up/Down Selection]

1) **Set IN X HDCP Mode** N: Allows setting the preferred HDCP to use with each inputs. Use the “ENTER” & +/- keys to navigate. Enter the number of the HDCP to use next to the “MODE:” prompt and then press “ENTER” to activate the new HDCP.

This unit provides the following 3 HDCP choices:

#	HDCP Modes	
0	HDCP Support Off	Completely disables support for HDCP on that input.
1	Refer to Source	Makes the input port support the same HDCP version as required by the connected source.
2	**REFER TO DISPLAY**	Makes the input support the HDCP version of the currently connected displays.

IPCONFIG
2ND LEVEL
IP : [Displays current IP address]
NET : [Displays current netmask]
GATE : [Displays current gateway address]

1) **IP Config Menu:** Details about the unit's current IP configuration are displayed here.

VERSION
2ND LEVEL
[Displays the current firmware version]

1) **Version:** Displays the unit's current firmware version.

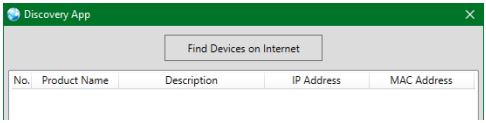
6.7 WebGUI Control

- **Device Discovery**

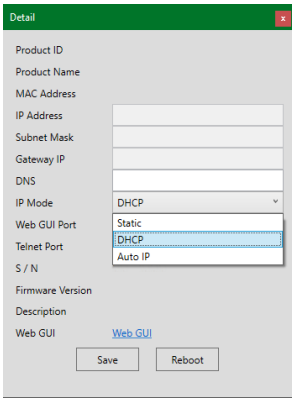
Please obtain the “Device Discovery” software from your authorized dealer and save it in a directory where you can easily find it.

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 via the LCD menu or RS-232 if the Device Discovery software is not available.



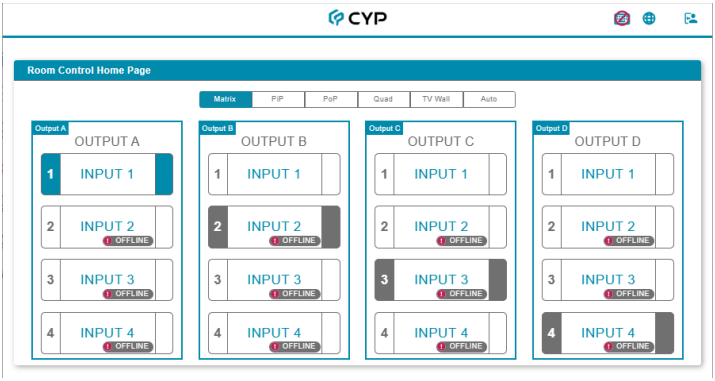
By clicking on one of the listed devices you will be presented with the network details of that particular device.



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.

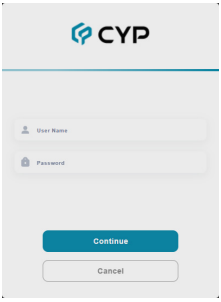
- **WebGUI Overview**

After connecting to the WebGUI's address in a web browser, the home page will appear. This page contains a set of useful functions that can be accessed without the need to log in.



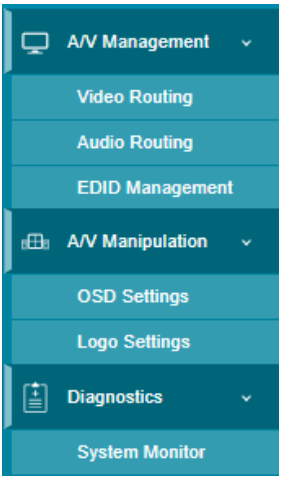
Click the login icon ( ) in the upper right corner to log in, enter the appropriate user name and password then click "Continue" to log in.

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



After logging in, the upper right corner will now display 5 navigation icons. Clicking on the "System Settings" icon ( ) will take you to the System Settings page for configuration options including IP configuration, device name, and firmware update functionality. Clicking on the "User Management" icon ( ) will take you to the User Management page, provides access to user management controls for the unit. Clicking on the "System Information" icon ( ) will take you to the System Information page, providing information of technical support for the unit. Clicking on the "Language" icon ( ) can change the interface language to user's preference, current only support

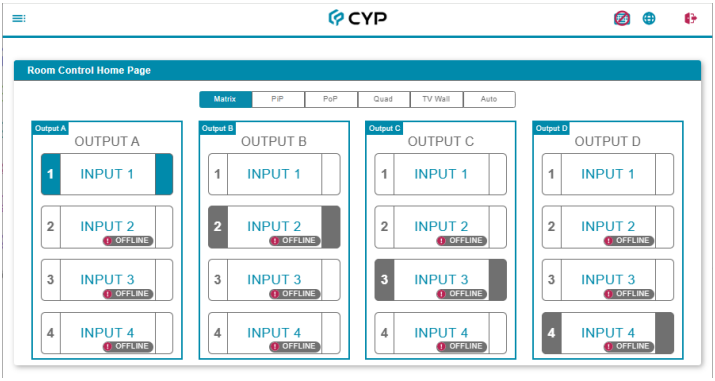
Traditional Chinse and English. If a keyboard is not available, an on-screen keyboard can be enabled or disabled by clicking on the “Virtual Keyboard” icon ( ). When enabled, the on screen keyboard will display whenever editing a text entry field. Clicking on the red “Logout” icon ( ) will log the currently connected user out of the WebGUI and return to home page. Clicking on the “Home” icon ( ) or the unit’s logo at the top of the page will return to home page.



Click on the “Hamburger” icon ( ) in the upper right corner to open up the main page, the left side of the browser will display a compressed version of the above menu tabs where all primary functions of the unit are controllable via the built in WebGUI. The individual functions will be introduced in the following sections.

6.7.1 Home Page

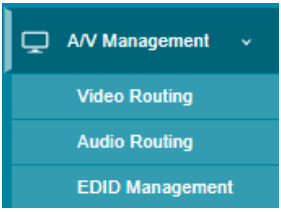
This page provides easy access to unit's operational mode and source selection.



1) **Video Mode:** Click on a video mode button to activate the currently selected video mode.
2) **Routing:** These buttons can select the input to route to outputs. Detail about each input's name and current connection status are also displayed here.

6.7.2 A/V Management Pages

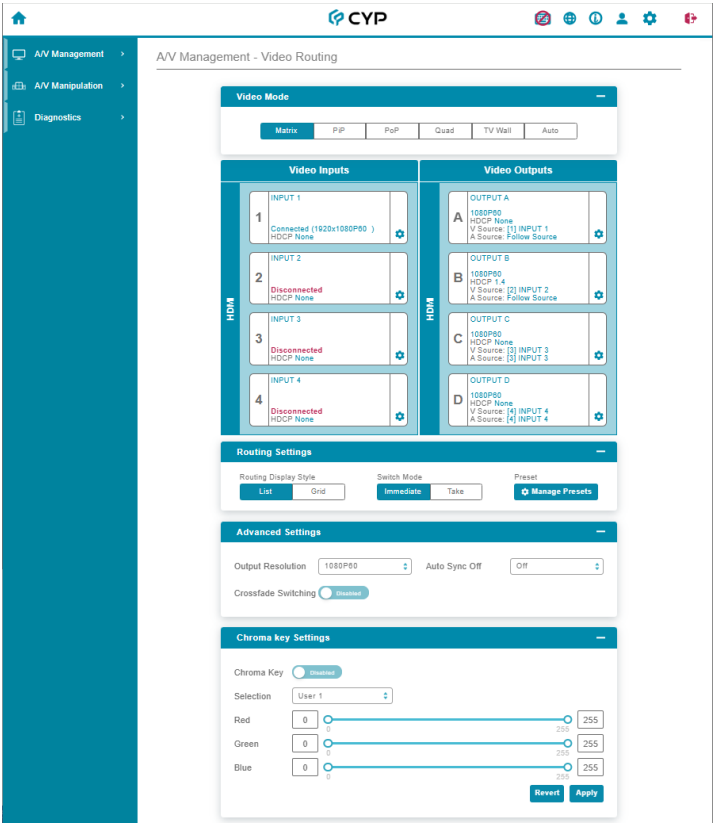
The A/V Management pages are a collection of three configuration and information pages containing controls for configuring the unit's A/V settings and EDID management.



6.7.2.1 Video Routing Page

This page provides control over unit's operational mode, routing, output resolution, Auto Sync Off feature, storing/recalling presets, chroma key functions, HDCP management, picture settings as well as control over the position, size, aspect, priority, and other settings of each window in multi-

viewer modes. A graphical representation of the layout is also provided. To begin assigning a new video route, select an input or output button and then click on the button of the preferred route. As each button is selected they will become highlighted. The new route will become active immediately when the unit is under immediate mode, and the routing information displayed on the buttons will change accordingly.



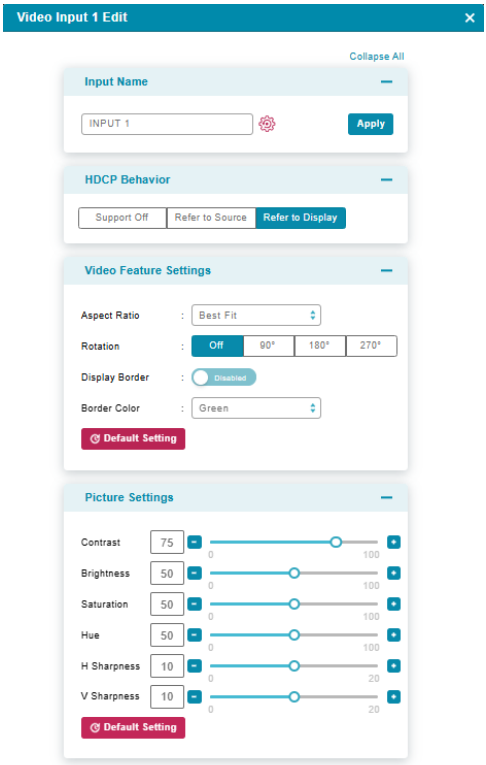
1) **Video Mode:** Select the preferred operation mode of the unit.

   Note: Selecting some modes will limit available features.

2) **Video Inputs:** These buttons can select the input to route to outputs. Detail about each input's name and current sync and HDCP settings are also displayed here. Clicking on the "Edit" icon (⚙) opens up the Video Input Edit window.

3) **Video Outputs:** Buttons for display each output's name and details about the currently routed inputs. Clicking on the "Edit" icon (⚙) opens up the Video Output Edit window.

4) **Video Input Edit:** Provides individual control over the name of each input, as well as the behavior of HDCP, video feature settings, and picture settings on that input.



- **Input Name:** To change the name of an Input, type the new name in the space provided, then click on the "Apply" button. To resume to the stored name before adjusting, click on the revert icon (⚙).
- **HDCP Behavior:** Selects the HDCP logic to use with this input. Changes made to this setting occur immediately.
  - **HDCP Support Off:** Completely disables support for HDCP on this input.
  - **Refer to Source:** Makes the input port support the same HDCP version as required by the connected source.

- **Refer to Display:** Makes the input support the HDCP version of the currently routed display(s).

- **Video Feature Settings:** This section provides control over the aspect, rotation, and other settings of each input.

  Note: Only available in Matrix mode.

  - **Aspect Ratio:** Use the dropdown to select a fixed aspect ratio for the currently selected window or input. Available options are: Full, 16:9, 16:10, 4:3, Best Fit, and User. In multi-windowing modes the aspect ratio will be based on the window's current height. Selecting the "Full" aspect ratio will return the window to the current mode's default size and shape for that window. Selecting "Best Fit" will automatically set the ratio based on the window's current source resolution.

    Note: The "User" aspect ratio is not available in Matrix mode.

  - **Rotation:** Set the video output to 0, 90, 180 or 270 degrees clockwise rotate.

    Note: When the output resolution is set to 4K, only input 1 can be rotated.

  - **Display Border:** This switch enables or disables the color border around the currently selected input.

  - **Border Color:** Use the dropdown to select the color to use for the border of the currently selected input. Available colors are: Black, red, green, blue, yellow, magenta, cyan, white, dark red, dark green, dark blue, dark yellow, dark magenta, dark cyan, gray.

  - **Default Setting:** Reset all video feature settings back to their factory defaults.

- **Picture Settings:** This section provides controls over each input's contrast, brightness, saturation, hue, and sharpness levels.

  - **Contrast:** This slider provides control over the overall contrast of the currently selected source video.

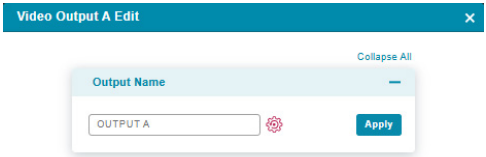
  - **Brightness:** This slider provides control over the overall brightness of the currently selected source video.

  - **Saturation:** This slider provides control over the overall saturation of the currently selected source video.

  - **Hue:** This slider provides control over the hue shift of the currently selected source video.

- **H/V Sharpness:** This slider provides control over the amount of sharpness processing to apply to the currently selected source video.
- **Default Settings:** Reset all picture settings back to their factory defaults.

5) **Video Output Edit:** Provides control over output naming settings.



- **Output Name:** To change the name of an Output, type the new name in the space provided, then click on the “Apply” button. To resume to the stored name before adjusting, click on the revert icon (⚙).

6) **Routing Settings:** Configure routing style, switch mode, and presets for recall and save.
   - **Routing Display Style:** Select the preferred routing display style: Selecting “List” enables detailed information for inputs and outputs, while selecting “Grid” provides a checkerboard-style view with a faster routing check mark.
   - **Switch mode:** Select the method for switching mode. Selecting “Immediate” to activate a new route immediately or “Take” to activate it after clicking on the “TAKE” button. The “CLEAR” button can withdraw the decision, allows switching between multiple routes at once.
   - **Presets:** Click on the “Manage Presets” button to open the popup window.
     - **Recall Preset:** Click on a preset button to activate the currently selected preset.
     - **Store Preset:** Click on a preset button to store the unit’s current video window configuration to the currently selected preset.

7) **Advanced Settings:**
   - **Output Resolution:** Select the preferred video output resolution.
   - **Auto Sync Off:** Sets the length of time to continue outputting sync with a black screen if there is no live source and no operations have been executed on the unit. Setting this to “Off” forces the unit to always output sync. Available options are: Off, Fast, Slow, and Immediate.

- **Crossfade Switching:** Enable or disable the crossfading transition mode when switching sources.

8) **Chroma key Settings:** Provides control over the chroma key functions of the unit. A number of pre-designed standard key ranges are provided as well as slots to save up to 4 user-created key ranges. Keying values and ranges are set using the full RGB color space (0~255).

   Note: Only available in Matrix mode.

   - **Chroma Key:** Enable or disable Chroma Key mode. When enabled, Input 1 will always be the background layer and input 2 will always be the foreground layer to which the key is applied.

     Note: When Chroma Key is active the aspect ratio is forced to full screen and the border feature is disabled.

   - **Selection:** Use the dropdown to select the keying preset to use when chroma key is active. There are 4 user editable presets and 8 fixed presets.

   - **Red/Green/Blue:** Set the keying range (the color range within input 2's video to make transparent) to use for the currently selected User Key Preset by setting the maximum and minimum values for red, green, and blue. Click the "Apply" button to see the effect of changes made to the keying ranges and store the current keying color ranges to the selected User Preset. Click the "Revert" button to return all ranges to the values saved in the current User Preset.

     Note: If a fixed preset is currently selected, the values will be displayed, but cannot be modified.

9) **Window Layout:** Provides control over the position, size, aspect, priority, and other settings of each window in multi-viewer modes. A graphical representation of the layout is also provided. This section only available in the PiP, PoP, and Quad Mode.

   Note: Only the information from the currently selected window is displayed. A window's position and size cannot exceed the current output resolution.

- **Visual Layout Window:** When in a multi-windowing mode, individual windows may be selected, moved and resized simply by clicking and dragging on them in the layout window. To select a window, click on it and the information will be displayed on the left. Click and drag the center of a window to reposition it. Click and drag the corner of a window to manually resize it. The results of a change will be displayed on the outputs as soon as the mouse button has been released.

  Note: Window positioning and size can not be adjusted in Auto mode. Not available in Matrix mode.

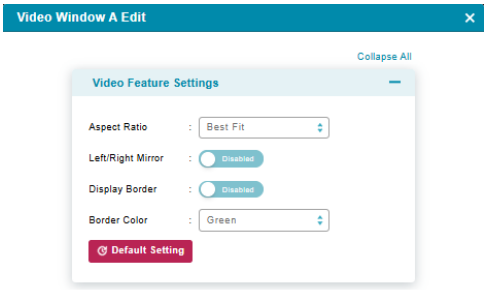
- **Window:** In multi-windowing modes, use the dropdown to select the window to modify.

  Note: Changes made while a "Preset" video mode is selected will automatically be applied and saved to that preset.

- **Display:** Enable or disable the currently selected window.
- **Position X/Y:** Set the X and Y coordinate position of the upper left corner of the currently selected window. Click on the "Apply" button, after making changes, to make them active.
- **Size Width/Height:** Set the horizontal and vertical size of the currently selected window. Click on the "Apply" button, after making changes, to make them active.

- **Priority:** Select the layer priority of the currently selected window. Priority 1 is at the front and priority 4 is at the back.
- **Window Reset:** Reset the current window to its default settings based on the currently selected mode.

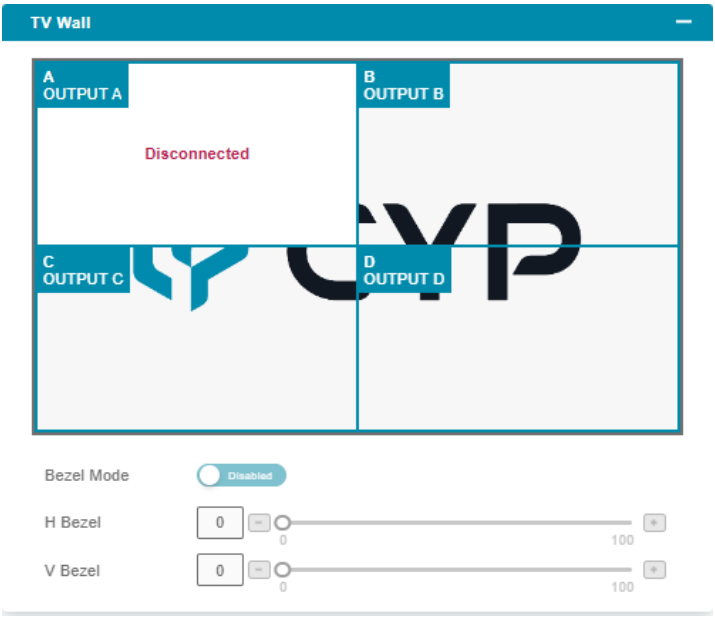
10) **Video Window Edit:** Provides control over aspect settings and other settings of each window in multi-viewer modes. This pop up window only available in the PiP, PoP, and Quad Mode.



- **Video Feature Settings:** This section provides control over the aspect, mirror, and other settings of each input.
  - **Aspect Ratio:** Use the dropdown to select a fixed aspect ratio for the currently selected window or input. Available options are: Full, 16:9, 16:10, 4:3, Best Fit, and User. In multi-windowing modes the aspect ratio will be based on the window's current height. Selecting the "Full" aspect ratio will return the window to the current mode's default size and shape for that window. Selecting "Best Fit" will automatically set the ratio based on the window's current source resolution.
  - **Left/Right Mirror:** Turning this switch on will flip the currently selected window/input horizontally.
  - **Display Border:** This switch enables or disables the color border around the currently selected input.
  - **Border Color:** Use the dropdown to select the color to use for the border of the currently selected input. Available colors are: Black, red, green, blue, yellow, magenta, cyan, white, dark red, dark green, dark blue, dark yellow, dark magenta, dark cyan, gray.
  - **Default Setting:** Reset all video feature settings back to their factory defaults.

11) **TV Wall:** Provides control over how much bezel compensation to apply. The video wall's general appearance, and the position of the 4 displays connected to each unit, is represented by the large window to the top. Each display is labeled with the unit's output letter. This section only available in the Video Wall Mode.

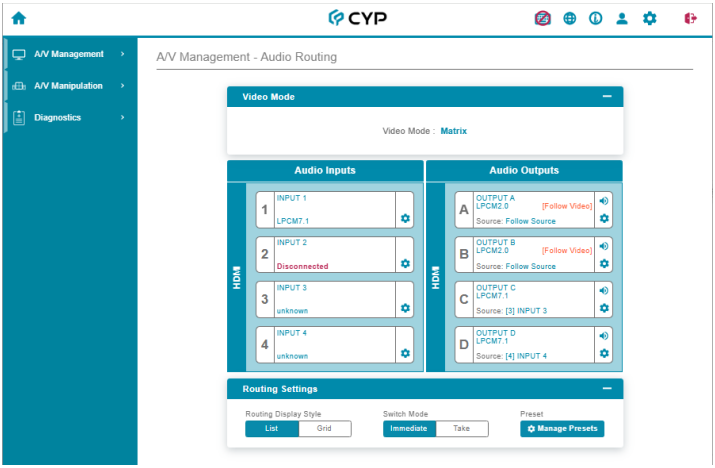
Note: Bezel settings assume that the top/bottom and left/right bezel pairs are uniform in size and all displays in the video wall share the same dimensions.



- **Bezel Mode:** Enable or disable the use of bezel compensation.
- **H Bezel:** Set the size of the horizontal bezel compensation. (Maximum value is 100)
- **V Bezel:** Set the size of the vertical bezel compensation. (Maximum value is 100)

6.7.2.2 Audio Routing Page

This page provides control over the audio output behavior of the unit, including routing selection and muting. To begin assigning a new audio route, select an input or output button and then click on the button of the preferred route. As each button is selected they will become highlighted. The new route will become active immediately when the unit is under immediate mode, and the routing information displayed on the buttons will change accordingly.



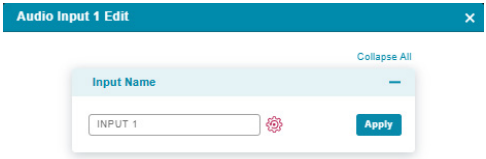
1) **Video Mode:** Display the current operation mode of the unit.

   Note: Some modes will limit available features.

2) **Audio Inputs:** These buttons can select the input to route to outputs. Detail about each input's name and current audio format/volume settings are also displayed here. Clicking on the "Edit" icon (⚙) opens up the Audio Input Edit window.

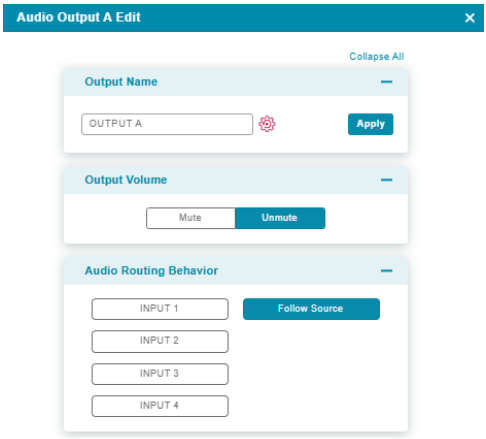
3) **Audio Outputs**: Buttons for display each output's name and details about the currently routed inputs. Clicking on the "Mute" icon (🔊) to mute or unmute the output. Clicking on the "Edit" icon (⚙) opens up the Audio Output Edit window.

4) **Audio Input Edit:** Provides individual control over the name on that input.



- **Input Name:** To change the name of an Input, type the new name in the space provided, then click on the “Apply” button. To resume to the stored name before adjusting, click on the revert icon ( ).

5) **Audio Output Edit:** Provides control over output naming, mute, and routing behavior settings.



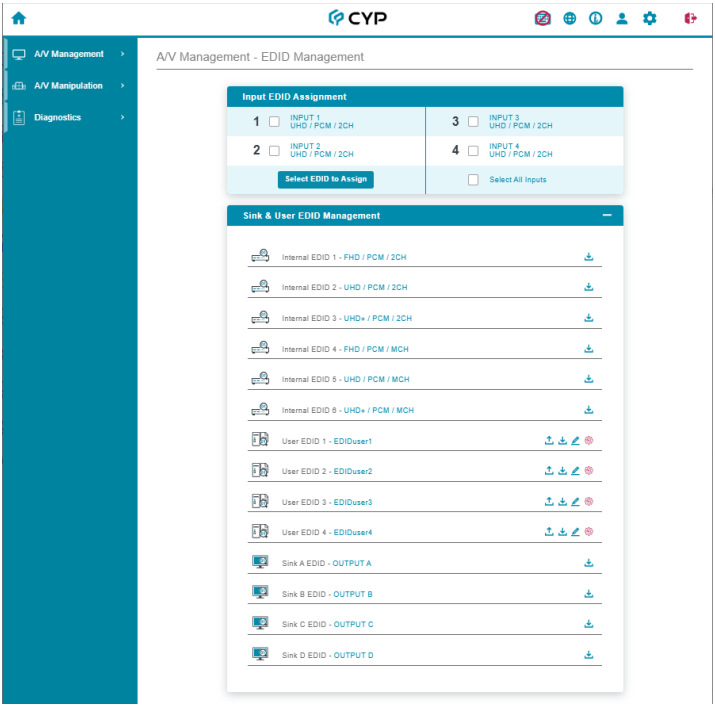
- **Output Name:** To change the name of an Output, type the new name in the space provided, then click on the “Apply” button. To resume to the stored name before adjusting, click on the revert icon ( ).
- **Output Volume:** Click on “Mute” icon ( ) to mute or unmute the output audio.
- **Audio Routing Behavior (Matrix Mode):** Select the audio routing logic to use with this output. Selecting “Follow Source” will disable manually routing audio to this output.
- **Audio Routing Behavior (Multiview and Auto Modes):** Select the audio routing logic to use with this window. Selecting “Follow Window A/B/C/D” will disable manually routing audio to this window.

6) **Routing Settings:** Configure routing style, switch mode, and presets for recall and save.
   - **Routing Display Style:** Select the preferred routing display style: Selecting “List” enables detailed information for inputs and outputs, while selecting “Grid” provides a checkerboard-style view with a faster routing check mark.
   - **Switch mode:** Select the method for switching mode. Selecting “Immediate” to activate a new route immediately or “Take” to activate it after clicking on the “TAKE” button. The “CLEAR” button can withdraw the decision, allows switching between multiple routes at once.
   - **Preset:** Click on the “Manage Presets” button to open the popup window.
     - **Recall Preset:** Click on a preset button to activate the currently selected preset.
     - **Store Preset:** Click on a preset button to store the unit’s current video and audio configurations to the currently selected preset.

6.7.2.3 EDID Management Page

This tab provides control over the EDID settings of all inputs.This unit provides the option of six standard EDIDs, four sink source EDIDs and four user uploaded EDIDs that can be assigned to all inputs at the same time, or to each input independently. The names of the user uploaded EDIDs can be changed if desired.

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.



1) **Input EDID Assignment:** Click on the checkbox to select one or more inputs, press “Select EDID to Assign” button to open the popup window. Select the new EDID source to use then click on the “Apply” button, the change will occur immediately across all selected Inputs.

This unit provides the following default EDIDs:

Unit’s default EDIDs	
FHD/PCM/2CH	1920×1080p@60Hz (4.95Gbps) & 8-bit color, LPCM 2.0
UHD/PCM/2CH	3840×2160p@30Hz (10.2Gbps) & Deep Color (8/10/12-bit), LPCM 2.0
UHD+/PCM/2CH	3840×2160p@60Hz (18Gbps) & Deep Color (8/10/12-bit), LPCM 2.0
FHD/PCM/MCH	1920×1080p@60Hz (4.95Gbps) & 8-bit color, LPCM 7.1

Unit's default EDIDs	
UHD/PCM/MCH	3840×2160p@30Hz (10.2Gbps) & Deep Color (8/10/12-bit), LPCM 7.1
UHD+/PCM/MCH	3840×2160p@60Hz (18Gbps) & Deep Color (8/10/12-bit), LPCM 7.1

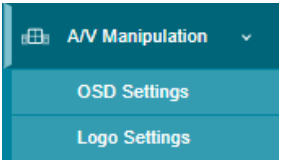
Note: In some rare cases it is possible for custom or external EDIDs to cause compatibility issues with certain sources. If this happens, it is recommended to switch to one of the 6 default EDIDs for maximum compatibility.

2) Sink & User EDID Management:

- **Internal EDID 1~6:**
  - **Download:** To save the EDID from a connected display to your local PC, click on the "Download" icon (). Depending on your browser settings you will either be asked where to save the downloaded file, or the file will be transferred to the default download location on your PC.
- **User EDID 1~4:**
  - **Upload:** To upload a User EDID, click on the "Upload" icon (). An EDID Upload window will appear, allowing you to locate and upload the preferred EDID file (*.bin format) from a local PC. Once the correct file has been selected, please click the "Upload" button in the window, and the file will be transferred to the unit.
  - **Download:** To save the EDID from a connected display to your local PC, click on the "Download" icon (). Depending on your browser settings you will either be asked where to save the downloaded file, or the file will be transferred to the default download location on your PC.
  - **Edit Name:** Click the "Pencil" icon () to open a window that allows changing the name of the User EDID. Click the "Apply" button within the window to confirm the change. To resume to the stored name before adjusting, click on the revert icon ().
  - **Reset:** Click the "revert" icon () to reset the EDID to its factory default content.
- **Sink A~D EDID:**
  - **Download:** To save the EDID from a connected display to your local PC, click on the "Download" icon (). Depending on your browser settings you will either be asked where to save the downloaded file, or the file will be transferred to the default download location on your PC.

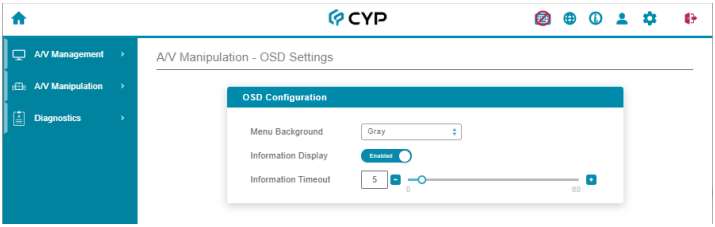
6.7.3 A/V Manipulation Pages

The A/V Manipulation page contains a configuration page for managing the unit's OSD and Logo settings.



6.7.3.1 OSD Settings Page

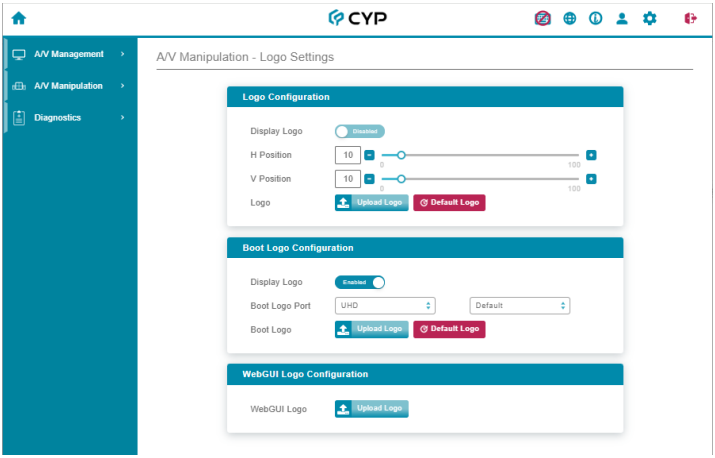
This page provides control over the behavior of the OSD menu background and informational display.



1) **Menu Background:** Set the color of the background of the OSD menu. Available choices are: Black, Gray, and Blue.
2) **Information Display:** Enable or disable the informational OSD.
3) **Information Timeout:** Set the length of time, in seconds, that the informational OSD will be displayed after a signal or source change, or disable the timeout completely.

6.7.3.2 Logo Settings Page

This page provides control over the user uploaded logo graphic. Controls include positioning, an uploading a new logo directly from the WebGUI and an option to reset the logo to a built in default image that can be used for testing.



1) **Logo Configuration:**

- **Display Logo:** Enable or disable displaying the logo graphic.
- **X/Y Position:** Sets the position of the logo's upper left corner, within the output. The position values are a relative percentage of the available output resolution.
- **Upload Logo:** To upload a graphic logo, please click the "Upload Logo" button to open the file selection window and then select the graphic logo file (8-bit *.bmp format, 960×540 max resolution,with given file name: LOGO_OSD_USER_xxxx.BMP) located on your local PC.

  Note: The upload process can take a while, depending on the size of the logo. Progress information will be displayed on the OSD while the logo is being installed. The unit will automatically reboot when it is finished.
- **Default Logo:** Resets the logo and installs a default test image.

  Note: The reset process can take a few moments. Progress information will be displayed on the OSD while the default logo is being installed. The unit will automatically reboot when it is finished.

2) **Boot Logo Configuration:**

- **Display Logo:** Enable or disable displaying the logo graphic.
- **Boot Logo Port:** Each resolution is an individual setting.
  - **UHD:** Select whether to display the default graphic image during boot, or the user uploaded graphic when the output resolution is set to 4K or above.

- **FHD:** Select whether to display the default graphic image during boot, or the user uploaded graphic when the output resolution is between 1080p and VGA.
- **VGA:** Select whether to display the default graphic image during boot, or the user uploaded graphic when the output resolution is less than VGA.

■ **Boot Logo Upload:**

- **UHD:** To upload a 4K boot graphic, please click the "Upload Logo" button to open the file selection window and then select the graphic file (8-bit *.BMP format, 3840×2160 resolution, with given file name: LOGO_BOOT_4K_xxxx.BMP) located on your local PC.

  Note: Upload progress information will be displayed on the OSD while the boot logo is being installed.

- **FHD:** To upload a 1080p boot graphic, please click the "Upload Logo" button to open the file selection window and then select the graphic file (8-bit *.BMP format, 1920×1080 resolution, with given file name: LOGO_BOOT_1920x1080_xxxx.BMP) located on your local PC.

  Note: Upload progress information will be displayed on the OSD while the boot logo is being installed.

- **VGA:** To upload a VGA boot graphic, please click the "Upload Logo" button to open the file selection window and then select the graphic file (8-bit *.BMP format, 640×480 resolution, with given file name: LOGO_BOOT_VGA_xxxx.BMP) located on your local PC.

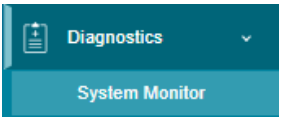
  Note: Upload progress information will be displayed on the OSD while the boot logo is being installed.

■ **Default Logo:** Removes all user uploaded boot logo images.

3) **WebGUI Logo Configuration:** To upload a graphic to use in WebGUI home logo, please click the "Upload Logo" button to open the file selection window and then select the graphic file (8-bit *.BMP format, 1920×1080 resolution) located on your local PC.

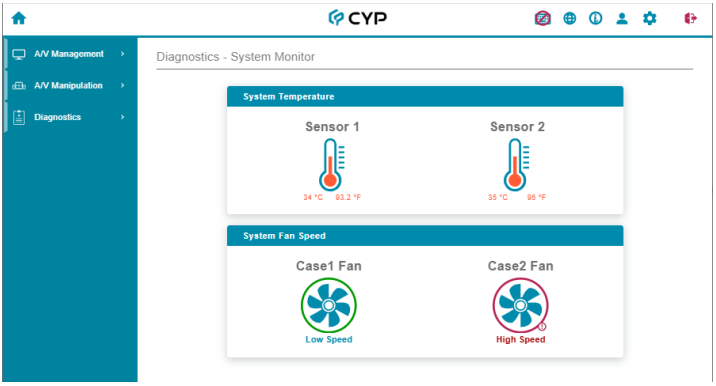
6.7.4 Diagnostics Pages

The Diagnostics pages has system status page containing system monitor for the temperature and fan speed.



6.7.4.1 System Monitor Page

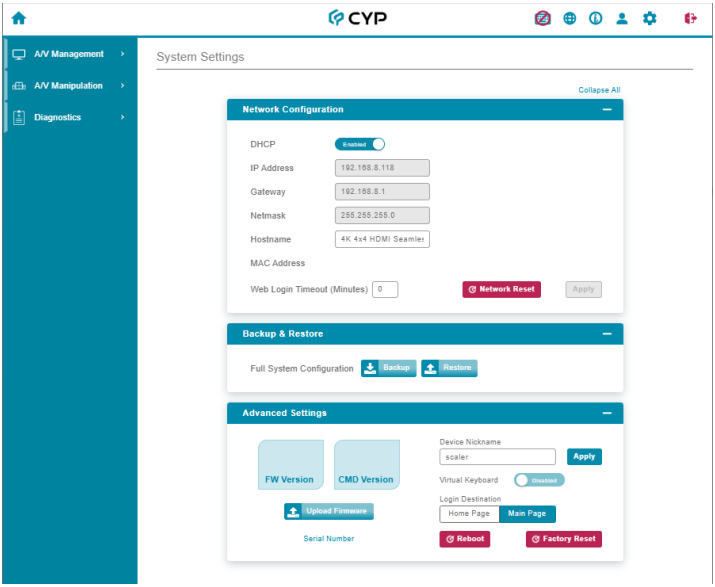
This page provides information concerning the temperature and fan speed inside the unit.



1) **System Temperature:** Display the current temperature inside the unit. Sensor 1 & 2 are at the right side panel (from the front).
2) **System Fan Speed:** The automatic operation of the fan control can be set via the command (See Section 6.9). Fan case 1 & 2 are at the right side panel (from the front).

6.7.5 System Settings Page

Click on the “System Settings” page to make changes to various system settings. From this page you can change the WebGUI login timeout, device name, and IP configurations. It also allows the user to reset the unit to factory default and to update the firmware.



1) **Network Configuration:**

- **IP Configuration: I**P Mode may be switched between Static IP or 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 “Apply” after making any changes to the IP configuration or mode.

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

- **Web Login Timeout (Minutes):** Set the length of time to wait, in minutes, before logging out a user due to inactivity. Setting it to 0 means there is no timeout.

- **Network Reset:** Reset all Ethernet settings back to their factory defaults.

2) **Backup & Restore:**

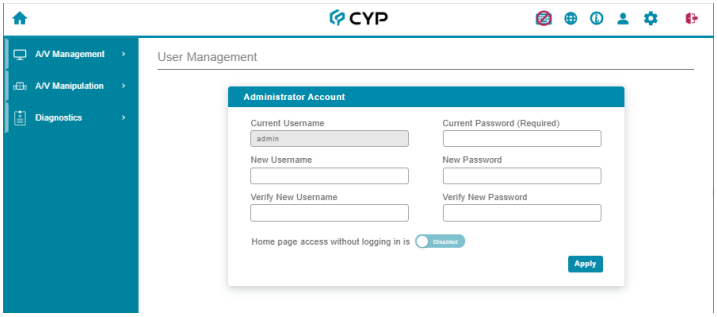
- **Backup:** The current system configuration, including routing and settings, may be saved to a PC (*.json format). Click the “Backup” button to save the current system configuration to your local PC.
- **Restore:** Previously saved system configurations may be restored from a saved file. Click the “Restore” button to open the file selecting window and then select the saved file (*.json format) located on your local PC. After selecting the file, click the “Open” button to import the new configuration.

3) **Advanced Settings:**

- **Firmware Version:** Displays the unit’s firmware version.
- **CMD Version:** Displays the unit’s command version.
- **Firmware Upgrade:** To update the unit’s firmware, click the “Upload Firmware” button to open the file selection window and then select the firmware update file (*.bin format) located on your local PC. After the upgrade is complete, the unit will reboot automatically.
- **Serial Number:** Displays the unit’s serial number.
- **Device Nickname:** To change the name of the unit, type the new name in the space provided, then click on the “Apply” button.
- **Virtual Keyboard:** If a keyboard is not available, an on-screen keyboard can be enabled or disabled here. This setting synchronize with the “Virtual Keyboard” icon () on the top right corner of the page.
- **Login Destination:** Define the landing page after user login successfully. Selecting “Home Page” will direct the user to the home page, while selecting “Main Page” will take them to Video Routing Page.
- **Reboot:** Click this button to reboot the unit.
- **Factory Reset:** Press the “Factory Reset” button to reset the unit to its factory default state. After the reset is complete, the unit will reboot automatically.

6.7.6 User Management Page

This page provides access to user management controls for the unit, such as changing the admin login password.



1) **Administrator Account:** The username and password for the WebGUI can be changed on this page. After entering the old and new login information, press "Apply" to save the changes.

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

6.7.7 System Information Page

This page provides technical support information, including serial number/ version details and contact information for the manufacturer, as well as providing unit's work log download for issue clarifying.

1) **Information:** Displays the unit's firmware and command version, as well as the unit's serial number.
2) **Work Log:** Providing unit's work log download for issue clarifying.
   - **Detailed Logging:** Enable or disable the unit's detailed work log. When disabled, the work log will be simplified.
   - **Download Log:** To save the unit's work log to your local PC, click on the "Download Log" button.

1) **Manufacturer Contact Information:**
   - **Website:** Displays the manufacturer's official website link.
   - **E-mail:** Displays the manufacturer's contact email address.
   - **Contact Number:** Displays the manufacturer's contact phone number.

6.8 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 via the LCD menu or RS-232 if the Device Discovery software is not available. The default communication port is 23.

6.9 Serial and 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 model name↵ Show the unit's model name.
get model type↵ Show the unit's product type.
set factory default↵ Reset the unit to its factory defaults.
set factory ipconfig default↵ Reset the unit's network settings to the factory defaults.
set nickname N1↵ Set the name of the unit's nickname. Available values for **N1**: **N1** = {ASCII string} [Nickname]
get nickname↵ Show the name of the unit's nickname.
set feedback broadcast N1↵ Enable or disable the broadcast of console command feedback. Available values for **N1**: ON [Enable] OFF [Disable]
get feedback broadcast↵↵ Show the current console command feedback broadcast state.
set power N1↵ Set the unit's power state. Available values for **N1**: ON [Power on] OFF [Standby mode]

COMMAND Description and Parameters
get power↵ Show the unit's current power state.
set system reboot↵ Reboot the unit.
set system usb fw update↵ Trigger the unit's firmware update state and load the new firmware file via USB.
set ip mode N1↵ Set the unit's IP address assignment mode. Available values for **N1**: STATIC [Static IP mode] DHCP [DHCP mode]
get ip mode↵ Show the current IP address assignment mode.
get ipconfig↵ Show the unit's current IP configuration information.
get ipaddr↵ Show the unit's current IP address.
get netmask↵ Show the unit's current netmask.
get gateway↵ Show the unit's current gateway address.
set static ipaddr N1↵ Set the unit's static IP address. **N1** = X.X.X.X [X = 0~255, IP address]
get static ipaddr↵ Show the unit's current static IP address.

COMMAND Description and Parameters
set static netmask N1↵ Set the unit's static IP address. **N1** = X.X.X.X [X = 0~255, Netmask]
get static netmask↵ Show the unit's current static netmask.
set static gateway N1↵ Set the unit's static IP address. **N1** = X.X.X.X [X = 0~255, Gateway address]
get static gateway↵ Show the unit's current static gateway address.
set webgui username N1↵ Set the WebGUI login username. **N1** = {Username} [16 characters max]
get webgui username↵ Show the current WebGUI login username.
set webgui password N1↵ Set the WebGUI login password. **N1** = {Password} [16 characters max]
get webgui password↵ Show the current WebGUI login password.
set webgui port n1↵ Set the unit's WebGUI access port. Available values for **N1**: 1~65535 [http port number]
get webgui port↵ Show the unit's current WebGUI access port.

COMMAND Description and Parameters
set webgui login timeout N1↵ Set the WebGUI inactivity timeout value. Available values for **N1**: 0 [Disabled] 1~120 [Timeout in minutes]
get webgui login timeout↵ Show the current WebGUI inactivity timeout value.
set webgui login homepage N1↵ Enable or disable showing the WebGUI homepage immediately after logging into the unit as a valid user. Available values for **N1**: ON [Enabled] OFF [Disabled]
get webgui login homepage↵ Show the current WebGUI homepage login destination setting.
set webgui user logo default↵ Reset the WebGUI user logo to the system default logo.
set hostname N1↵ Set the unit's hostname. **N1** = {ASCII string} [Hostname]
get hostname↵ Show the unit's hostname
get ethernet link↵ Show the current link status of Ethernet.
set fan control mode N1↵ Set the fan control mode. Available values for **N1**: 0 [Always on] 1 [Refer to temperature]

COMMAND Description and Parameters
get fan control mode↵ Show the current fan control mode.
get fan 1 speed↵ Show the current rotation speed of the specified fan. Possible response values: 0 [Off] 1~2 [Fan Speed]
get in N1 temperature↵ Show the specified input sensor's current temperature value in Celsius. Available values for **N1**: 1 [Sensor 1] 2 [Sensor 2]
set in N1 name N2↵ Set the name of the specified input. **N1** = 1~4 [HDMI input port] **N2** = {ASCII string} [Input name]
get in N1 name↵ Show the current name of the specified input. **N1** = 1~4 [HDMI input port]
set out N1 name N2↵ Set the name of the specified output. **N1** = A~D [HDMI output port] **N2** = {ASCII string} [Output name]
get out N1 name↵ Show the name of the specified output. **N1** = A~D [HDMI output port]

COMMAND Description and Parameters
set out N1 route N2↵ Route the specified input to the specified output in Matrix mode. **N1** = A~D [HDMI output port] **N2** = 1~4 [HDMI input port] *Note: Valid in matrix mode only.*
get out N1 route↵ Show the current input routed to the specified output in Matrix mode. **N1** = A~D [HDMI output port] *Note: Valid in matrix mode only.*
get in N1 sync status↵ Show the current sync state of the specified input. **N1** = 1~4 [HDMI input port] Possible response values: 0 [No sync detected] 1 [Sync active]
get out N1 sync status↵ Show the current sync state of the specified output. **N1** = 1~4 [HDMI input port] Possible response values: 0 [No sync detected] 1 [Sync active]
get in N1 timing↵ Show the index number of the current resolution detected on the specified input. **N1** = 1~4 [HDMI input port]
get in N1 timing string↵ Show the index number and description of the current resolution detected on the specified input. **N1** = 1~4 [HDMI input port]

COMMAND Description and Parameters
set window layout mode N1↵ Set the window layout mode. Available values for **N1**: 0 [Matrix mode] 1 [PiP mode] 2 [PoP mode] 3 [Quad mode] 4 [Video Wall mode] 5 [Auto mode]
get window layout mode↵ Show the window current layout mode.
set window N1 route N2↵ Set the input to route to the specified window in multiview. **N1** = 1~4 [Window number] **N2** = 1~4 [HDMI input port] *Note: Valid in multi-windowing modes only.*
get window N1 route↵ Show the input currently routed to the specified window in multiview. **N1** = 1~4 [Window number] *Note: Valid in multi-windowing modes only.*
set window N1 mute N2↵ Enable or disable the specified window. **N1** = 1~4 [Window number] Available values for **N1**: ON [Enabled] OFF [Disabled] *Note: Valid in multi-windowing modes only.*

COMMAND Description and Parameters
get window N1 mute↵ Show the visibility status of the specified window. **N1** = 1~4 [Window number] *Note: Valid in multi-windowing modes only.*
set window N1 hposition N2↵ Set the horizontal position of the specified window. **N1** = 1~4 [Window number] **N2** = 0~{Max res} [Horizontal position] *Note: Valid in multi-windowing modes only.*
get window N1 hposition↵ Show the current horizontal position of the specified window. **N1** = 1~4 [Window number] *Note: Valid in multi-windowing modes only.*
set window N1 vposition N2↵ Set the vertical position of the specified window. **N1** = 1~4 [Window number] **N2** = 0~{Max res} [Vertical position] *Note: Valid in multi-windowing modes only.*
get window N1 vposition↵ Show the current vertical position of the specified window. **N1** = 1~4 [Window number] *Note: Valid in multi-windowing modes only.*
set window N1 hsize N2↵ Set the horizontal size of the specified window. **N1** = 1~4 [Window number] **N2** = 1~{Max res} [Horizontal size] *Note: Valid in multi-windowing modes only.*

COMMAND Description and Parameters
get window N1 hsize↵ Show the current horizontal size of the specified window. **N1** = 1~4 [Window number] *Note: Valid in multi-windowing modes only.*
set window N1 vsize N2↵ Set the vertical size of the specified window. **N1** = 1~4 [Window number] **N2** = 1~{Max res} [Vertical size] *Note: Valid in multi-windowing modes only.*
get window N1 vsize↵ Show the current vertical size of the specified window. **N1** = 1~4 [Window number] *Note: Valid in multi-windowing modes only.*
set window N1 priority N2↵ Set the priority of the specified window. **N1** = 1~4 [Window number] **N2** = 1~4 [Priority] *Note: Valid in multi-windowing modes only.*
get window N1 priority↵ Show the current priority of the specified window. **N1** = 1~4 [Window number] *Note: Valid in multi-windowing modes only.*

COMMAND Description and Parameters
set window N1 aspect ratio N2↵ Set the aspect ratio of the specified window. **N1** = 1~4 [Window number] Available values for **N2**: 1 [Full] 2 [16:9] 3 [16:10] 4 [4:3] 5 [Best Fit] 6 [User (Multiview only)]
get window N1 aspect ratio↵ Show the current aspect ratio of the specified window. **N1** = 1~4 [Window number]
set window N1 mirror N2↵ Set the mirror mode of the specified window. **N1** = 1~4 [Window number] Available values for **N2**: ON [Enabled] OFF [Disabled]
get window N1 mirror↵ Show the current mirror mode of the specified window. **N1** = 1~4 [Window number]
set window N1 border mode N2↵ Set the border mode of the specified window. **N1** = 1~4 [Window number] Available values for **N2**: ON [Enabled] OFF [Disabled]

COMMAND Description and Parameters
get window N1 border mode↵ Show the current border mode of the specified window. **N1** = 1~4 [Window number]
set window N1 border color N2↵ Set the border color of the specified window. **N1** = 1~4 [Window number] Available values for **N2**: 0 [Black] 1 [Red] 2 [Green] 3 [Blue] 4 [Yellow] 5 [Magenta] 6 [Cyan] 7 [White] 8 [Dark Red] 9 [Dark Green] 10 [Dark Blue] 11 [Dark Yellow] 12 [Dark Magenta] 13 [Dark Cyan] 14 [Gray]
get window N1 border color↵ Show the current border color of the specified window. **N1** = 1~4 [Window number]
set window N1 default↵ Reset the specified window to its default values. **N1** = 1~4 [Window number]
set transition mode N1↵ Set the transition mode to use when switching sources in matrix mode. Available values for **N1**: 0 [Cut transition] 1 [Crossfade transition]

COMMAND Description and Parameters
get transition mode↵ Show the current transition mode used when switching sources in matrix mode.
set window N1 position area N2,N3,N4,N5↵ Set the horizontal and vertical positioning and size of the specified window. **N1** = 1~4 [Window number] **N2** = 0~{Max res} [Horizontal position] **N3** = 0~{Max res} [Vertical position] **N4** = 1~{Max res} [Horizontal size] **N5** = 1~{Max res} [Vertical size]
get window n1 position area↵ Show the current horizontal and vertical positioning and size of the specified window.
set video wall h bezel N1↵ Set the video wall's horizontal bezel compensation value. **N1** = 0~100 [Horizontal bezel]
get video wall h bezel↵ Show the video wall's current horizontal bezel compensation value.
set video wall v bezel N1↵ Set the video wall's vertical bezel compensation value. **N1** = 0~100 [Vertical bezel]
get video wall v bezel↵ Set the video wall's vertical bezel compensation value.
set video wall bezel mode N1↵ Enable or disable bezel compensation mode for the video wall. Available values for **N1**: ON [Bezel compensation enabled] OFF [Bezel compensation disabled]

COMMAND Description and Parameters
get video wall bezel mode↵ Show the current state of the video wall's bezel compensation mode.
set chroma key mode N1↵ Enable or disable chroma key mode. Available values for **N1**: ON [Chroma key mode enabled] OFF [Chroma key mode disabled]
get chroma key mode↵ Show the current chroma key state.
set chroma key rgb codes N1↵ Set the RGB key range preset to use when chroma key is enabled. Available values for **N1**: 1 [User 1] 2 [User 2] 3 [User 3] 4 [User 4] 5 [White] 6 [Yellow] 7 [Cyan] 8 [Green] 9 [Magenta] 10 [Red] 11 [Blue] 12 [Black]
get chroma key rgb codes↵ Show the currently selected chroma key RGB key range preset.
set chroma key user N1 r max N2↵ Set the maximum red keying value for the specified user preset. **N1** = 1~4 [User key preset number] **N2** = 1~255 [Red key max value]

COMMAND Description and Parameters
get chroma key user N1 r max↵ Show the current maximum red keying value saved in the specified user preset. **N1** = 1~4 [User key preset number]
set chroma key user N1 r min N2↵ Set the minimum red keying value for the specified user preset. **N1** = 1~4 [User key preset number] **N2** = 0~254 [Red key minimum value]
get chroma key user N1 r min↵ Show the current minimum red keying value saved in the specified user preset. **N1** = 1~4 [User key preset number]
set chroma key user N1 g max N2↵ Set the maximum green keying value for the specified user preset. **N1** = 1~4 [User key preset number] **N2** = 1~255 [Green key max value]
get chroma key user N1 g max↵ Show the current maximum green keying value saved in the specified user preset. **N1** = 1~4 [User key preset number]
set chroma key user N1 g min N2↵ Set the minimum green keying value for the specified user preset. **N1** = 1~4 [User key preset number] **N2** = 0~254 [Green key minimum value]
get chroma key user N1 g min↵ Show the current minimum green keying value saved in the specified user preset. **N1** = 1~4 [User key preset number]

COMMAND Description and Parameters	
set chroma key user N1 b max N2↵ Set the maximum blue keying value for the specified user preset.	
N1 = 1~4	[User key preset number]
N2 = 1~255	[Blue key max value]
get chroma key user N1 b max↵ Show the current maximum blue keying value saved in the specified user preset.	
N1 = 1~4	[User key preset number]
set chroma key user N1 b min N2↵ Set the minimum blue keying value for the specified user preset.	
N1 = 1~4	[User key preset number]
N2 = 0~254	[Blue key minimum value]
get chroma key user N1 b min↵ Show the current minimum blue keying value saved in the specified user preset.	
N1 = 1~4	[User key preset number]
set in N1 contrast N2↵ Set the contrast level of the specified input.	
N1 = 1~4	[Input port]
N2 = 0~100	[Contrast level]
get in N1 contrast↵ Show the current contrast level of the specified input.	
N1 = 1~4	[Input port]
set in N1 brightness N2↵ Set the brightness level of the specified input.	
N1 = 1~4	[Input port]
N2 = 0~100	[Brightness level]

COMMAND	
Description and Parameters	
get in N1 brightness↵	
Show the current brightness level of the specified input.	
N1 = 1~4	[Input port]
set in N1 saturation N2↵	
Set the saturation level of the specified input.	
N1 = 1~4	[Input port]
N2 = 0~100	[Saturation level]
get in N1 saturation↵	
Show the current saturation level of the specified input.	
N1 = 1~4	[Input port]
set in N1 hue N2↵	
Set the hue value of the specified input.	
N1 = 1~4	[Input port]
N2 = 0~100	[Hue value]
get in N1 hue↵	
Show the current hue value of the specified input.	
N1 = 1~4	[Input port]
set in N1 h sharpness N2↵	
Set the horizontal sharpness level of the specified input.	
N1 = 1~4	[Input port]
N2 = 0~20	[Horizontal sharpness level]
get in N1 h sharpness↵	
Show the current horizontal sharpness level of the specified input.	
N1 = 1~4	[Input port]

COMMAND	
Description and Parameters	
set in N1 v sharpness N2↵	
Set the vertical sharpness level of the specified input.	
N1 = 1~4	[Input port]
N2 = 0~20	[Vertical sharpness level]
get in N1 v sharpness↵	
Show the current vertical sharpness level of the specified input.	
N1 = 1~4	[Input port]
set in N1 picture default↵	
Restore the picture settings to their factory default settings.	
N1 = 1~4	[Input port]
set audio out N1 mute N2↵	
Enable or disable muting the specified audio output.	
N1 = A~D	[HDMI output port]
Available values for **N2**:	
ON	[Muted]
OFF	[Unmuted]
get audio out N1 mute↵	
Show the current mute state of the specified output.	
N1 = A~D	[HDMI output port]
set audio out N1 route N2↵	
Route the specified audio input to the specified audio output.	
N1 = A~D	[HDMI output port]
N2 = 1~4	[HDMI input port]
get audio out N1 route↵	
Show the current audio input routed to the specified audio output.	
N1 = A~D	[HDMI output port]

COMMAND Description and Parameters
set audio in N1 name N2↵ Set the name of the specified audio input. **N1** = 1~4 [HDMI input port] **N2** = {ASCII string} [Audio output name]
get audio in N1 name↵ Show the name of the specified audio input. **N1** = 1~4 [HDMI input port]
set audio out N1 name N2↵ Set the name of the specified audio output. **N1** = A~D [HDMI output port] **N2** = {ASCII string} [Audio output name]
get audio out N1 name↵ Show the name of the specified audio output. **N1** = A~D [HDMI output port]
set in N1 edid N2↵ Set the EDID to use on the specified input. **N1** = 1~4 [HDMI input port] Available values for **N2**: 1 [FHD/PCM/2CH] 2 [UHD/PCM/2CH] 3 [UHD+/PCM/2CH] 4 [FHD/PCM/MCH] 5 [UHD/PCM/MCH] 6 [UHD+/PCM/MCH] 7 [Output A's EDID] 8 [Output B's EDID] 9 [Output C's EDID] 10 [Output D's EDID] 11 [User EDID 1] 12 [User EDID 2] 13 [User EDID 3] 14 [User EDID 4]

COMMAND	
Description and Parameters	
get in N1 edid↵	
Show the EDID currently being used on the specified input.	
N1 = 1~4	[HDMI input port]
set edid N1 name N2↵	
Set the name for the specified EDID. (Only User EDIDs may be renamed)	
N1 = 11~14	[User EDID 1~4]
N2 = {ASCII string}	[User EDID name]
get edid N1 name↵	
Show the name for the specified EDID.	
N1 = 11~14	[User EDID 1~4]
set user N1 edid data N2↵	
Upload a new EDID (in hex format) for use as the specified User EDID.	
N1 = 11~14	[User EDID 1~4]
N2 = {EDID data}	[Comma delimited hex pairs]
get user N1 edid data↵	
Show the current contents of the specified User EDID as hex data.	
N1 = 11~14	[User EDID 1~4]
get sink N1 edid data↵	
Show the EDID from the display connected to the specified output as hex data.	
N1 = A~D	[HDMI output port]
get internal N1 edid data↵	
Show the specified Internal EDID as hex data.	
N1 = 1~4	[Internal EDID number]

COMMAND Description and Parameters
get sink N1 edid info↵ Show English readable details from the EDID of the display connected to the specified output. **N1** = A~D [HDMI output port]
set factory user N1 edid default↵ Reset the unit's user EDID to the factory defaults. **N1** = 1~4 [User EDID number]
set in N1 hdcp mode N2↵ Set the HDCP behavior of the specified input. **N1** = 1~4 [HDMI input port] Available values for **N2**: 0 [HDCP off] 1 [Refer to Source] 2 [Refer to Display]
get in N1 hdcp mode↵ Show the current HDCP behavior used by the specified input. **N1** = 1~4 [HDMI input port]
get in N1 hdcp status↵ Show the current HDCP status of the specified input. **N1** = 1~4 [HDMI input port]
get out N1 hdcp status↵ Show the current HDCP status of the specified output. **N1** = A~D [HDMI output port]
get in N1 hdcp ability↵ Show the HDCP compliance level of the source connected to the specified input. **N1** = 1~4 [HDMI input port]

COMMAND Description and Parameters
get out N1 hdcp ability↵ Show the HDCP compliance level of the display device connected to the specified output. **N1** = A~D [HDMI output port]
set out A osd info display N1↵ Enable or disable the info OSD. Available values for **N1**: ON [Enabled] OFF [Disabled]
get out A osd info display↵ Show the current info OSD state.
set out A osd info timeout N1↵ Set the OSD info's timeout value (in seconds). Available values for **N1**: OFF [Disabled] 5~60 [Timeout in seconds]
get out A osd info timeout↵ Show the current OSD info's timeout value.
set out A osd background color N1↵ Set the color of the background of the OSD banner. Available values for **N1**: black [Black] gray [Gray] blue [Blue]
get out A osd background color↵ Show the current color of the background of the OSD banner.
set out A osd logo display N1↵ Enable or disable the graphical logo overlay. Available values for **N1**: ON [Enabled] OFF [Disabled]

COMMAND Description and Parameters
get out A osd logo display↵ Show the current state of the graphical logo overlay.
set out A osd logo hposition N1↵ Set the horizontal position of the graphical logo overlay. **N1** = 0~100 [Horizontal position]
get out A osd logo hposition↵ Show the current horizontal position of the graphical logo overlay.
set out A osd logo vposition N1↵ Set the vertical position of the graphical logo overlay. **N1** = 0~100 [Vertical position]
get out A osd logo vposition↵ Show the current vertical position of the graphical logo overlay.
set out osd logo default↵ Reset the unit's OSD logo to the factory default.
set system usb osd logo update↵ Trigger the unit to enter its OSD logo update state and load a new OSD logo file from USB.
set out A osd boot logo display N1↵ Enable or disable the graphical boot logo overlay. Available values for **N1**: ON [Enabled] OFF [Disabled]
get out A osd boot logo display↵ Show the current state of the graphical boot logo overlay.

COMMAND Description and Parameters
set system usb osd boot logo n1 update↵ Trigger the unit to enter its OSD boot logo update state and load a new OSD boot logo file from USB for the specified resolution. Available values for **N1**: 1 [UHD] 2 [FHD] 3 [VGA]
set out osd boot logo n1 default↵ Reset the unit's OSD boot logo to the factory default for the specified resolution. Available values for **N1**: 1 [UHD] 2 [FHD] 3 [VGA]
set out osd boot logo N1 select N2↵ Select a boot logo overlay for the specified resolution. Available values for **N1**: 1 [UHD] 2 [FHD] 3 [VGA] Available values for **N2**: 1 [User] 2 [Default]
get out osd boot logo N1 select↵ Show the selected boot logo overlay for the specified resolution. Available values for **N1**: 1 [UHD] 2 [FHD] 3 [VGA]
set current route to preset N1↵ Save all current routing assignments to the specified preset. **N1** = 1~4 [Preset number]

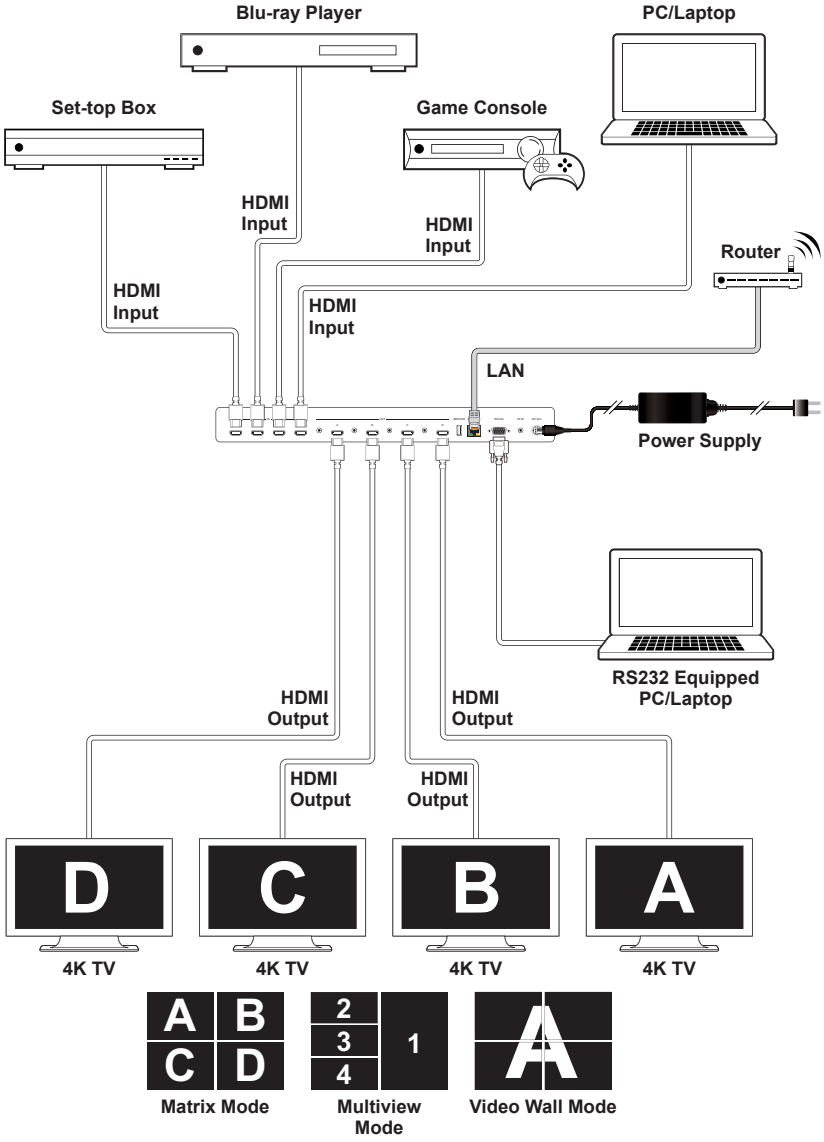
COMMAND	
Description and Parameters	
set route preset N1↵	
Activate the routing assignments saved in the specified preset.	
N1 = 1~4	[Preset number]
set out A timing N2↵	
Set the output resolution to use for all outputs.	
Available values for **N1**:	
1	[640x480p59]
2	[480p60]
3	[576p50]
4	[800x600p60]
5	[848x480p60]
6	[1024x768p60]
7	[1280x720p50]
8	[1280x720p60]
9	[1280x768p60]
10	[1280x800P60]
11	[1280x960p60]
12	[1280x1024p60]
13	[1360x768P60]
14	[1366x768p60]
15	[1400x1050p60]
16	[1440x900p60]
17	[1600x900p60rb]
18	[1600x1200p60]
19	[1680x1050p60]
20	[1920x1080p24]
21	[1920x1080p25]
22	[1920x1080p30]
23	[1920x1080p50]
24	[1920x1080p60]
25	[1920x1200p60rb]
26	[2048x1152p60rb]
27	[3840x2160p24]
28	[3840x2160p25]
29	[3840x2160p30]
30	[4K p24 DCI]
31	[4K p25 DCI]
32	[4K p30 DCI]

COMMAND	
Description and Parameters	
33	[4K p50 DCI]
34	[4K p59 DCI]
35	[4K p60 DCI]
36	[3840x2160p50]
37	[3840x2160p59]
38	[3840x2160p60]
39	[3840x2160p60rb]
40	[Native OUT A]
41	[Native OUT B]
42	[Native OUT C]
43	[Native OUT D]
get out A timing↵	
Show the current resolution used by all outputs.	
set out A auto sync off N1↵	
Enable or disable the Auto Sync Off function on all outputs and set the timeout length.	
Available values for **N1**:	
0	[Off]
1	[Fast]
2	[Slow]
3	[Immediate]
get out A auto sync off↵	
Show the current Auto Sync Off settings for all outputs.	
get out N1 hsize↵	
Show the current horizontal size of the specified output.	
N1 = A~D	[HDMI output port]
get out N1 vsize↵	
Show the current vertical size of the specified output.	
N1 = A~D	[HDMI output port]

COMMAND	
Description and Parameters	
set in 1 rotation preset N1↵	
Set the rotation angle of the video output.	
Available values for **N1**:	
0	[Off (0 Degrees)]
1	[90 Degrees]
2	[180 Degrees]
3	[270 Degrees]
get in 1 rotation preset↵	
Show the current rotation angle of the video output.	

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
Input Ports	4×HDMI (Type-A)
Output Ports	4×HDMI (Type-A) 4×Stereo Audio (3.5mm)
Control Ports	1×IR Extender (3.5mm) 1×RS-232 (DE-9) 1×IP Control (RJ-45)
Service Port	1×USB 2.0 (Type-A)
IR Frequency	30 ~ 50kHz (30 ~ 60kHz under ideal conditions)
Baud Rate	19200
Power Supply	24V/4A DC (US/EU standards, CE/FCC/UL certified)
ESD Protection (HBM)	±8kV (Air Discharge) ±4kV (Contact Discharge)
Dimensions (W×H×D)	438mm×44mm×269mm [Case Only] 438mm×44mm×272mm [All Inclusive]
Weight	3258g
Chassis Material	Metal (Steel)
Chassis Color	Black
Operating Temperature	0˚C – 50˚C/32˚F – 122˚F
Storage Temperature	-20˚C – 60˚C/-4˚F – 140˚F
Relative Humidity	20 – 90% RH (Non-condensing)
Power Consumption	46.85W

8.2 Video Specifications

Supported Resolutions (Hz)	Input	Output
	HDMI	HDMI
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	HDMI
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	8 Channels
Sampling Rate (kHz)	32, 44.1, 48, 88.2, 96, 176.4, 192
Bitstream	
Supported Formats	Standard & High-Definition

8.3.2 Analog Audio

Analog Output	
Max Audio Level	2Vrms
THD+N	< −70dB@0dBFS 1kHz (A-wt)
SNR	> 70dB@0dBFS
Frequency Response	< ±3dB@20Hz~20kHz
Crosstalk	< −60dB@10kHz
Impedance	20Ω
Type	Unbalanced

8.4 Cable Specifications

Cable Length	HD	FHD	4K UHD	4K UHD+	8K UHD
High Speed HDMI Cable					
HDMI Input	15m	10m	5m	3m	×
HDMI Output	15m	10m	5m	3m	×

Bandwidth Category Examples:

- **HD Video**
  - 720p@60Hz
  - HDMI transmission rates lower than 3Gbps
  - HD-SDI (SMPTE 292M, 1.485Gbps)
- **FHD Video**
  - 1080p@60Hz
  - HDMI transmission rates between 3Gbps and 5.3Gbps
  - 3G-SDI (SMPTE 424M, 2.970Gbps)
- **4K UHD Video**
  - 4K@24/25/30Hz (8-bit color) & 4K@50/60Hz (4:2:0, 8-bit color)
  - HDMI transmission rates between 5.3Gbps and 10.2Gbps
  - 6G-SDI (SMPTE ST 2081, 6Gbps)
- **4K UHD+ Video**
  - 1080p@120Hz (10/12-bit HDR)
  - 4K@50/60Hz (4:4:4, 8-bit) & 4K@50/60Hz (4:2:0, 10/12-bit HDR)
  - HDMI transmission rates between 10.2Gbps and 18Gbps
  - 12G-SDI (SMPTE ST 2082, 12Gbps)
- **8K UHD Video**
  - 4K@120Hz (10/12-bit HDR)
  - 8K@24/25/30Hz (10/12-bit HDR) & 8K@50/60Hz (4:2:0, 8-bit color)
  - HDMI transmission rates between 18Gbps and 48Gbps
  - 24G-SDI (SMPTE ST 2083, 24Gbps)

9. ACRONYMS

ACRONYM	COMPLETE TERM
4K UHD	4K Ultra-High-Definition (10.2Gbps max)
4K UHD+	4K Ultra-High-Definition (18Gbps max)
ADC	Analog-to-Digital Converter
ASCII	American Standard Code for Information Interchange
AV	Audio/Video
AVR	Audio/Video Receiver or Recorder
Cat.5e	Enhanced Category 5 cable
Cat.6	Category 6 cable
Cat.6A	Augmented Category 6 cable
Cat.7	Category 7 cable
CLI	Command-Line Interface
COM	Communication
DAC	Digital-to-Analog Converter
dB	Decibel
DHCP	Dynamic Host Configuration Protocol
EDID	Extended Display Identification Data
GbE	Gigabit Ethernet
Gbps	Gigabits per second
GUI	Graphical User Interface
HD	High-Definition
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
HDR	High Dynamic Range
HDTV	High-Definition Television
IP	Internet Protocol
IR	Infrared
kHz	Kilohertz
LAN	Local Area Network

ACRONYM	COMPLETE TERM
LCD	Liquid-Crystal Display
LED	Light-Emitting Diode
LPCM	Linear Pulse-Code Modulation
MAC	Media Access Control
MHz	Megahertz
PiP	Picture in Picture
PoP	Picture outside of Picture
SDTV	Standard-Definition Television
SNR	Signal-to-Noise Ratio
TCP	Transmission Control Protocol
THD+N	Total Harmonic Distortion plus Noise
TMDS	Transition-Minimized Differential Signaling
UHDTV	Ultra-High-Definition Television
USB	Universal Serial Bus
Ω	Ohm

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