



# CMF-100

## Multi-Function AV Solution Kit (CH-2607TXPL, CH-2607RXPL, CDPS-TG2)



Operation Manual



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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	2020/05/26	Preliminary release



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## 1. INTRODUCTION

With visual aesthetics in mind we have designed a special wall plate extender set that is ideal for any meeting room or school room. The Multi-Function AV Solution Kit is an AV extension solution that is designed to provide HDMI/VGA video switching and extension, system control, and analog audio amplification packed into a convenient and stylish form factor. The system consists of a scaling wall plate HDBaseT transmitter, an HDBaseT receiver with integrated audio amplifier and a customizable eight button control keypad.

The HDMI inputs support resolutions up to 4K@60Hz (4:4:4, 8-bit). The VGA input supports resolutions up to WUXGA (RB) and with the use of the associated 3.5mm audio input, stereo audio may be embedded as well. Despite HDBaseT's 10.2Gbps bandwidth limitation, even 4K UHD HDMI video sources, up to and including 4K@60Hz (4:4:4, 8-bit), can be supported by converting the signal to 4K@30Hz when necessary. To provide maximum compatibility with a wide range of display types, all sources will be automatically scaled to match the preferred resolution and timing of the connected display (as reported by the display's EDID). Additionally, the receiver features analog audio de-embedding to a line output and a pair of 20 watt, 4 Ohm, stereo amplified outputs.

The transmitter of this kit is powered by PoH from the receiver, which allows for greater flexibility in installations. Signal management features such as automatic switching based on input signal and hot plug detection enable convenient hands-free operation. An input button on the face of the transmitter provides the option of quick, single button press, manual input selections when needed. Additional functionality such as basic EDID management, HDCP management, and basic signal event automation (which can automatically control external devices) is also available for configuration via the receiver's WebGUI. All system functionality is controllable by the receiver via front panel controls, WebGUI, Telnet, and RS-232.



## 2. APPLICATIONS

- Household entertainment sharing and control
- Lecture hall/auditorium display extension and control
- Showroom display and control
- Meeting room presentation and control
- Classroom display and control
- Hotel event space display extension and control

## 3. PACKAGE CONTENTS

- 1x CH-2607TXPL Transmitter
- 1x CH-2607RXPL Receiver
- 1x CDPS-TG2 Keypad
- 1x 24V/3.75A DC Power Adapter
- 1x IR Extender Cable
- 1x IR Blaster Cable
- 2x 4-pin Terminal Block
- 1x 2-pin Terminal Block
- 1x Operation Manual

## 4. SYSTEM REQUIREMENTS

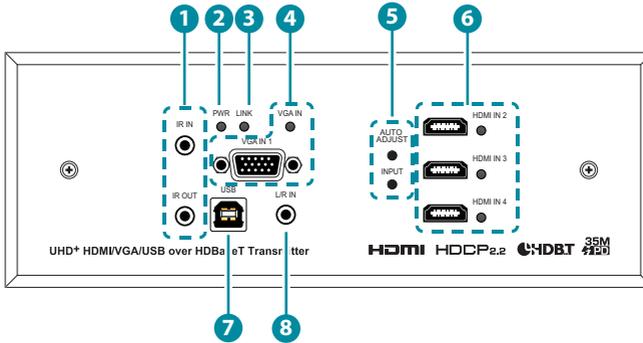
- HDMI or VGA source equipment such as media players, video game consoles, PCs, or set-top boxes.
- The use of Premium High Speed HDMI cables, and industry standard Cat.6, Cat.6A, or Cat.7 Ethernet cable is highly recommended.

## 5. FEATURES

- HDMI 2.0 and DVI 1.0 compatible
- HDCP 2.2 and HDCP 1.x compliant
- 3 HDMI inputs
- 1 VGA input with 3.5mm mini-jack audio input
- Supports HDMI input resolutions up to 4K@60Hz (4:4:4, 8-bit)
- Supports VGA input resolutions up to WUXGA (RB)
- Analog stereo audio may be embedded with VGA or DVI/HDMI sources
- HDBaseT extension supports resolutions up to 4K@60Hz (4:2:0, 8-bit) with automatic conversion of 4K@50/60Hz (4:4:4, 8-bit) or 4K@any (10/12-bit) sources to 4K@30Hz (4:4:4, 8-bit)
- HDBaseT extends video, audio, and data over a single Cat.5e/6/7 cable and can reach distances up to 35m/115ft at 4K when using Cat.6A/7
- HDBaseT feature support: HD Video and Audio, control extension (IR, USB 2.0), and PoH
- Supports CEC bypass
- Supports pass-through of many audio formats including LPCM (up to 8 channels), Bitstream, and HD Bitstream
- Supports manual input selection or automatic input selection with hot plug detection
- Customizable eight button control keypad
- Basic signal event automation (via RS-232, IR, CEC, and Relay)
- Wall plate's back box is designed for EU or UK three-gang sized enclosures with a UK 3-gang style faceplate
- The transmitter is powered via PoH from the receiver and the Control Keypad is powered directly by the transmitter
- The receiver is controllable via front panel buttons with OSD, Control Keypad, WebGUI, Telnet, and RS-232
- The transmitter is controlled by the receiver, or via front panel buttons

## 6. OPERATION CONTROLS AND FUNCTIONS

### 6.1 Front Panel (Transmitter)



- 1 **IR IN Port:** Connect to an IR Extender to receive local IR control signals and extend them to devices connected to the other end of the HDBaseT connection. Ensure that the remote being used is within direct line-of-sight of the IR Extender.

**IR OUT Port:** Connect to an IR Blaster to transmit IR signals from the other end of the HDBaseT connection to devices within direct line-of-sight of the IR Blaster.

- 2 **PWR LED:** This LED will illuminate to indicate the unit is on and receiving power.
- 3 **LINK LED:** This LED will illuminate solidly when a live connection with a compatible receiver is active.
- 4 **VGA IN 1 Port & LED:** Connect to VGA source equipment such as a PC or laptop. The associated LED will illuminate when the VGA input has been selected.
- 5 **AUTO ADJUST Button:** Press this button to activate the Auto Adjust function for VGA sources.

*Note: The Auto Adjust function requires a VGA source with a bright, edge-to-edge, image to accurately judge the dimensions of the signal.*

**INPUT Button:** Press this button to sequentially switch through all available inputs.

- 6 **HDMI IN 2~4 Ports & LEDs:** Connect to HDMI source equipment such as media players, game consoles, or set-top boxes. The associated LEDs will illuminate to indicate which HDMI input, if any, is currently selected.

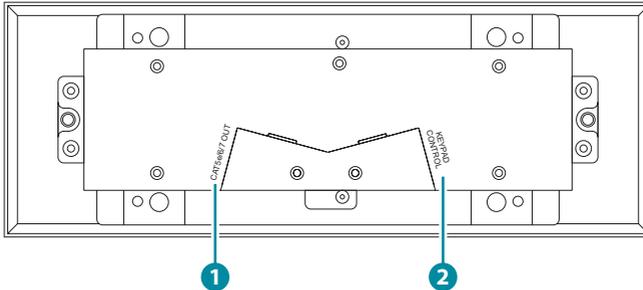
*Note: DVI sources are supported with the use of an HDMI to DVI adapter.*

- 7 **USB 2.0 Port (Type-B):** Connect directly to a standard USB host, such as a PC or laptop, to extend their USB functionality to the USB Type-A port on the connected receiver.

- 8 **L/R IN Port:** Connect to the analog stereo output of a device such as an audio player or PC.

*Note: By default, this audio will be embedded with the VGA source.*

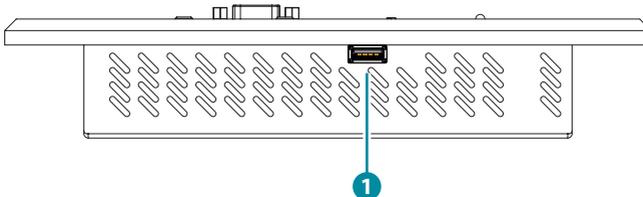
## 6.2 Rear Panel (Transmitter)



- 1 CAT 5e/6/7 OUT Port:** Connect to a compatible HDBaseT receiver with a single Cat.5e/6/7 cable for transmission of all data signals. Power via PoH is also supplied to this unit via the connected compatible PSE receiver.
- 2 KEYPAD CONTROL Port:** Connect directly to the RJ-45 style RS-232 port on a compatible control keypad to provide power to it and to allow remote control over the system.

*Note: The signal carried over this port is RS-232 plus power. It is not compatible with any standard Ethernet products. Connecting non-compatible products to this port is not supported and may result in damage to the connected unit.*

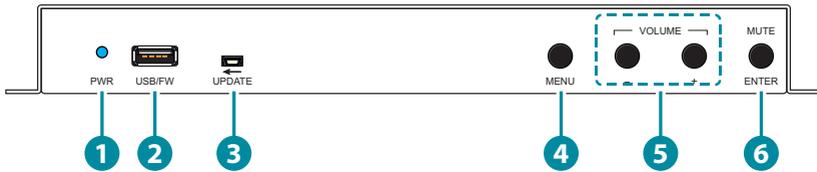
## 6.3 Bottom Panel (Transmitter)



- 1 USB 2.0 Port (Type-A):** This port is reserved for firmware update use only.

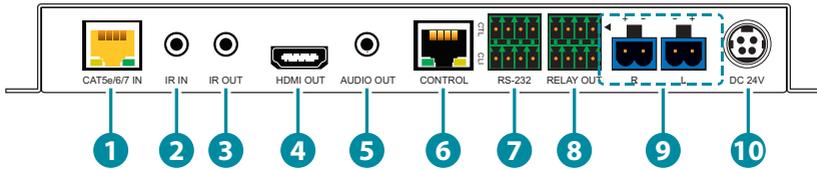
*Note: This port will be unavailable when the unit is installed in a wall.*

## 6.4 Front Panel (Receiver)



- 1 PWR LED:** This LED will illuminate to indicate the unit is on and receiving power.
- 2 USB/FW Port (Type-A):** Connect directly to a standard USB peripheral such as a mouse, keyboard or flash drive to extend its USB functionality to the port on the connected transmitter. Firmware updates may also be performed using this port.
- 3 UPDATE Switch:** This switch is reserved for firmware update use only.  
*Note: The default setting is "OFF" (to the right).*
- 4 MENU Button:** Press to enter the OSD menu, or to back out from menu items.  
*Note: Pressing and holding the Menu button while powering the unit on will perform a factory default reset of the unit.*
- 5 VOLUME - (MINUS)/+ (PLUS) Buttons:** Press to move up and down or adjust selections within OSD menus. Pressing these buttons while not in a menu will increase or decrease the amplified analog audio output (R/L) volume.  
*Note: The non-amplified analog audio output's volume is not affected by these controls.*
- 6 ENTER/MUTE Button:** Press to confirm a selection within the OSD or to go deeper into a menu item. Pressing this button while not in a menu will toggle the mute function of the amplified analog audio output (R/L).  
*Note: The non-amplified analog audio output is not affected by this controls.*

## 6.5 Rear Panel (Receiver)



- 1 CAT5e/6/7 Port:** Connect to a compatible HDBaseT transmitter with a single Cat.5e/6/7 cable for reception of all data signals. PoH will also be supplied to a connected compatible PD transmitter.  
*Note: The PoH function is designed to power compatible transmitter units only. Non-PoH transmitters will need their own power supply. Other brands of transmitter may not be compatible.*
- 2 IR IN Port:** Connect to an IR Extender to receive local IR control signals and extend them to devices connected to the other end of the HDBaseT connection. Ensure that the remote being used is within direct line-of-sight of the IR Extender.
- 3 IR OUT Port:** Connect to an IR Blaster to transmit IR signals from the other end of the HDBaseT connection to devices within direct line-of-sight of the IR Blaster.
- 4 HDMI OUT Port:** Connect to an HDMI TV, monitor, or amplifier for digital video and audio output.
- 5 AUDIO OUT Port:** Connect to powered speakers, headphones, or an amplifier for analog stereo audio output.  
*Note: Only LPCM 2.0 sources are supported. Bitstream sources will be automatically muted.*
- 6 CONTROL Port:** Connect directly, or through a network switch, to your PC/laptop to control the unit via Telnet/WebGUI.
- 7 RS-232 CTL 4-pin Terminal Block (Top):** Connect to a PC, laptop, or serial controllable device with a 3-pin adapter cable to send automation RS-232 commands to control the device or for the extension of RS-232 signals between both ends of the HDBaseT connection.  
**RS-232 CLI 4-pin Terminal Block (Bottom):** Connect directly to a PC, laptop, or other serial control device with a 3-pin adapter cable to send RS-232 commands to control this unit.

*Note: The 24 volt pins are included to provide power to a dedicated external control product and should NOT be used when connecting a standard RS-232 device.*

- 8 RELAY OUT 8-pin Terminal Blocks 1~4:** Connect up to 4 devices that can be powered and controlled via a DC 0~24V/5A relay connection such as curtains, projection screens, or lights.

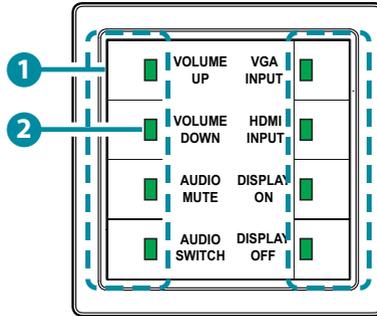
*Note: Relay pairs are aligned vertically.*

- 9 R/L 2-pin Terminal Block Set:** Connect to unpowered 4 $\Omega$  speakers for analog stereo audio output. Up to 20W of power is provided to each speaker.

*Note: Only LPCM 2.0 sources are supported. Bitstream sources will be automatically muted.*

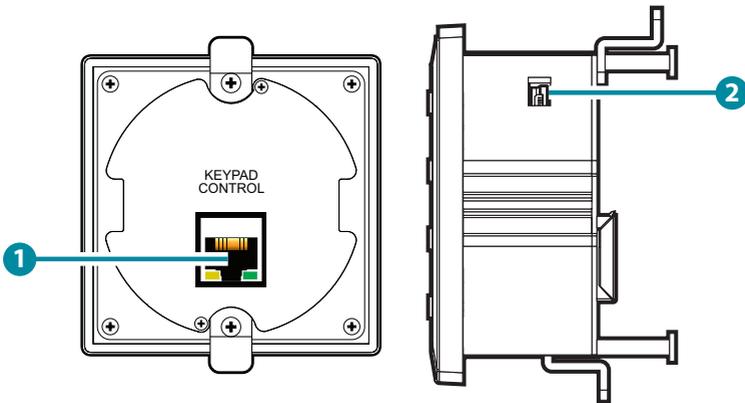
- 10 DC 24V Port:** Plug the 24V DC power adapter into this port and connect it to an AC wall outlet for power.

## 6.6 Front Panel (Keypad)



- 1 Control Buttons 1–8:** Press any of these buttons to activate the associated function.
- 2 Control Button LEDs:** Each button's LED will light up green when the button is pressed and the associated trigger function is activated.

## 6.7 Rear Panel (Keypad)



- 1 KEYPAD CONTROL Port:** Connect directly to the Keypad Control port on the transmitter to provide a direct control interface for that unit.

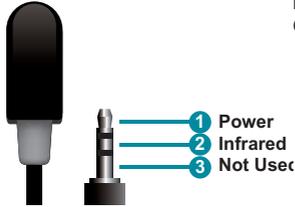
*Note: The signal carried over the RJ-45 cable is RS-232 plus power. It is not compatible with any standard Ethernet products.*

- 2 USB 2.0 Port (Mini-B):** This port is reserved for firmware update use only.

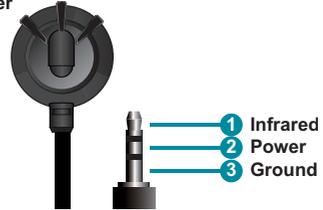
*Note: This port is located on the top of the unit and will be unavailable when installed in a wall.*

## 6.8 IR Cable Pinouts

IR Blaster Cable



IR Extender Cable

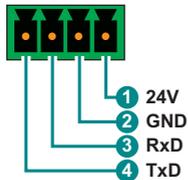


## 6.9 RS-232 Pinout and Defaults (Receiver)

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

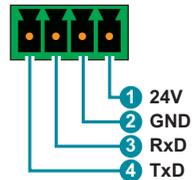
RS-232 Port 1 (CTL)

4-pin Terminal Block



RS-232 Port 2 (CLI)

4-pin Terminal Block



*Note: The 24 volt pins (pin 1) are included to provide power to a dedicated external control product and should NOT be used when connecting a standard RS-232 device*

## 6.10 OSD Menu (Receiver)

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.

<b>MAIN MENU</b>
<b>L/R Audio Control</b>
<b>HDCP Mode</b>
<b>EDID Mode</b>
<b>OSD Setting</b>
<b>Ethernet Setting</b>
<b>System Setting</b>
<b>Video Information</b>

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

L/R AUDIO CONTROL	
2ND LEVEL	3RD LEVEL
Amp Volume	0~100 ( <b>30</b> )
Amp Mute	<b>OFF</b>
	On
Line Volume	0~100 ( <b>80</b> )
Line Mute	<b>OFF</b>
	On
Exit	

- 1) **Amp Volume:** Set the volume level for the amplified output.
- 2) **Amp Mute:** Enable or disable muting the amplified (R/L) audio output.
- 3) **Line Volume:** Set the volume level for the 3.5mm audio output.
- 4) **Line Mute:** Enable or disable muting the 3.5mm audio output.
- 5) **Exit:** Exit the OSD menu.

HDCP MODE	
2ND LEVEL	3RD LEVEL
In 2	<b>FOLLOW DISPLAY</b>
	Follow Input
	Disable
In 3	<b>FOLLOW DISPLAY</b>
	Follow Input
	Disable
In 4	<b>FOLLOW DISPLAY</b>
	Follow Input
	Disable
Exit	

- 1) **In 2~4:** Provides control over the HDCP behavior of each of the HDMI inputs on the connected transmitter.
  - **Follow Display:** The input supports up to the HDCP version supported by the connected display.

- **Follow Input:** The input supports up to the HDCP version required by the connected source.
- **Disable:** HDCP support is completely disabled.

2) **Exit:** Exit the OSD menu.

EDID MODE	
2ND LEVEL	3RD LEVEL
Mode	<b>ALL</b>
	Appoint
All	<b>FHD/PCM/2CH</b>
	UHD/PCM/2CH
	UHD+/PCM/2CH
	User 1
	User 2
	User 3
	Sink
In 2~4	<b>FHD/PCM/2CH</b>
	UHD/PCM/2CH
	UHD+/PCM/2CH
	User 1
	User 2
	User 3
	Sink
Exit	

- 1) **Mode:** Select the “All” to assign a single EDID to all outputs or select “Appoint” to assign EDIDs individually.
- 2) **All:** Select the EDID to assign to all HDMI inputs on the transmitter when “All” mode is selected.

- 3) **In 2~4:** Select the EDID to assign to the each HDMI port on the connected transmitter when “Appoint” mode is selected.

*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.*

- 4) **Exit:** Exit the OSD menu.

OSD SETTING	
2ND LEVEL	3RD LEVEL
Timeout	0~100 <b>(8)</b>
H. Position	0~100% <b>(25%)</b>
V. Position	0~100% <b>(25%)</b>
Transparency	0~7 <b>(0)</b>
Exit	

- 1) **Timeout:** Set the length of time to wait before automatically turning off the OSD menu if there is no user interaction. The timer is disabled when the value is set to 0.
- 2) **H. Position:** Set the horizontal position of the OSD menu.
- 3) **V. Position:** Set the vertical position of the OSD menu.
- 4) **Transparency:** Set the transparency level of the OSD menu’s background. A setting of 0 is completely opaque and a setting of 7 is completely transparent.
- 5) **Exit:** Exit the OSD menu.

ETHERNET SETTING		
2ND LEVEL	3RD LEVEL	4TH LEVEL
IP Mode: DHCP	IP Address	[Displays DHCP network details]
	Netmask	
	Gateway	
<b>IP MODE: STATIC</b>	IP Address	<b>192.168.1.50</b>
	Netmask	<b>255.255.255.0</b>
	Gateway	<b>192.168.1.254</b>
Re-Link		
Exit		

- 1) **IP Mode:** Set the unit's IP address assignment mode to Static or DHCP. When DHCP Mode is selected, all IP configuration information will be assigned automatically by the local DHCP server. When Static Mode is selected, the IP address, netmask, and gateway address must be set manually.

*Note: The unit's default static IP address is 192.168.1.50.*

- 2) **Re-Link:** Select this to force the unit to update its Ethernet settings.
- 3) **Exit:** Exit the OSD menu.

SYSTEM SETTING	
2ND LEVEL	3RD LEVEL
Relay Output 1	<b>OFF</b>
	On
Relay Output 2	<b>OFF</b>
	On
Relay Output 3	<b>OFF</b>
	On
Relay Output 4	<b>OFF</b>
	On
Exit	

- 1) **Relay Output 1~4:** Manually open or close relays 1~4. Selecting “ON” closes the relay, selecting “OFF” opens it.
- 2) **Exit:** Exit the OSD menu.

VIDEO INFORMATION	
2ND LEVEL	3RD LEVEL
In	[Displays current status details]
Out	
Rx	[Displays current firmware version]
Tx	
Exit	

- 1) **Video Information:** This screen displays information about the unit’s current state, input and output status, as well as the current firmware version of the receiver and the connected transmitter.
- 2) **Exit:** Exit the OSD menu.

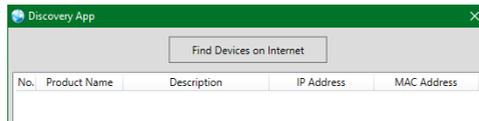
## 6.11 WebGUI Control (Receiver)

### • Device Discovery

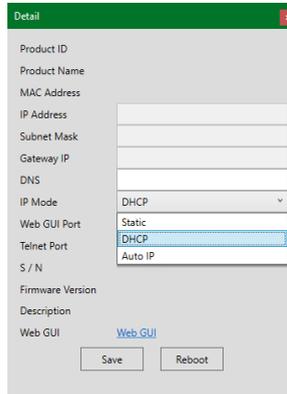
Please obtain the “Device Discovery” software from your authorized dealer and save it in a directory where you can easily find it.

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: The unit's default IP address is 192.168.1.50.*



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

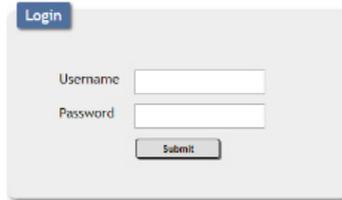


- 1) IP Mode:** If you choose, you can alter the static IP network settings for the device, or switch the unit into DHCP mode to automatically obtain proper network settings from a local DHCP server. To switch to DHCP mode, please select DHCP from the IP mode drop-down, then click “Save” followed by “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

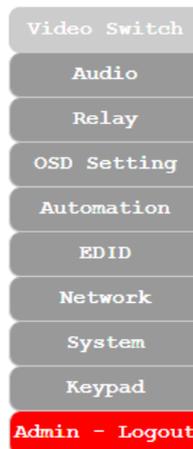
After connecting to the WebGUI's address in a web browser, the login screen will appear. Please enter the appropriate user name and password then click "Submit" to log in.

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



A login form with a blue "Login" button in the top left corner. Below it are two input fields: "Username" and "Password". A "Submit" button is located below the "Password" field.

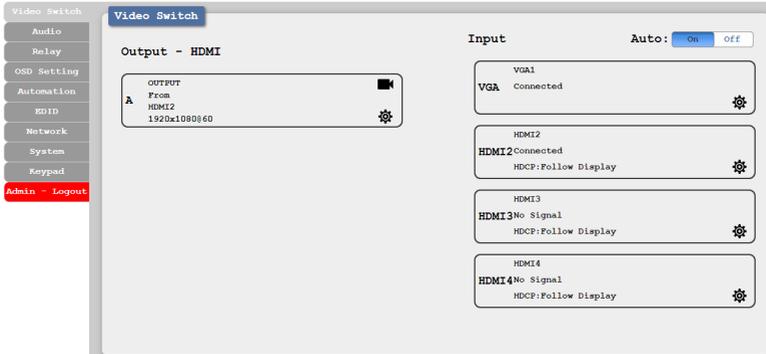
On the left side of the browser you will see the following menu tabs where all primary functions of the unit are controllable via the built in WebGUI. The individual functions will be introduced in the following sections.



Clicking the red "Logout" tab will automatically log the currently connected user out of the WebGUI and return to login page.

### 6.11.1 Video Switch Tab

This tab provides A/V routing control, HDCP management, auto switch control, A/V muting, and I/O renaming options. To assign a new video route, click on the button of the preferred input port on the right. When a button is selected it will become highlighted. The new route will become active immediately and the routing information displayed on the output button will change accordingly.



- 1) **Output:** This button displays the output's name and details about the currently selected input. Clicking on the "Edit" icon (⚙️) opens up the Output Edit window. Clicking on the "A/V Mask" icon (🚫) will mute or unmute the audio and video output.  
*Note: The analog audio outputs are not affected by the A/V Mask setting.*
- 2) **Auto:** Automatic input switching may be enabled or disabled by clicking on the On/Off slider to toggle the setting.
- 3) **Input:** Buttons for selecting the input to route to the output. Clicking on an input button will cause the transmitter to immediately switch to the new source. Details about the input names and current sync/HDCP settings are also displayed here. Clicking on the "Edit" icon (⚙️) opens up the Input Edit window.
- 4) **Output Edit:** Provides control over the name of the output.
  - **Set Output Name:** To rename the output, type the new name in the space provided in the Edit window. The name can be up to 32 characters long. Click the "Save" button to confirm the change.
- 5) **Input Edit:** Provides Individual control over the name of each input and the behavior of HDCP on all inputs.



- **Set Input Name:** To rename an input, type the new name in the space provided in the Edit window. The name can be up to 16 characters long. Click the “Save” button to confirm the change.
- **HDCP:** The HDCP mode of the HDMI inputs can be set to “Follow Source”, “Follow Display”, or “Disabled”. Changes made to this setting occur immediately.

### 6.11.2 Audio Tab

This tab provides control over the volume level of the amplified and line level analog audio outputs.

*Note: HDMI audio output is always a direct pass-through from the selected source and is not affected by the controls on this tab.*



- 1) **Amplifier Volume (dB):** Allows the adjustment of the amplified analog audio output’s volume level. The available adjustment range is 0 to 100.
- 2) **Amplifier Mute:** Mute or unmute the amplified analog audio output.
- 3) **Line Volume (dB):** Allows the adjustment of the line level analog audio output’s volume level. The available adjustment range is 0 to 100.
- 4) **Line Mute:** Mute or unmute the line level analog audio output.

### 6.11.3 Relay Tab

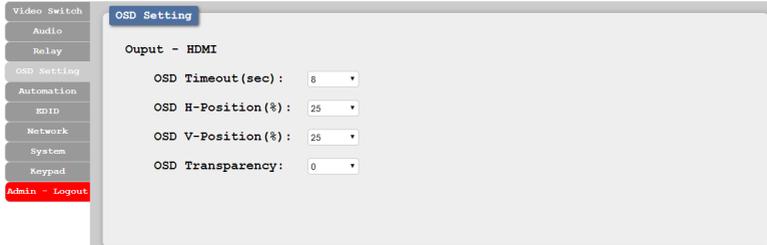
This tab provides the status of, and direct control over, the unit's 4 relay ports.



- 1) **Relay Out Port 1~4:** Manually open or close relays 1~4. Selecting “ON” closes the relay, selecting “OFF” opens it.

### 6.11.4 OSD Setting Tab

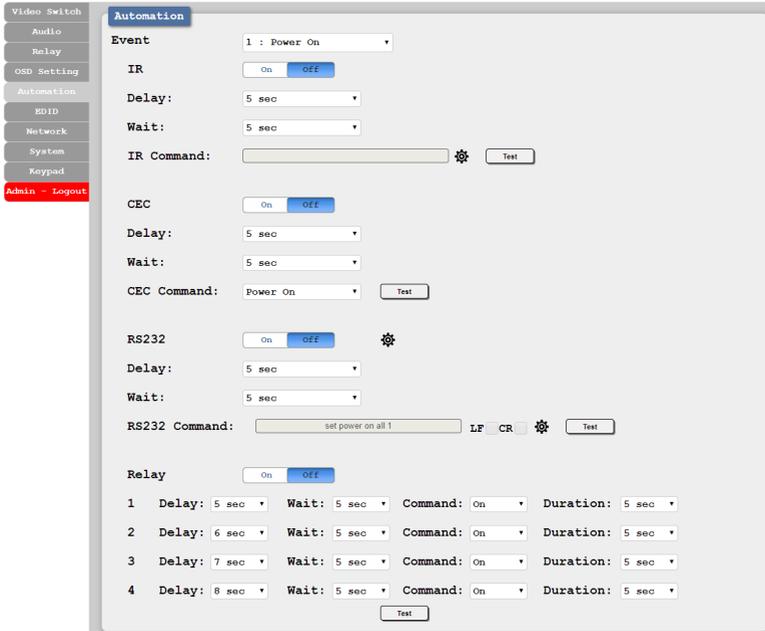
This tab provides control over the timeout, transparency, and position of the OSD menu displayed on the HDMI output.



- 1) **OSD Timeout (sec):** Use the dropdown to set the OSD menu timeout in seconds. The range is from 0 (no timeout) to 100.
- 2) **OSD H-Position (%):** Use the dropdown to set the OSD menu's horizontal position in percentage.
- 3) **OSD V-Position (%):** Use the dropdown to set the OSD menu's vertical position in percentage.
- 4) **OSD Transparency:** Select the OSD menu's background transparency level. The range is from 0 (opaque) to 7 (transparent).

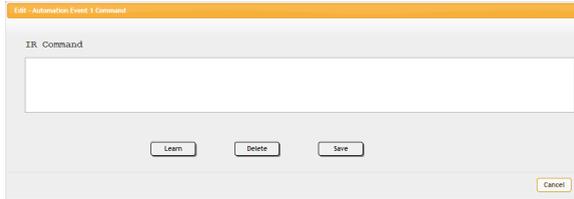
### 6.11.5 Automation Tab

This tab provides control over the unit's automatic control command broadcast behavior when any of the specified Automation Events occur. Automation commands can control connected devices via IR, CEC, and RS-232.

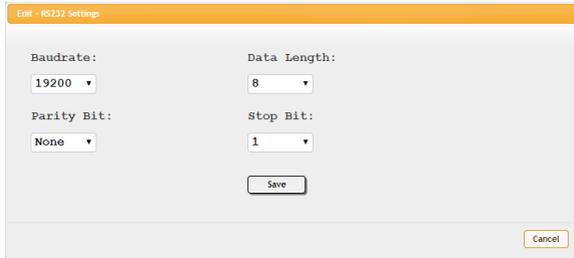


- 1) **Event:** Use the dropdown to select the Automation Event to configure. Available Automation Events are:
  - **Power On:** This unit is powered on.
  - **Out A Source Active:** The currently selected input changes from inactive to active.
  - **Out A Source Lost:** The currently selected input changes from active to inactive.
- 2) **IR:** Enable or disable sending an IR command when the currently selected Automation Event is activated.
  - **Delay:** Set the length of time, in seconds, that the specified Automation Event must continue to be true before sending the defined IR command.

- **Wait:** Set the length of time, in seconds, to wait after this Automation Event has been activated before ANY other Automation Event can be detected.

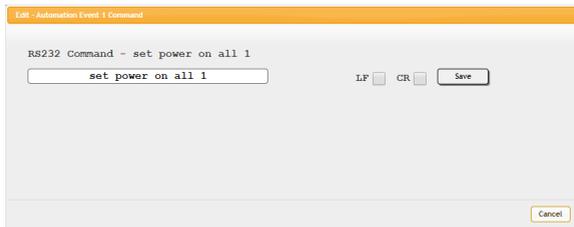


- **IR Command:** Shows the IR command (in ASCII hex pairs) that will be sent when the specified Automation Event is activated. Click the “Edit” icon (⚙️) to learn the command from an IR remote. Click the “Test” button to send the command immediately.
- 3) **CEC:** Enable or disable sending a CEC command when the currently selected Automation Event is activated.
- Note: CEC support must also be enabled on the connected HDMI display device.*
- **Delay:** Set the length of time, in seconds, that the specified Automation Event must continue to be true before sending the defined CEC command.
  - **Wait:** Set the length of time, in seconds, to wait after this Automation Event has been activated before ANY other Automation Event can be detected.
  - **CEC Command:** Set the CEC command to send when the specified Automation Event is activated. Click the “Test” button to send the command immediately. Available CEC commands are:
    - **Power Off:** Turn off the connected HDMI display device.
    - **Power On:** Turn on the connected HDMI display device.
    - **Active Source:** Force the connected HDMI display device to switch to the HDMI input that this unit is connected to.
- Note: Not all HDMI devices support all CEC commands.*
- 4) **RS232:** Enable or disable sending an RS-232 command when the currently selected Automation Event is activated. Click the “Edit” icon (⚙️) to configure the RS-232 port.



*Note: RS-232 Automation commands will only be output over the “CTL” RS-232 port.*

- **Delay:** Set the length of time, in seconds, that the specified Automation Event must continue to be true before sending the defined RS-232 command.
- **Wait:** Set the length of time, in seconds, to wait after this Automation Event has been activated before ANY other Automation Event can be detected.



- **RS232 Command:** Click the Edit icon (⚙️) to define the RS-232 command to send when the specified Automation Event is activated. Click the “Test” button to send the command immediately.
- 5) **Relay:** Enable or disable toggling individual relay settings when the currently selected Automation Event is activated. Click the “Test” button to test the relay behavior immediately.
- **Delay:** Set the length of time, in seconds, that the specified Automation Event must continue to be true before setting the relay to the state defined by the “Command” setting.
  - **Wait:** Set the length of time, in seconds, to wait after this Automation Event has been activated before ANY other Automation Event can be detected.
  - **Command:** Set the state to change the relay to when this Automation event is activated.

- Duration:** Set the length of time, in seconds, to wait before toggling the relay back to the opposite of the state set under “Command”. Setting this to 0 will leave the relay state as-is after the initial change.

### 6.11.6 EDID Tab

This tab provides control over the EDID settings of all inputs, including those on specially supported transmitters. This unit provides the option of three standard EDIDs, one sink sourced EDID and three user uploaded EDIDs that can be assigned to one input or all inputs as a group. The names of the user uploaded EDIDs can be changed if desired.



#### 1) User EDID:

- Upload:** To upload a User EDID, select the User EDID slot to upload into from the dropdown list and then click the “Upload” button. 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 an existing User EDID to your local PC, select the User EDID slot from the dropdown list and then press the “Download” button. 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 “Edit Name” button to open a window that allows changing the name of the User EDID. Click the “Save” button within the window to confirm the change.

## 2) Output EDID:

- **Download:** To save the EDID from the connected display to your local PC, select the sink from the dropdown list then press the “Download” button. Depending on your browser settings you will either be asked where to save the downloaded file, or the file will be transferred directly to the default download location on your PC.

## 3) Input EDID: This section provides controls for assigning a new EDID to one, or all inputs within the system.

- **Appoint/All:** Selecting “All” will allow the assignment of a single EDID to all inputs simultaneously. Selecting “Appoint” allows for a different EDID to be assigned to each HDMI input.
- **EDID Selection:** Click on the input on the left to open the EDID Table List window. Select the new EDID source to use and the change will occur immediately across all selected inputs.

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

This unit provides the following 3 default EDIDs:

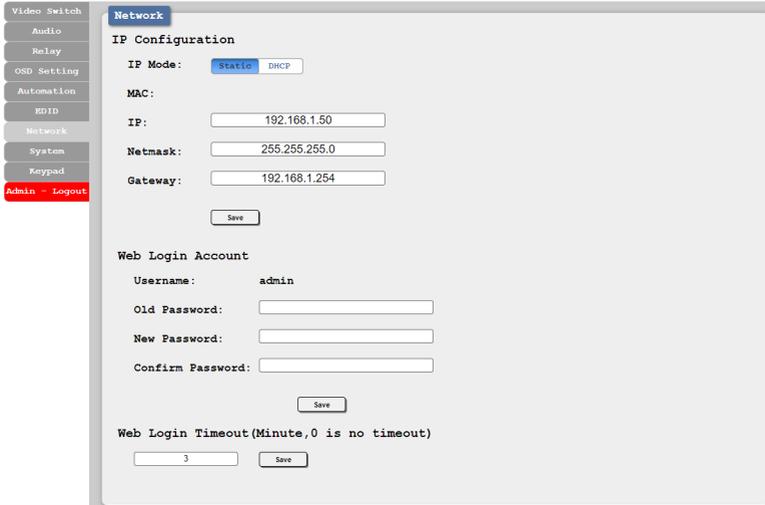
Unit's default EDIDs	
<b>FHD/PCM/2CH</b>	1920×1080p@60Hz (4.95Gbps) & 8-bit color, LPCM 2.0
<b>UHD/PCM/2CH</b>	3840×2160p@30Hz (10.2Gbps) & Deep Color (8/10/12-bit), LPCM 2.0
<b>UHD+/PCM/2CH</b>	3840×2160p@60Hz (18Gbps) & Deep Color (8/10/12-bit), LPCM 2.0

*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.*

### 6.11.7 Network Tab

This tab provides network configuration options including changing the IP mode, viewing/setting the IP configuration, changing the admin login password, and changing the Web Login timeout.

*Note: The default IP address is 192.168.1.50.*



The screenshot shows a web interface for network configuration. On the left is a sidebar menu with options: Video Switch, Audio, Relay, OSD Setting, Automation, EDID, Network, System, Keypad, and Admin - Logout (highlighted in red). The main content area is titled 'Network' and contains three sections:

- IP Configuration:** Includes a radio button for 'Static' (selected) and 'DHCP'. Below are input fields for IP (192.168.1.50), Netmask (255.255.255.0), and Gateway (192.168.1.254), followed by a 'Save' button.
- Web Login Account:** Includes a 'Username' field with the value 'admin', and three password fields: 'Old Password', 'New Password', and 'Confirm Password', followed by a 'Save' button.
- Web Login Timeout (Minute, 0 is no timeout):** Includes a numeric input field with the value '3' and a 'Save' button.

- 1) **IP Configuration:** IP Mode may be switched between Static IP or DHCP. In Static IP Mode the IP, netmask and gateway addresses must 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.

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

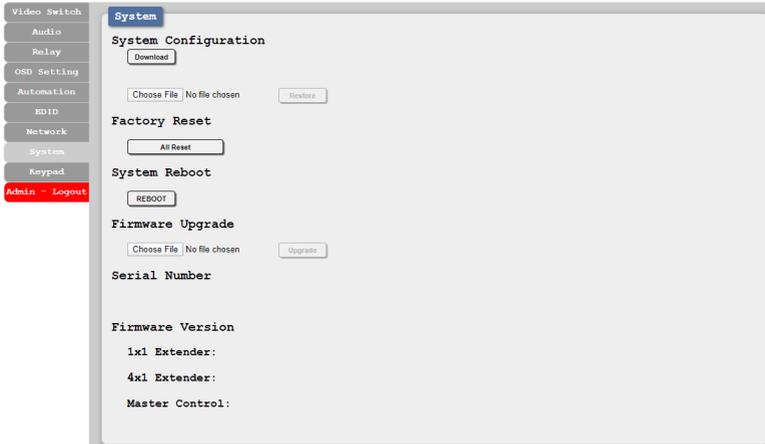
- 2) **Web Login Account:** The WebGUI admin password can be changed here. Please press “Save” after entering the old and new passwords to enact the change.

*Note: The default password is “admin”.*

- 3) **Web Login Timeout:** Select the length of time to wait before logging the user out of the WebGUI due to inactivity. Available range is from 0 to 35970 minutes. Setting it to 0 will disable the timeout function.

## 6.11.8 System Tab

This tab provides system configuration backup/restore options, controls to perform a factory reset or system reboot, firmware update support, and the unit's serial number.



### 1) System Configuration:

- **Download:** The current system configuration, including routing and settings, may be saved as an XML file to a PC. Click the “Download” button to save the current system configuration to your local PC.
- **Restore:** Previously saved system configurations may be restored from a saved XML file. Click the “Choose File” button to locate the saved XML file, then click the “Restore” button to upload and activate the selected configuration.

2) **Factory Reset:** Press the “All Reset” button to reset the unit to its factory default state. After the reset is complete, the unit will reboot automatically.

3) **System Reboot:** Click this button to reboot the unit.

4) **Firmware Upgrade:** 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.

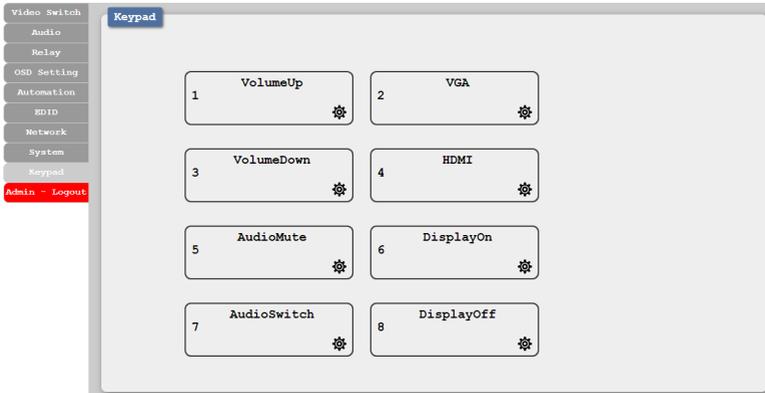
5) **Serial Number:** Displays the unit’s serial number.

6) **Firmware Version:** Displays the current detected firmware versions for all units in the connected extension system.

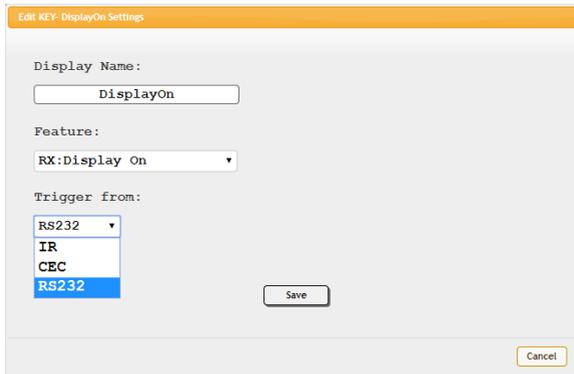
### 6.11.9 Keypad Tab

This tab allows the user to define the action assigned to each button on the external Control Keypad. Individual button assignments may also be tested here.

*Note: This tab is only available when the Control Keypad is connected to the transmitter.*



- 1) Keypad Button Assignment:** Click the “Edit” icon (⚙️) inside each numbered button to assign a unit function or behavior to that button. If the selected function requires additional parameters those can also be configured within the same popup window.



- 2) Keypad Button Test:** Click on main area of any of the buttons to test the function assigned to that specific button.

## 6.12 Telnet Control (Receiver)

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: The default IP address is 192.168.1.50 and the default communication port is 23.*

## 6.13 Serial and Telnet Commands (Receiver)

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

**COMMAND****Description and Parameters****set factory default**↵

Reset all settings to the factory defaults.

**set system reboot**↵

Reboot the unit.

**set uart N1 baudrate N2**↵

Set the baud rate of the specified RS-232 port.

Available values for **N1**:

- |   |                       |
|---|-----------------------|
| 1 | [RS-232 port 1 (CTL)] |
| 2 | [RS-232 port 2 (CLI)] |

Available values for **N2**:

- |        |               |
|--------|---------------|
| 4800   | [4800 baud]   |
| 9600   | [9600 baud]   |
| 19200  | [19200 baud]  |
| 38400  | [38400 baud]  |
| 57600  | [57600 baud]  |
| 115200 | [115200 baud] |

**get uart N1 baudrate**↵

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

Available values for **N1**:

- |   |                       |
|---|-----------------------|
| 1 | [RS-232 port 1 (CTL)] |
| 2 | [RS-232 port 2 (CLI)] |

**set uart N1 stop bit N2**↵

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

Available values for **N1**:

- |   |                       |
|---|-----------------------|
| 1 | [RS-232 port 1 (CTL)] |
| 2 | [RS-232 port 2 (CLI)] |

Available values for **N2**:

- |   |               |
|---|---------------|
| 1 | [1 stop bit]  |
| 2 | [2 stop bits] |

## COMMAND

### Description and Parameters

#### **get uart N1 stop bit**↵

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

Available values for **N1**:

- |   |                       |
|---|-----------------------|
| 1 | [RS-232 port 1 (CTL)] |
| 2 | [RS-232 port 2 (CLI)] |

#### **set uart N1 data bit N2**↵

Set the data bits for the specified RS-232 port.

Available values for **N1**:

- |   |                       |
|---|-----------------------|
| 1 | [RS-232 port 1 (CTL)] |
| 2 | [RS-232 port 2 (CLI)] |

Available values for **N2**:

- |   |               |
|---|---------------|
| 5 | [5 data bits] |
| 6 | [6 data bits] |
| 7 | [7 data bits] |
| 8 | [8 data bits] |

#### **get uart N1 data bit**↵

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

Available values for **N1**:

- |   |                       |
|---|-----------------------|
| 1 | [RS-232 port 1 (CTL)] |
| 2 | [RS-232 port 2 (CLI)] |

#### **set uart N1 parity N2**↵

Set the parity of the specified RS-232 port.

Available values for **N1**:

- |   |                       |
|---|-----------------------|
| 1 | [RS-232 port 1 (CTL)] |
| 2 | [RS-232 port 2 (CLI)] |

Available values for **N2**:

- |   |        |
|---|--------|
| 0 | [None] |
| 1 | [Odd]  |
| 2 | [Even] |

COMMAND									
Description and Parameters									
<b>get uart N1 parity</b> ↵	<p>Show the current parity setting of the specified RS-232 port.</p> <p>Available values for <b>N1</b>:</p> <table> <tr> <td>1</td> <td>[RS-232 port 1 (CTL)]</td> </tr> <tr> <td>2</td> <td>[RS-232 port 2 (CLI)]</td> </tr> </table>	1	[RS-232 port 1 (CTL)]	2	[RS-232 port 2 (CLI)]				
1	[RS-232 port 1 (CTL)]								
2	[RS-232 port 2 (CLI)]								
<b>set uart N1 mode N2</b> ↵	<p>Set the operational mode of the specified RS-232 port.</p> <p>Available values for <b>N1</b>:</p> <table> <tr> <td>1</td> <td>[RS-232 port 1 (CTL)]</td> </tr> <tr> <td>2</td> <td>[RS-232 port 2 (CLI)]</td> </tr> </table> <p>Available values for <b>N2</b>:</p> <table> <tr> <td>1</td> <td>[Console command]</td> </tr> <tr> <td>2</td> <td>[Control]</td> </tr> </table>	1	[RS-232 port 1 (CTL)]	2	[RS-232 port 2 (CLI)]	1	[Console command]	2	[Control]
1	[RS-232 port 1 (CTL)]								
2	[RS-232 port 2 (CLI)]								
1	[Console command]								
2	[Control]								
<b>get uart N1 mode</b> ↵	<p>Show the current operational mode of the specified RS-232 port.</p> <p>Available values for <b>N1</b>:</p> <table> <tr> <td>1</td> <td>[RS-232 port 1 (CTL)]</td> </tr> <tr> <td>2</td> <td>[RS-232 port 2 (CLI)]</td> </tr> </table>	1	[RS-232 port 1 (CTL)]	2	[RS-232 port 2 (CLI)]				
1	[RS-232 port 1 (CTL)]								
2	[RS-232 port 2 (CLI)]								
<b>set ip mode N1</b> ↵	<p>Set the IP address assignment mode.</p> <p>Available values for <b>N1</b>:</p> <table> <tr> <td>0</td> <td>[Static IP]</td> </tr> <tr> <td>1</td> <td>[DHCP]</td> </tr> </table>	0	[Static IP]	1	[DHCP]				
0	[Static IP]								
1	[DHCP]								
<b>get ip mode</b> ↵	<p>Show the current IP address assignment mode.</p>								
<b>get ipconfig</b> ↵	<p>Show the unit's current IP configuration information</p>								
<b>set webgui password N1</b> ↵	<p>Set WebGUI administrator password.</p> <p><b>N1</b> = {Password}      [16 characters max]</p>								

COMMAND	
Description and Parameters	
<b>get webgui password</b> ↵	Show the current WebGUI administrator password.
<b>set webgui port N1</b> ↵	Set the unit's WebGUI access port. <b>N1</b> = 1~65535 [HTTP Port Number]
<b>get webgui port</b> ↵	Show the unit's current WebGUI access port.
<b>set telnet username N1</b> ↵	Set the Telnet login username. <b>N1</b> = {Name} [20 characters max]
<b>get telnet username</b> ↵	Show the current Telnet login username.
<b>set telnet password N1</b> ↵	Set the Telnet login password. <b>N1</b> = {Password} [20 characters max]
<b>get telnet password</b> ↵	Show the unit's current Telnet password.
<b>set telnet port N1</b> ↵	Set the unit's current Telnet access port. <b>N1</b> = 1~65535 [Port number]
<b>get telnet port</b> ↵	Show the unit's current Telnet access port.
<b>set telnet login N1</b> ↵	Enable or disable allowing Telnet logins. Available values for <b>N1</b> : ON [Enabled] OFF [Disabled]

COMMAND	
Description and Parameters	
<b>get telnet login</b> ↵	Show the current state of Telnet login allowance.
<b>set telnet timeout N1</b> ↵	Set the Telnet inactivity timeout value. Available values for <b>N1</b> : 0 [No timeout] 1~120 [Timeout in minutes]
<b>get telnet timeout</b> ↵	Show the current Telnet inactivity timeout value.
<b>set webgui login timeout N1</b> ↵	Set the WebGUI inactivity timeout value. Available values for <b>N1</b> : 0 [No timeout] 1~120 [Timeout in minutes]
<b>get webgui login timeout</b> ↵	Show the current WebGUI inactivity timeout value.
<b>set in N1 name N2</b> ↵	Set the name of the specified input. Available values for <b>N1</b> : 1 [VGA input 1] 2 [HDMI input 2] 3 [HDMI input 3] 4 [HDMI input 4] <b>N2</b> = {Name} [16 characters max]
<b>get in N1 name</b> ↵	Show the current name of the specified input. Available values for <b>N1</b> : 1 [VGA input 1] 2 [HDMI input 2] 3 [HDMI input 3] 4 [HDMI input 4]

COMMAND	
Description and Parameters	
<b>set out A name N2</b> ↵	Set the name of the HDMI output. <b>N2</b> = {Name} [32 characters max]
<b>get out A name</b> ↵	Show the name of the HDMI output.
<b>set out A route N1</b> ↵	Route the specified input to the HDMI output. Available values for <b>N1</b> : 1 [VGA input 1] 2 [HDMI input 2] 3 [HDMI input 3] 4 [HDMI input 4]
<b>get out A route</b> ↵	Show the current input routed to the HDMI output.
<b>get in name list</b> ↵	List the names of all inputs on the unit.
<b>get in 1 hactive</b> ↵	Show the horizontal active pixel value of the currently selected video source.
<b>get in 1 vactive</b> ↵	Show the vertical active pixel value of the currently selected video source.
<b>get in 1 refresh rate</b> ↵	Show the refresh rate of the currently selected video source.
<b>get in 1 interlace</b> ↵	Show the interlace state of the currently selected video source. Possible response values: 0 [Progressive scan] 1 [Interlaced]

**COMMAND****Description and Parameters****get in 1 sync status↵**

Show the sync state of the currently selected video source.

Possible response values:

0	[No sync]
1	[Sync active]

**get out A sync status↵**

Show the current sync state of the HDMI output.

Possible response values:

0	[No sync]
1	[Sync active]

**get in 1 deep color↵**

Show the detected bit depth of the currently selected video source.

Possible response values:

8	[8-bit color]
10	[10-bit color]
12	[12-bit color]

**get out A deep color↵**

Show the bit depth currently used by the HDMI output.

Possible response values:

8	[8-bit color]
10	[10-bit color]
12	[12-bit color]

**get out A color space↵**

Show the color space format currently used by the HDMI output.

Possible response values:

RGB444	[RGB]
YUV444	[YUV (4:4:4)]
YUV422	[YUV (4:2:2)]
Y420	[YUV (4:2:0)]

COMMAND	
Description and Parameters	
<b>set feedback broadcast N1</b> ←	<p>Enable or disable the broadcast of console command feedback.</p> <p>Available values for <b>N1</b>:</p> <p>ON [Enable] OFF [Disable]</p>
<b>get feedback broadcast</b> ←	<p>Show the current console command feedback broadcast state.</p> <p>Possible response values:</p> <p>ON [Enable] OFF [Disable]</p>
<b>set static ipaddr N1</b> ←	<p>Set the unit's static IP address.</p> <p><b>N1</b> = X.X.X.X [X = 0~255, IP address]</p>
<b>get static ipaddr</b> ←	<p>Show the unit's current static IP address.</p>
<b>set static netmask N1</b> ←	<p>Set the unit's static netmask.</p> <p><b>N1</b> = X.X.X.X [X = 0~255, netmask]</p>
<b>get static netmask</b> ←	<p>Show the unit's current static netmask.</p>
<b>set static gateway N1</b> ←	<p>Set the unit's static gateway address.</p> <p><b>N1</b> = X.X.X.X [X = 0~255, gateway address]</p>
<b>get static gateway</b> ←	<p>Show the unit's current static gateway address.</p>

## COMMAND

### Description and Parameters

#### set automation event N1 uart A trig↵

Trigger the specified Automation Event's RS-232 response.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

#### set automation event N1 uart A N2↵

Enable or disable the specified Automation Event's RS-232 response.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

Available values for **N2**:

- |     |           |
|-----|-----------|
| ON  | [Enable]  |
| OFF | [Disable] |

#### get automation event N1 uart A↵

Show the current state of the specified Automation Event's RS-232 response.

#### set automation event N1 uart A command N2↵

Set the RS-232 command string to send when the specified Automation Event is activated.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

**N2** = {String} [32 characters max]

#### get automation event N1 uart A command↵

Show the RS-232 command string to be sent when the specified Automation Event is activated.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

## COMMAND

### Description and Parameters

#### set automation event N1 uart A delay N2↵

Set the delay time that the specified Automation Event must continue to be true before sending the defined RS-232 command.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

**N2** = 1~240 [Length of delay in seconds]

#### get automation event N1 uart A delay↵

Show the delay time for the specified Automation Event's RS-232 response.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

#### set automation event N1 uart A wait N2↵

Set the length of time to wait after an Automation Event's RS-232 response has been activated before ANY other Automation Event can be detected.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

**N2** = 1~240 [Length of wait in seconds]

#### get automation event N1 uart A wait↵

Show the wait time for the specified Automation Event's RS-232 response.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

## COMMAND

### Description and Parameters

#### set automation event N1 cec A trig<sup>↵</sup>

Trigger the specified Automation Event's CEC response.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

#### set automation event N1 cec A N2<sup>↵</sup>

Enable or disable the specified Automation Event's CEC response.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

Available values for **N2**:

- |     |                  |
|-----|------------------|
| ON  | [Event enabled]  |
| OFF | [Event disabled] |

#### get automation event N1 cec A<sup>↵</sup>

Show the current state of the specified Automation Event's CEC response.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

#### set automation event N1 cec A command N2<sup>↵</sup>

Set the CEC command to send when the specified Automation Event is activated.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

**N2** = {CEC data} [Comma delimited hex pairs]

## COMMAND

### Description and Parameters

#### **get automation event N1 cec A command**↵

Show the CEC command to be sent when the specified Automation Event is activated.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

#### **set automation event N1 cec A delay N2**↵

Set the delay time that the specified Automation Event must continue to be true before sending the defined CEC command.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

**N2** = 1~240 [Length of delay in seconds]

#### **get automation event N1 cec A delay**↵

Show the delay time for the specified Automation Event's CEC response.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

#### **set automation event N1 cec A wait N2**↵

Set the length of time to wait after an Automation Event's CEC response has been activated before ANY other Automation Event can be detected.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

**N2** = 1~240 [Length of wait in seconds]

**COMMAND****Description and Parameters****get automation event N1 cec A wait↵**

Show the wait time for the specified Automation Event's CEC response.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

**set automation event N1 ir A emit↵**

Trigger the specified Automation Event's IR response.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

**set automation event N1 ir A N2↵**

Enable or disable the specified Automation Event's IR response.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

Available values for **N2**:

- |     |                  |
|-----|------------------|
| ON  | [Event enabled]  |
| OFF | [Event disabled] |

**get automation event N1 ir A↵**

Show the current state of the specified Automation Event's IR response.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

## COMMAND

### Description and Parameters

#### set automation event N1 ir A delay N2↵

Set the delay time that the specified Automation Event must continue to be true before sending the defined IR command.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

**N2** = 1~240 [Length of delay in seconds]

#### get automation event N1 ir A delay↵

Show the delay time for the specified Automation Event's IR response.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

#### set automation event N1 ir A wait N2↵

Set the length of time to wait after an Automation Event's IR response has been activated before ANY other Automation Event can be detected.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

**N2** = 1~240 [Length of wait in seconds]

#### get automation event N1 ir A wait↵

Show the wait time for the specified Automation Event's IR response.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

**COMMAND****Description and Parameters****set automation event N1 ir A learn**↵

Set the IR capture of the specified Automation Event.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

**set automation event N1 relay trig**↵

Trigger the specified Automation Event's relay response.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

**set automation event N1 relay N2**↵

Enable or disable the specified Automation Event's relay response.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

Available values for **N2**:

- |     |                  |
|-----|------------------|
| ON  | [Event enabled]  |
| OFF | [Event disabled] |

**get automation event N1 relay**↵

Show the current state of the specified Automation Event's relay response.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

## COMMAND

### Description and Parameters

#### set automation event N1 relay N2 delay N3↵

Set the delay time that the specified Automation Event must continue to be true before switching the specified relay.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

Available values for **N2**:

- |   |           |
|---|-----------|
| 1 | [Relay 1] |
| 2 | [Relay 2] |
| 3 | [Relay 3] |
| 4 | [Relay 4] |

**N3** = 1~240 [Length of delay in seconds]

#### get automation event N1 relay N2 delay↵

Show the delay time for the specified Automation Event's relay response.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

Available values for **N2**:

- |   |           |
|---|-----------|
| 1 | [Relay 1] |
| 2 | [Relay 2] |
| 3 | [Relay 3] |
| 4 | [Relay 4] |

**COMMAND****Description and Parameters****set automation event N1 relay N2 wait N3↵**

Set the length of time to wait after an Automation Event's relay response has been activated before ANY other Automation Event can be detected.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

Available values for **N2**:

- |   |           |
|---|-----------|
| 1 | [Relay 1] |
| 2 | [Relay 2] |
| 3 | [Relay 3] |
| 4 | [Relay 4] |

**N3** = 1~240 [Length of wait in seconds]

**get automation event N1 relay N2 wait↵**

Show the wait time for the specified Automation Event's relay response.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

Available values for **N2**:

- |   |           |
|---|-----------|
| 1 | [Relay 1] |
| 2 | [Relay 2] |
| 3 | [Relay 3] |
| 4 | [Relay 4] |

## COMMAND

### Description and Parameters

#### **set automation event N1 relay N2 command N3 N4↵**

Set the behavior of the specified relay when the specified Automation Event is activated. If a timeout value is set, the relay will revert to it's prior state after the timeout expires.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

Available values for **N2**:

- |   |           |
|---|-----------|
| 1 | [Relay 1] |
| 2 | [Relay 2] |
| 3 | [Relay 3] |
| 4 | [Relay 4] |

Available values for **N3**:

- |     |               |
|-----|---------------|
| ON  | [Close relay] |
| OFF | [Open relay]  |

Available values for **N4**:

- |       |  |
|-------|--|
| 0     | [Forever]                                    |
| 1~240 | [Timeout before reverting state, in seconds] |

*Note: If not set to "Forever", timeout can't be larger than the wait time.*

#### **get automation event N1 relay N2 command↵**

Show the relay behavior when the specified Automation Event is activated.

Available values for **N1**:

- |   |                             |
|---|-----------------------------|
| 1 | [Unit powers on]            |
| 2 | [HDMI output source active] |
| 3 | [HDMI output source lost]   |

Available values for **N2**:

- |   |           |
|---|-----------|
| 1 | [Relay 1] |
| 2 | [Relay 2] |
| 3 | [Relay 3] |
| 4 | [Relay 4] |

COMMAND	
Description and Parameters	
<b>set out A mask N1</b> ←	<p>Enable or disable the A/V mask setting on the HDMI output.</p> <p>Available values for <b>N1</b>:</p> <p>ON [Mute the output's audio and video]  OFF [Unmute the output's audio and video]</p>
<b>get out A mask</b> ←	<p>Display the current A/V mask setting for the HDMI output.</p>
<b>set out A osd timeout N1</b> ←	<p>Set the OSD's timeout value for the HDMI output (in seconds).</p> <p>Available values for <b>N1</b>:</p> <p>0 [Timeout disabled]  1~100 [Timeout in seconds]</p>
<b>get out A osd timeout</b> ←	<p>Show the current OSD timeout value for the HDMI output.</p>
<b>set out A osd vposition N1</b> ←	<p>Set the vertical position of the OSD on the HDMI output.</p> <p><b>N1</b> = 0~100 [Vertical OSD position]</p>
<b>get out A osd vposition</b> ←	<p>Show the current vertical position of the OSD on the HDMI output.</p>
<b>set out A osd hposition N1</b> ←	<p>Set the horizontal position of the OSD on the HDMI output.</p> <p><b>N1</b> = 0~100 [Horizontal OSD position]</p>
<b>get out A osd hposition</b> ←	<p>Show the current horizontal position of the OSD on the HDMI output.</p>
<b>set out A osd transparency N1</b> ←	<p>Set the transparency level of the OSD on the HDMI output.</p> <p><b>N1</b> = 0~7 [OSD transparency level]</p>

COMMAND	
Description and Parameters	
<b>get out A osd transparency</b> ↵	Show the current transparency level of the OSD on the HDMI output.
<b>set audio out N1 mute N2</b> ↵	<p>Enable or disable muting the specified audio output.</p> <p>Available values for <b>N1</b>:</p> <p>A [Amplified audio output] B [Line audio output]</p> <p>Available values for <b>N2</b>:</p> <p>ON [Mute] OFF [Unmute]</p>
<b>get audio out N1 mute</b> ↵	<p>Show the current mute state of the specified output.</p> <p>Available values for <b>N1</b>:</p> <p>A [Amplified audio output] B [Line audio output]</p>
<b>set audio out N1 volume N2</b> ↵	<p>Set the volume level of the specified output's audio.</p> <p>Available values for <b>N1</b>:</p> <p>A [Amplified audio output] B [Line audio output]</p> <p><b>N2</b> = 0~100 [Volume level]</p>
<b>set audio out N1 volume up</b> ↵	<p>Increase the volume level of the specified output's audio by 1 unit.</p> <p>Available values for <b>N1</b>:</p> <p>A [Amplified audio output] B [Line audio output]</p>
<b>set audio output N1 volume down</b> ↵	<p>Decrease the volume level of the specified output's audio by 1 unit.</p> <p>Available values for <b>N1</b>:</p> <p>A [Amplified audio output] B [Line audio output]</p>

**COMMAND****Description and Parameters****get audio out N1 volume**↵

Show the current volume level of the specified output's audio.

Available values for **N1**:

- |   |                          |
|---|--------------------------|
| A | [Amplified audio output] |
| B | [Line audio output]      |

**set in N1 edid N2**↵

Set the EDID to use on the specified input.

Available values for **N1**:

- |   |                |
|---|----------------|
| 2 | [HDMI input 2] |
| 3 | [HDMI input 3] |
| 4 | [HDMI input 4] |

Available values for **N2**:

- |   |                                  |
|---|----------------------------------|
| 1 | [Internal EDID 1 (FHD/PCM/2CH)]  |
| 2 | [Internal EDID 2 (UHD/PCM/2CH)]  |
| 3 | [Internal EDID 3 (UHD+/PCM/2CH)] |
| 4 | [User EDID 1]                    |
| 5 | [User EDID 2]                    |
| 6 | [User EDID 3]                    |
| 7 | [Sink's EDID]                    |

**get in N1 edid**↵

Show the EDID currently being used on the specified input.

Available values for **N1**:

- |   |                |
|---|----------------|
| 2 | [HDMI input 2] |
| 3 | [HDMI input 3] |
| 4 | [HDMI input 4] |

**get in edid list**↵

List all available EDID selections.

## COMMAND

### Description and Parameters

#### set edid N1 name N2↵

Set the name for the specified EDID. (Only User EDIDs may be renamed)

Available values for **N1**:

- |   |               |
|---|---------------|
| 4 | [User EDID 1] |
| 5 | [User EDID 2] |
| 6 | [User EDID 3] |

**N2** = {Name} [16 characters max]

#### get edid N1 name↵

Show the name for the specified EDID.

Available values for **N1**:

- |   |                                  |
|---|----------------------------------|
| 1 | [Internal EDID 1 (FHD/PCM/2CH)]  |
| 2 | [Internal EDID 2 (UHD/PCM/2CH)]  |
| 3 | [Internal EDID 3 (UHD+/PCM/2CH)] |
| 4 | [User EDID 1]                    |
| 5 | [User EDID 2]                    |
| 6 | [User EDID 3]                    |
| 7 | [Sink's EDID]                    |

#### set user N1 edid data N2↵

Upload a new EDID (in comma delimited hex pair format) for use as the specified User EDID.

Available values for **N1**:

- |   |               |
|---|---------------|
| 1 | [User EDID 1] |
| 2 | [User EDID 2] |
| 3 | [User EDID 3] |

**N2** = {Hex pairs} [EDID data]

#### get user N1 edid data↵

Show the current contents of the specified User EDID as hex data.

Available values for **N1**:

- |   |               |
|---|---------------|
| 1 | [User EDID 1] |
| 2 | [User EDID 2] |
| 3 | [User EDID 3] |

COMMAND	
Description and Parameters	
<b>set all in edid mode N1</b> ↵	<p>Select the EDID management mode to use (All or Appoint) for all inputs.</p> <p>Available values for <b>N1</b>:</p> <p>ON [All mode]            OFF [Appoint mode]</p>
<b>get all in edid mode</b> ↵	<p>Show the current EDID management mode used by all inputs.</p>
<b>set all in edid N1</b> ↵	<p>Set the EDID to use when the “All” EDID mode is active.</p> <p>Available values for <b>N1</b>:</p> <p>1 [Internal EDID 1 (FHD/PCM/2CH)]            2 [Internal EDID 2 (UHD/PCM/2CH)]            3 [Internal EDID 3 (UHD+/PCM/2CH)]            4 [User EDID 1]            5 [User EDID 2]            6 [User EDID 3]            7 [Sink’s EDID]</p>
<b>get all in edid</b> ↵	<p>Show the current EDID used by the “All” EDID mode.</p>
<b>set in N1 hdcp mode N2</b> ↵	<p>Set the HDCP behavior of the specified input.</p> <p>Available values for <b>N1</b>:</p> <p>2 [HDMI input 2]            3 [HDMI input 3]            4 [HDMI input 4]</p> <p>Available values for <b>N2</b>:</p> <p>0 [HDCP support disabled]            1 [Follow source]            2 [Follow display]</p>

## COMMAND

### Description and Parameters

#### **get in N1 hdcp mode**↵

Show the current HDCP behavior used by the specified input.

Available values for **N1**:

2	[HDMI input 2]
3	[HDMI input 3]
4	[HDMI input 4]

Possible response values:

0	[HDCP support disabled]
1	[Follow source]
2	[Follow display]

#### **get in 1 hdcp status**↵

Show the current HDCP status of the currently selected video source.

Possible response values:

0	[No HDCP]
1	[HDCP 1.x]
2	[HDCP 2.2]

#### **get out A hdcp status**↵

Show the current HDCP status of the HDMI output.

Possible response values:

0	[No HDCP]
1	[HDCP 1.x]
2	[HDCP 2.2]
3	[HDCP 1.x Failed]
4	[HDCP 2.x Failed]

#### **set relay N1 N2**↵

Open or close the specified relay.

Available values for **N1**:

1	[Relay 1]
2	[Relay 2]
3	[Relay 3]
4	[Relay 4]

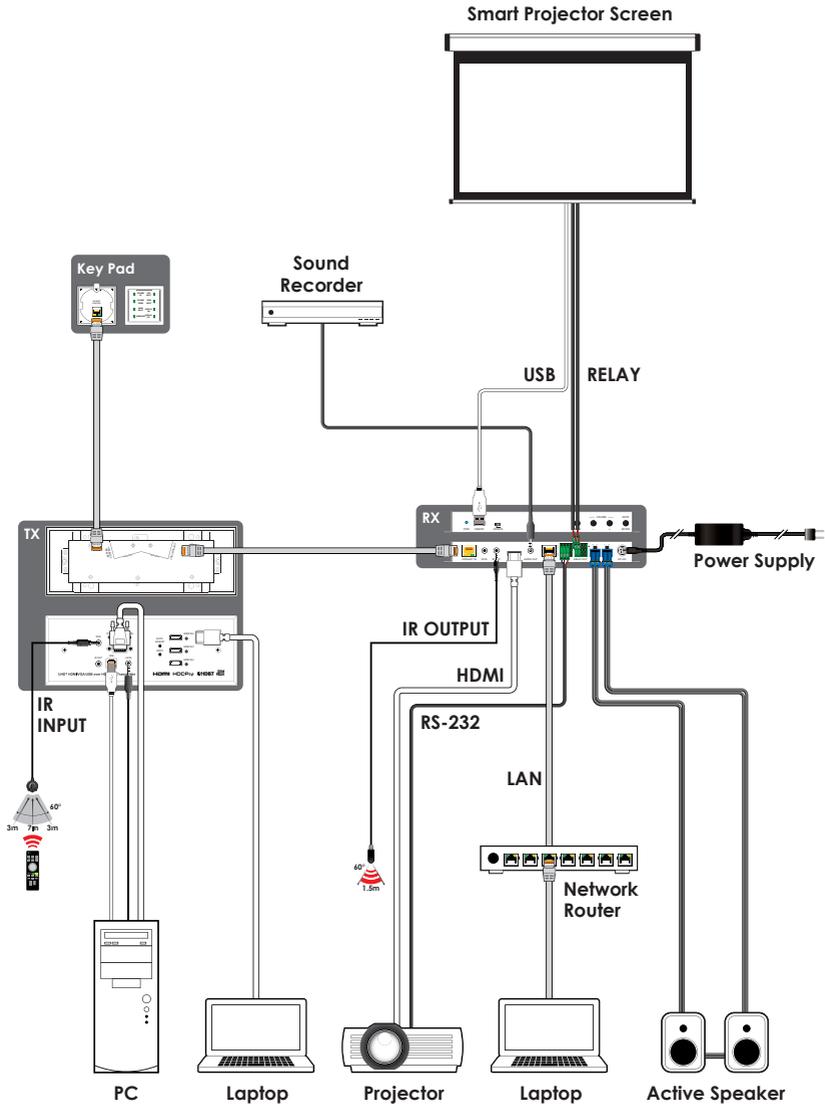
Available values for **N2**:

ON	[Close relay]
OFF	[Open relay]

COMMAND	
Description and Parameters	
<b>get relay N1</b> ↵	
Show the current state of the specified relay.	
Available values for <b>N1</b> :	
1	[Relay 1]
2	[Relay 2]
3	[Relay 3]
4	[Relay 4]
<b>get hdbt in 1 cable test</b> ↵	
Run the automated HDBaseT cable test function and show the results.	
<i>Note: Uses the highest available source resolution without exceeding 4K@60Hz 4:2:0</i>	
<b>get hdbt in 1 cable state</b> ↵	
Show the cable state data from the specified HDBaseT input.	
<b>get hdbt in 1 allhex data</b> ↵	
Show the local HDBaseT all hex data from the specified HDBaseT input.	
<b>get hdbt in 1 local hardware type</b> ↵	
Show the local HDBaseT hardware type details.	
<b>get hdbt in 1 remote hardware type</b> ↵	
Show the hardware type details of the remote unit connected to the HDBaseT input.	

*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 (Transmitter)

<b>HDMI Bandwidth</b>	18Gbps
<b>VGA Bandwidth</b>	165MHz
<b>HDBaseT Bandwidth</b>	10.2Gbps
<b>Input Ports</b>	3×HDMI (Type-A) 1×VGA (HD-15) 1×Stereo Audio (3.5mm)
<b>Output Port</b>	1×HDBaseT (RJ-45)
<b>Pass-through Ports</b>	1×IR Extender (3.5mm) 1×IR Blaster (3.5mm) 1×USB 2.0 (Type-B)
<b>Control Ports</b>	1×Keypad Control (RJ-45) 1×IP Control (RJ-45)
<b>Service Port</b>	1×USB 2.0 (Type-A)
<b>IR Frequency</b>	30 ~ 50kHz (30 ~ 60kHz under ideal conditions)
<b>Baud Rate</b>	19200
<b>Power Supply</b>	PoH via HDBaseT
<b>ESD Protection (HBM)</b>	±8kV (Air Discharge) ±4kV (Contact Discharge)
<b>Dimensions (W×H×D)</b>	225mm×81mm×42mm [Case Only] 225mm×81mm×46mm [All Inclusive]
<b>Weight</b>	335g
<b>Chassis Material</b>	Metal (Aluminum)
<b>Chassis Color</b>	White
<b>Operating Temperature</b>	0°C – 40°C/32°F – 104°F
<b>Storage Temperature</b>	-20°C – 60°C/-4°F – 140°F
<b>Relative Humidity</b>	20 – 90% RH (Non-condensing)
<b>Power Consumption</b>	16W

## 8.2 Technical Specifications (Receiver)

<b>HDMI Bandwidth</b>	18Gbps
<b>HDBaseT Bandwidth</b>	10.2Gbps
<b>Input Port</b>	1×HDBaseT (RJ-45)
<b>Output Ports</b>	1×HDMI (Type-A) 1×Stereo Audio (3.5mm) 1×Stereo Audio (2×2-pin Terminal Blocks)
<b>Pass-through Ports</b>	1×IR Extender (3.5mm) 1×IR Blaster (3.5mm) 1×RS-232 (4-pin Terminal Block) 4×Power Relay (2-pin Terminal Block)
<b>Pass-through/Service Port</b>	1×USB 2.0 (Type-A)
<b>Control Ports</b>	1×LAN (RJ-45) 1×RS-232 (4-pin Terminal Block)
<b>IR Frequency</b>	30 ~ 50kHz (30 ~ 60kHz under ideal conditions)
<b>Baud Rate</b>	19200 (Control) Up to 115200 (Bypass)
<b>Power Supply</b>	24V/3.75A DC (US/EU standards, CE/FCC/UL certified)
<b>ESD Protection (HBM)</b>	±8kV (Air Discharge) ±4kV (Contact Discharge)
<b>Dimensions (W×H×D)</b>	232mm×108mm×25mm [Case Only] 232mm×112mm×25mm [All Inclusive]
<b>Weight</b>	700g
<b>Chassis Material</b>	Metal (Steel)
<b>Chassis Color</b>	Black
<b>Operating Temperature</b>	0°C – 40°C/32°F – 104°F
<b>Storage Temperature</b>	-20°C – 60°C/-4°F – 140°F
<b>Relative Humidity</b>	20 – 90% RH (Non-condensing)
<b>Power Consumption</b>	39W

### 8.3 Technical Specifications (Keypad)

<b>Control Interface</b>	8×Buttons
<b>Control Port</b>	1×RS-232 (RJ-45)
<b>Service Port</b>	1×USB 2.0 (Mini-B)
<b>Baud Rate</b>	19200
<b>Power Supply</b>	12V/50mA DC via RJ-45
<b>ESD Protection (HBM)</b>	±8kV (Air Discharge) ±4kV (Contact Discharge)
<b>Dimensions (W×H×D)</b>	70mm×70mm×49mm [Case Only] 70mm×70mm×50mm [All Inclusive]
<b>Weight</b>	115g
<b>Chassis Material</b>	Plastic, Metal (Aluminum)
<b>Chassis Color</b>	Black
<b>Operating Temperature</b>	0°C – 40°C/32°F – 104°F
<b>Storage Temperature</b>	-20°C – 60°C/-4°F – 140°F
<b>Relative Humidity</b>	20 – 90% RH (Non-condensing)
<b>Power Consumption</b>	0.6W

## 8.4 Video Specifications

Supported Resolutions (Hz)	Input		Output	I/O
	HDMI	VGA	HDMI	HDBT
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	I/O
	HDMI	VGA	HDMI	HDBT
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	✓	×	×	×

## 8.5 Audio Specifications

### 8.5.1 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

HDBaseT 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

## 8.5.2 Analog Audio

Analog Input	
Max Audio Level	2Vrms
Impedance	10k $\Omega$
Type	Unbalanced

Analog Output	
Max Audio Level	2Vrms
THD+N	< -80dB@0dBFS 1kHz (A-wt)
SNR	> 110dB@0dBFS
Frequency Response	< $\pm$ 1dB@20Hz~20kHz
Crosstalk	< -88dB@10kHz
Impedance	499 $\Omega$
Type	Unbalanced

Analog Output (Amplified)	
Max Power Level	20W+20W
THD+N	< -62dB@0dBFS 1kHz (A-wt)
SNR	> 102dB@0dBFS
Frequency Response	< $\pm$ 3dB@20Hz~20kHz
Crosstalk	< -84dB@10kHz
Impedance	4 $\Omega$
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
<b>High Speed HDMI Cable</b>				
<b>HDMI Input</b>	15m	10m	5m	3m
<b>HDMI Output</b>	15m	10m	5m	x
<b>VGA Cable</b>				
<b>VGA Input</b>	2m		x	
<b>Ethernet Cable</b>				
<b>Cat.5e/6</b>	60m		35m	x
<b>Cat.6A/7</b>	60m		35m	x

### 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<sup>+</sup> Video)
  - 4K@50/60Hz (4:4:4, 8-bit)
  - 4K@50/60Hz (4:2:0, 10-bit HDR)
  - Data rates higher than 10.2Gbps

## 8.5 HDBaseT Features

HDBaseT Feature Set	Transmitter
Video & Audio Extension	Supported
LAN Extension	Unsupported
Send power to Receiver	Unsupported
Accept power from Receiver	Supported (PoH)
IR Extension	Supported
RS-232 Extension	Unsupported
USB 2.0 Extension	Supported

HDBaseT Feature Set	Receiver
Video & Audio Extension	Supported
LAN Extension	Unsupported
Send power to Transmitter	Supported (PoH)
Accept power from Transmitter	Unsupported
IR Extension	Supported
RS-232 Extension	Supported
USB 2.0 Extension	Supported

## 9. ACRONYMS

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

<b>ACRONYM</b>	<b>COMPLETE TERM</b>
<b>MAC</b>	Media Access Control
<b>MHz</b>	Megahertz
<b>OSD</b>	On-Screen Display
<b>PD</b>	Powered Device
<b>PoH</b>	Power over HDBaseT
<b>PSE</b>	Power Sourcing Equipment
<b>SNR</b>	Signal-to-Noise Ratio
<b>TCP</b>	Transmission Control Protocol
<b>THD+N</b>	Total Harmonic Distortion plus Noise
<b>TMDS</b>	Transition-Minimized Differential Signaling
<b>4K UHD</b>	4K Ultra-High-Definition (10.2Gbps max)
<b>4K UHD<sup>+</sup></b>	4K Ultra-High-Definition (18Gbps max)
<b>USB</b>	Universal Serial Bus
<b>VGA</b>	Video Graphics Array
<b>WUXGA (RB)</b>	Widescreen Ultra Extended Graphics Array (Reduced Blanking)
<b>XGA</b>	Extended Graphics Array
<b>Ω</b>	Ohm





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