CPLUS-V4H2HP-DT
UHD+ 4×2 HDMI Matrix with Dante Audio

Operation Manual

HDMI®

HIGH-DEFINITION MULTIMEDIA INTERFACE

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SAFETY PRECAUTIONS

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

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Never spill liquid of any kind on or into this product.
- Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.
- Do not attach the power supply cabling to building surfaces.
- Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.
- Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person walk on it.
- To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.
- Please completely disconnect the power when the unit is not in use to avoid wasting electricity.

VERSION HISTORY

REV.	DATE	SUMMARY OF CHANGE
RDV1	2020/11/19	Preliminary release

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1. INTRODUCTION

This 4 by 2 HDMI Matrix with Dante Audio is a high performance HDMI switch which provides 4K UHD$^+$ (18Gbps) HDMI matrix routing and integrated Dante/AES67 network audio routing, insertion, and extraction. It is an ideal solution for switching between multiple sources in a control room, conference room or classroom while simultaneously providing and receiving high quality digital stereo audio via the connected network. Video resolutions up to 4K@60Hz with 8 channel LPCM or HD bitstream audio is supported for local routing while 2 channel LPCM audio is supported via Dante.

Basic control of video and audio routing is provided by front panel controls, while full control is available via WebGUI, RS-232, and Telnet. Additional advanced Dante audio management can be provided by optional 3rd party software, such as Dante Controller from Audinate.

2. APPLICATIONS

• Home Theaters

• Classrooms

• Lecture Halls

3. PACKAGE CONTENTS

• 1× UHD$^+$ 4×2 HDMI Matrix with Dante Audio

• 1× 5V/2.6A DC Power Adapter

• 2× 5-pin Terminal Block

• 1× 3-pin Terminal Block

• 1× Shockproof Feet (Set of 4)

• 1× Operation Manual

4. SYSTEM REQUIREMENTS

- HDMI source equipment such as media players, video game consoles, PCs, or set-top boxes.
- HDMI receiving equipment such as HDTVs, monitors or audio amplifiers.
- Analog audio receiving equipment such as audio amplifiers or powered speakers.
- The use of Premium High Speed HDMI cables, and industry standard, Cat.6, Cat.6A or Cat.7, is highly recommended.
- 3rd party control software, such as Dante Controller from Audinate, can provide additional configuration controls, but is optional.
- An active network connection from a Gigabit network switch or router with QoS support is highly recommended for Dante audio extension. Additional Dante networking details can be found here: https://www.audinate.com/support/networks-and-switches

5. FEATURES

- HDMI 2.0 and DVI 1.0 compliant (with the use of an HDMI-DVI adapter)
- HDCP 1.x and 2.2 compliant
- 4 HDMI inputs and 2 HDMI outputs
- 4×2 matrix routing with per-output analog audio extraction
- Supports up to 4K UHD[+] (18Gbps, 4K@50/60Hz 4:4:4, 8-bit) video input and output
- Support pass-through of many audio formats including 8 channel LPCM, Bitstream, and HD Bitstream
- Each output's audio is selectable between the routed HDMI source or an independent Dante network audio source
- Compatible with existing Dante and AES67 audio networks for transmission and reception of uncompressed audio with near-zero latency
- Simple and easy network audio routing via WebGUI or 3rd party control software (available for both Windows and macOS systems)
- Per-input EDID management with internal or external EDID options
- Controllable via front panel buttons, WebGUI, Telnet, and RS-232

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6. OPERATION CONTROLS AND FUNCTIONS

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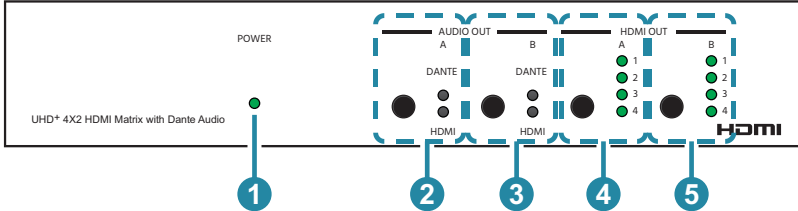
1 POWER LED: This LED will illuminate to indicate the unit is on and receiving power.

2 AUDIO OUT A Button & LEDs: Press this button to toggle the audio source, for HDMI and analog audio output A, between the currently routed HDMI video's native audio or the currently selected Dante audio source. The active Dante audio source can be set via the WebGUI.

*Note: The active Dante audio source for this output can be set via the WebGUI.*

3 AUDIO OUT B Button & LEDs: Press this button to toggle the audio source, for HDMI and analog audio output B, between the currently routed HDMI video's native audio or the currently selected Dante audio source.

Note: The active Dante audio source for this output can be set via the WebGUI.

4 HDMI OUT A Button and LEDs: Press this button to sequentially switch through the available inputs to be routed to HDMI output A. The LED will illuminate to indicate which source is currently selected.

5 HDMI OUT B Button and LEDs: Press this button to sequentially switch through the available inputs to be routed to HDMI output B. The LED will illuminate to indicate which source is currently selected.

6.2 Rear Panel
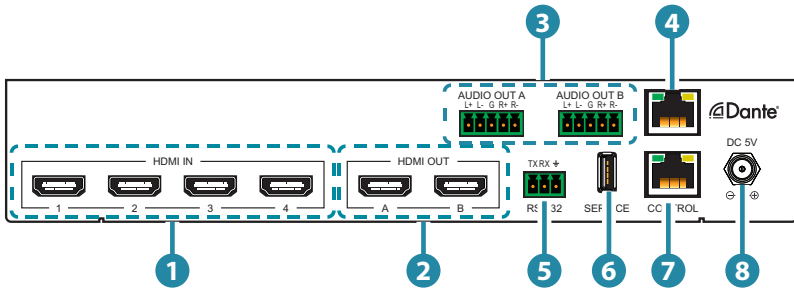
1 HDMI IN 1~4 Port: Connect to HDMI source equipment such as media players, game consoles, or set-top boxes. DVI sources are supported with the use of an HDMI to DVI adapter.

2 HDMI OUT A~B Port: Connect to HDMI TVs, monitors, or amplifiers for digital video and audio output.

3 AUDIO OUT 5-pin Terminal Blocks A~B: Connect to powered speakers or an amplifier using 5-pin terminal blocks for balanced stereo analog audio output.

4 DANTE Port: Connect to a standard Ethernet network switch or router, which is hosting Dante audio transmitters or receivers, with a single Cat.5e/6/7 cable for transmission and routing of all available audio streams.

5 RS-232 3-pin Terminal Block: Connect directly to a PC, laptop, or other serial control device with a 3-pin adapter cable to send RS-232 commands to control the unit.

6 SERVICE Port: This port is reserved for firmware update use only.

7 CONTROL Port: Connect directly, or through a network switch, to your PC/laptop to control the unit via Telnet/WebGUI.

8 DC 5V Port: Plug the 5V DC power adapter into this port and connect it to an AC wall outlet for power.

![CYP logo]

6.3 RS-232 Pinout and Defaults

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

**3-pin Terminal Block**

1 GND
2 RxD
3 TxD
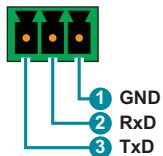
6.4 WebGUI Control

- **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: The unit's default IP address is 192.168.1.50.
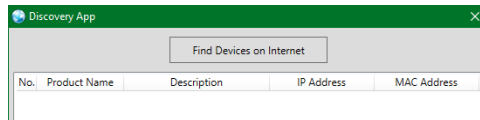
By clicking on one of the listed devices you will be presented with the network details of that particular device.
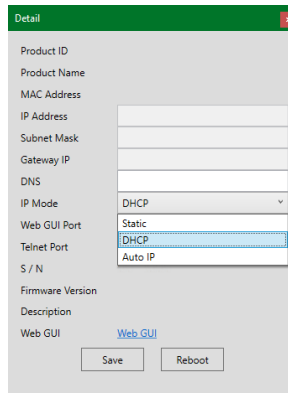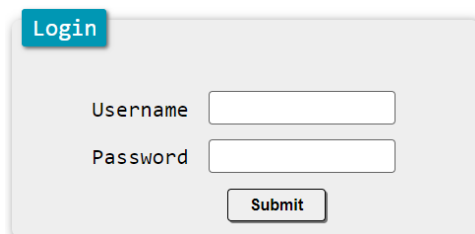
1) **IP Mode:** If you choose, you can alter the static IP network settings for the device, or switch the unit into DHCP mode to automatically obtain proper network settings from a local DHCP server. To switch to DHCP mode, please select DHCP from the IP mode drop-down, then click "Save" followed by "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".

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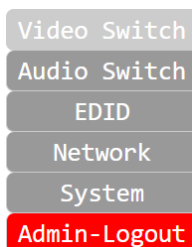
Clicking the red "Logout" tab will automatically log the currently connected user out of the WebGUI and return to login page.
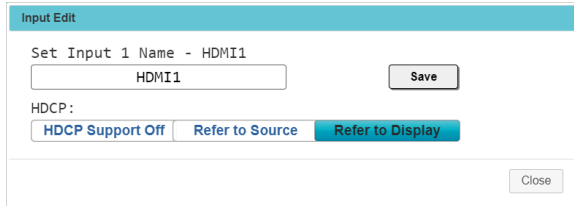
6.4.1 Video Switch Tab

This tab provides video routing control, HDCP management, and I/O renaming options. To assign a new video route, select one or both output buttons on the left and then click on the button of the preferred input source 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.
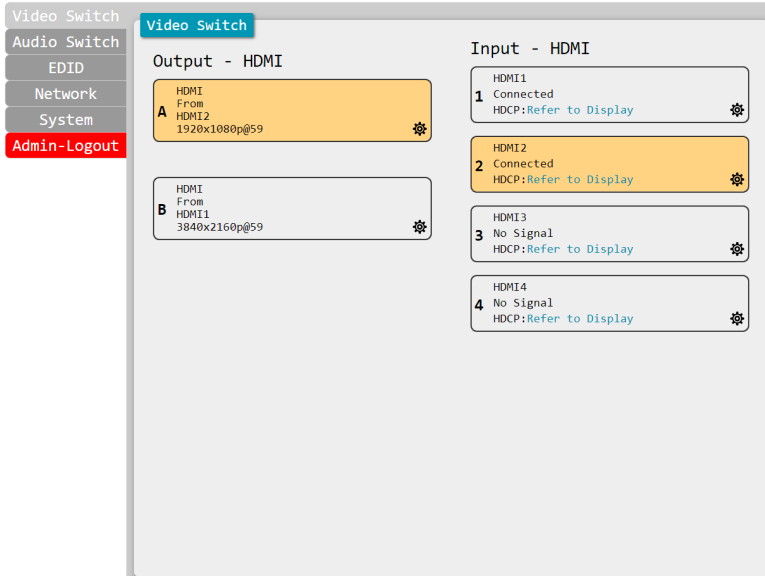

1) **Output:** These buttons display each output's name and details about the currently routed inputs. Clicking on the "Edit" icon (⚙) opens up the Output Edit window.

2) **Input:** Buttons for selecting the input to route to an output. Details about each input's name and current sync/HDCP settings are also displayed here. Clicking on the "Edit" icon (⚙) opens up the Input Edit window.

3) **Output Edit:** Provides control over the name of the output. To rename an output, type the new name in the space provided in the Edit window then click the "Save" button to confirm the change. The name can be up to 32 characters long.

4) Input Edit: Provides individual control over the name of each input as well as the behavior of HDCP on that input.

- ■ **Set Input Name:** To rename an input, type the new name in the space provided in the edit window then click the "Save" button to confirm the change. The name can be up to 32 characters long.
- ■ **HDCP:** Selects the HDCP logic to use with this HDMI 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 displays on the currently routed output(s).

6.4.2 Audio Switch Tab

This tab provides audio routing control, analog audio volume control and muting, I/O renaming options, and basic Dante network audio management. To assign a new audio route configuration, select one or both output buttons on the left and then click on either the "Follow Video" or "Follow Dante" button on the right. Selecting "Follow Video" will result in the output's audio being passed directly from the currently routed video source. Selecting "Follow Dante" will result in the output's audio coming from the currently routed Dante network audio channels. When a button is selected it will become highlighted. The new route configuration will become active immediately and the routing information displayed on the output button will change accordingly.

Note: The unit's analog outputs can only support LPCM sources and will be automatically muted if a source is in a bitstream format.
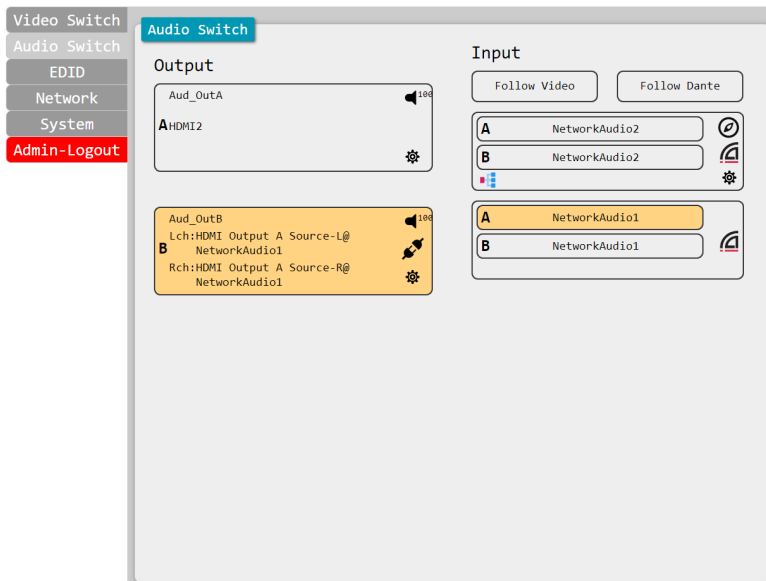
1) **Output:** Buttons for selecting the output to route audio to. This button displays the audio output's name and details about the currently selected audio source. Clicking on the "Edit" icon (⚙) opens up the Audio Output Edit window. Clicking on the "Speaker" icon (◀) will mute or unmute the analog audio output. When not muted, the current analog audio output volume will be displayed next to this icon. Clicking on the "Clear Dante" icon (✐) will remove all associated Dante routes.

Note: The "Clear Dante" icon is only available when "Follow Dante" is the currently selected source.

2) Input: Buttons for selecting the input type ("Follow Video" or "Follow Dante") to assign to each audio output as well as dedicated Dante audio source buttons to be used when "Follow Dante" has been selected for an output.

■ **Follow Video:** Selecting this as the audio input type for an output will cause the output to use the bypass audio from the currently routed video source.

■ **Follow Dante:** Selecting this as the audio input type for an output will cause the output to use that output's currently routed Dante audio channels.

Note: Dante audio channel routing for an output can be changed even when the output has not been set to "Follow Dante". Those changes will not become visible in the WebGUI, or audible from the output, until "Follow Dante" has been selected.

■ **Dante Audio Selection:** Allows the selection of the Dante stereo audio source to use when an output has been set to "Follow Dante". Assigning a Dante stereo audio source when the output is set to "Follow Video" will still assign the audio to that output, but it will not become active until the output has also been set to "Follow Dante". The first Dante device listed is always the unit itself, and cannot be used as a local audio source. Up to 4 additional Dante devices from the local network can be displayed after being discovered. Clicking on the "Edit" icon (⚙) opens up the Audio Input Edit window. The presence of the "Master Clock" icon (▪️) indicates which Dante device is the current master clock device.

Note: Only compatible Dante devices made by the same manufacturer can be detected and used as a routing source within the WebGUI. Other Dante sources must be routed using 3rd party control software, such as Dante Controller from Audinate.

- **Discover Dante Device:** Click the "Discover Dante Device" icon (⊘) to manually force a search of the local network for compatible Dante audio sources.
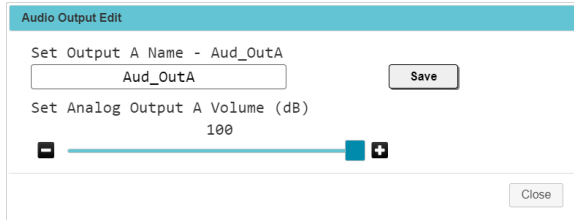
  Note: This must be done at least once before additional Dante devices will be listed in the WebGUI. Only compatible Dante sources from the same manufacturer will be detected. Up to 4 additional Dante sources can be detected.

- **Show Local Dante Information:** Click the Dante Information icon (◩) to show details about the associated Dante device, including

assigned device name, default device name, Rx and Tx channel
names, MAC address, master MAC address, IP address, IP mode,
and IP speed.

3) **Audio Output Edit:** Provides control over the name of the audio output
and volume level of the analog audio 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.

- ■ **Set Analog Output Volume (dB):** Use the slider or +/- buttons to set
the volume level of the analog audio output. The available range is
from 0 to 100.

4) **Audio Input Edit:** Provides control over the local unit's friendly Dante
device name. This is the name that other Dante devices will use when
referencing this unit for routing. To change the unit's Dante device name,
type the new name in the space provided. The name can be up to 31
characters long. Click the "Save" button to confirm the change.

*Note: Dante device names must consist of standard alpha-numeric
characters, and cannot contain space or underscore "_" characters. The
hyphen character "-" can be used, but not at the beginning or end of the
name.*

6.4.3 EDID Tab

This tab provides control over the EDID settings for all inputs. This unit provides the option of six standard EDIDs, two sink sourced EDIDs and four 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.
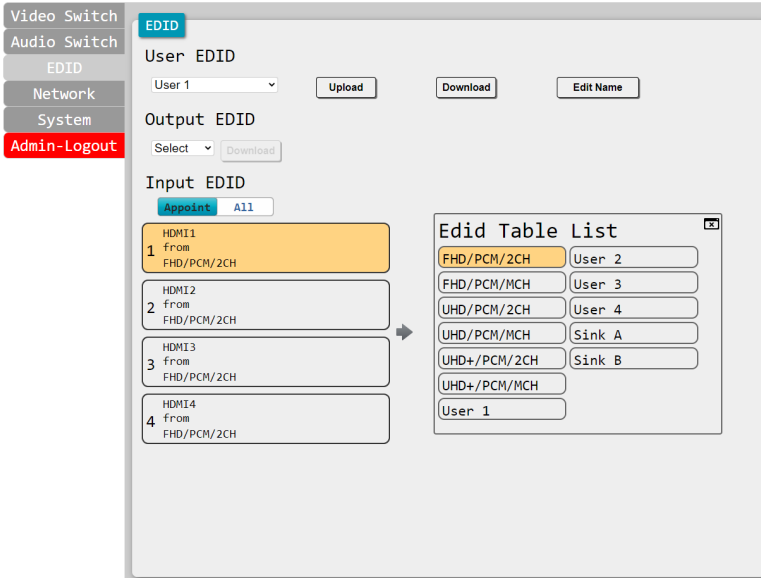
1) **User EDID:**

- **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 a 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 one or more input buttons to open the EDID Table List window. Select the new EDID source to use, from the choices on the right, and the change will occur immediately across all selected Inputs.

This unit provides the following 6 default EDIDs:
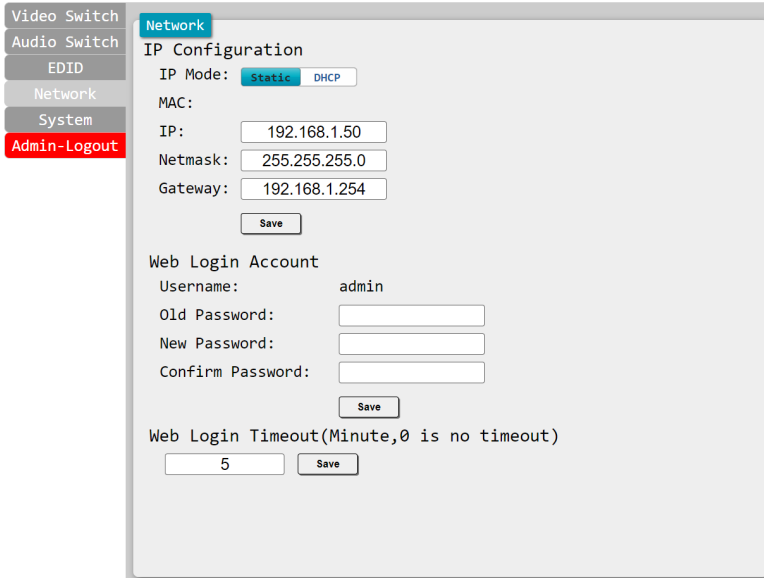
Unit's default EDIDs	
FHD/PCM/2CH	1920×1080p@60Hz (4.95Gbps) & 8-bit color, LPCM 2.0
FHD/PCM/MCH	1920×1080p@60Hz (4.95Gbps) & 8-bit color, LPCM 7.1
UHD/PCM/2CH	3840×2160p@30Hz (10.2Gbps) & Deep Color (8/10/12-bit), LPCM 2.0
UHD/PCM/MCH	3840×2160p@30Hz (10.2Gbps) & Deep Color (8/10/12-bit), LPCM 7.1
UHD+/PCM/2CH	3840×2160p@60Hz (18Gbps) & Deep Color (8/10/12-bit), LPCM 2.0
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.

6.4.4 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.

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. The available range is from 0 to 240 minutes. Setting it to 0 will disable the timeout function.

6.4.5 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.
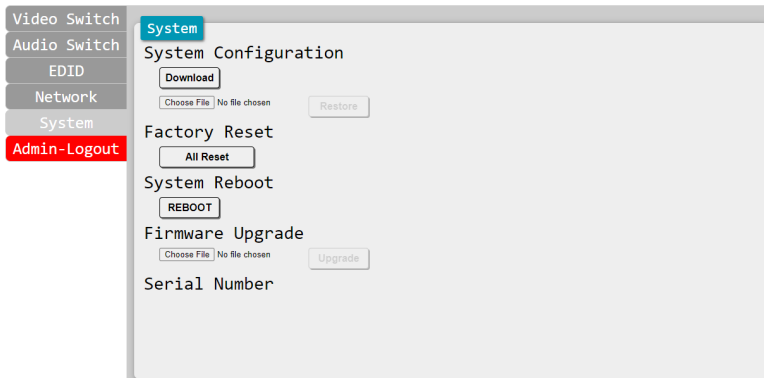
1) **System Configuration:**
   - **Download:** The current system configuration, including routing and settings, may be saved as an XML file to a PC. Click the "Download" button to save the current system configuration to your local PC.
   - **Restore:** Previously saved system configurations may be 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:** Display the unit's serial number.

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

6.6 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 mac addr↵

Show the unit's MAC address.

get model name↵

Show the unit's model name.

get model type↵

Show the unit's product type.

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

set factory default↵

Reset all settings to the factory defaults.

set factory ipconfig default↵

Reset the unit's network settings to the factory defaults

set factory out route default↵

Reset the unit's routing to the factory defaults

get user config↵

List the unit's current configuration information.

set feedback broadcast N1↵

Enable or disable the broadcast of console command feedback.

Available values for **N1**:
ON	[Enable]
OFF	[Disable]

COMMAND
Description and Parameters
get feedback broadcast↵
Show the current console command feedback broadcast state.
set local echo N1↵
Enable or disable the local echo display of typed characters for RS-232 connections.   Available values for **N1**:   ON   [Enable]   OFF   [Disable]
get local echo↵
Show the current local echo display setting.
set system reboot↵
Reboot the unit.
set keylock N1↵
Enable or disable the front panel key lock.   Available values for **N1**:   ON   [Locked]   OFF   [Unlocked]
get keylock↵
Show the current front panel lock state.
set uart 1 reset↵
Reset the unit's RS-232 settings to the factory defaults.
set uart 1 baudrate N1↵
Set the baud rate of the RS-232 port.   Available values for **N1**:   4800   [4800 baud]   9600   [9600 baud]   19200   [19200 baud]   38400   [38400 baud]   57600   [57600 baud]   115200   [115200 baud]

COMMAND
Description and Parameters
get uart 1 baudrate↵
Show the current baud rate of the RS-232 port.
set uart 1 stop bit N1↵
Set the number of stop bits for the RS-232 port.
Available values for **N1**: 1   [1 Stop Bit] 2   [2 Stop Bits]
get uart 1 stop bit↵
Show the current number of stop bits of the RS-232 port.
set uart 1 data bit N1↵
Set the data bits for the RS-232 port.
Available values for **N1**: 5   [5 data bits] 6   [6 data bits] 7   [7 data bits] 8   [8 data bits]
get uart 1 data bit↵
Show the current number of data bits of the RS-232 port.
set uart 1 parity N1↵
Set the parity of the RS-232 port.
Available values for **N1**: 0   [None] 1   [Odd] 2   [Even]
get uart 1 parity↵
Show the current parity setting of the RS-232 port.
set ip mode N1↵
Set the unit's IP address assignment mode.
Available values for **N1**: STATIC   [Static IP mode] DHCP   [DHCP mode]

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COMMAND
Description and Parameters
get ip mode↵
Show the current IP address assignment mode.
get ipconfig↵
Show the unit's current IP configuration information
get ip addr↵
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.
set static netmask N1↵
Set the unit's static netmask.
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 gateway address.
N1 = X.X.X.X   [X = 0~255, Gateway address]
get static gateway↵
Show the unit's current static gateway address.

COMMAND
Description and Parameters
get webgui username↵
Show the WebGUI login username.
Note: Only available via RS-232.
set webgui password N1↵
Set the WebGUI administrator password.
N1 = {Password}　　　　[ASCII, 32 characters max]
Note: Only available via RS-232.
get webgui password↵
Show the current WebGUI administrator password.
Note: Only available via RS-232.
set telnet username N1↵
Set the Telnet login username.
N1 = {Name}　　　　[ASCII, 32 characters max]
Note: Only available via RS-232.
get telnet username↵
Show the current Telnet login username.
Note: Only available via RS-232.
set telnet password N1↵
Set the Telnet login password.
N1 = {Password}　　　　[ASCII, 32 characters max]
Note: Only available via RS-232.
get telnet password↵
Show the current Telnet login password.
Note: Only available via RS-232.

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COMMAND
Description and Parameters

set telnet login N1↵

Enable or disable requiring a login for Telnet connections.

Available values for **N1**:
ON   [Login is required]
OFF   [Login is not required]

Note: Only available via RS-232.

get telnet login↵

Show the current state of the Telnet login requirement.

Note: Only available via RS-232.

set webgui login timeout N1↵

Set the WebGUI inactivity timeout value.

Available values for **N1**:
0   [No timeout]
1~240   [Timeout in minutes]

get webgui login timeout↵

Show the current WebGUI inactivity timeout value.

set in N1 name N2↵

Set the name of the specified input.

Available values for **N1**:
1   [HDMI input 1]
2   [HDMI input 2]
3   [HDMI input 3]
4   [HDMI input 4]

N2 = {Name}   [ASCII, 32 characters max]

get in N1 name↵

Show the current name of the specified input.

Available values for **N1**:
1   [HDMI input 1]
2   [HDMI input 2]
3   [HDMI input 3]
4   [HDMI input 4]

COMMAND

Description and Parameters

set out N1 name N2↵

Set the name of the specified output.

Available values for **N1**:
A	[HDMI output A]
B	[HDMI output B]

N2 = {Name}   [ASCII, 32 characters max]

get out N1 name↵

Show the name of the specified output.

Available values for **N1**:
A	[HDMI output A]
B	[HDMI output B]

set out N1 route N2↵

Route the specified input to the specified output.

Available values for **N1**:
A	[HDMI output A]
B	[HDMI output B]

Available values for **N2**:
1	[HDMI input 1]
2	[HDMI input 2]
3	[HDMI input 3]
4	[HDMI input 4]

get out N1 route↵

Show the current input routed to the specified output.

Available values for **N1**:
A	[HDMI output A]
B	[HDMI output B]

COMMAND

Description and Parameters

get in N1 hactive↵

Show the horizontal active pixel value of the specified input's current video source.

Available values for **N1**:
1	[HDMI input 1]
2	[HDMI input 2]
3	[HDMI input 3]
4	[HDMI input 4]

get in N1 vactive↵

Show the vertical active pixel value of the specified input's current video source.

Available values for **N1**:
1	[HDMI input 1]
2	[HDMI input 2]
3	[HDMI input 3]
4	[HDMI input 4]

get in N1 refresh rate↵

Show the refresh rate of the specified input's current video source.

Available values for **N1**:
1	[HDMI input 1]
2	[HDMI input 2]
3	[HDMI input 3]
4	[HDMI input 4]

get in N1 interlace↵

Show the interlace state of the specified input's current video source.

Available values for **N1**:
1	[HDMI input 1]
2	[HDMI input 2]
3	[HDMI input 3]
4	[HDMI input 4]

Possible response values:
0	[Progressive]
1	[Interlaced]

COMMAND
Description and Parameters

get in N1 sync status↵

Show the current sync state of the specified input.

Available values for **N1**:
1	[HDMI input 1]
2	[HDMI input 2]
3	[HDMI input 3]
4	[HDMI input 4]

Possible response values:
0	[No sync]
1	[Sync active]

---

get out N1 sync status↵

Show the current sync state of the specified output.

Available values for **N1**:
A	[HDMI output A]
B	[HDMI output B]

Possible response values:
0	[No sync]
1	[Sync active]

---

set in N1 hdcp mode N2↵

Set the HDCP behavior of the specified input.

Available values for **N1**:
1	[HDMI input 1]
2	[HDMI input 2]
3	[HDMI input 3]
4	[HDMI input 4]

Available values for **N2**:
0	[HDCP support off]
1	[Refer to source]
2	[Refer to display]

CYP

COMMAND
Description and Parameters

get in N1 hdcp mode ↵

Show the current HDCP behavior used by the specified input.

Available values for **N1**:
1	[HDMI input 1]
2	[HDMI input 2]
3	[HDMI input 3]
4	[HDMI input 4]

get in N1 hdcp status ↵

Show the current HDCP status of the specified input.

Available values for **N1**:
1	[HDMI input 1]
2	[HDMI input 2]
3	[HDMI input 3]
4	[HDMI input 4]

Possible response values:
0	[No HDCP]
1	[HDCP 1.x]
2	[HDCP 2.2]

get out N1 hdcp status ↵

Show the current HDCP status of the specified output.

Available values for **N1**:
A	[HDMI output A]
B	[HDMI output B]

Possible response values:
0	[No HDCP]
1	[HDCP 1.x]
2	[HDCP 2.2]
3	[HDCP 1.x failed]
4	[HDCP 2.x failed]

COMMAND
Description and Parameters

set in N1 edid N2↵

Set the EDID to use on the specified input.

Available values for **N1**:
1	[HDMI Input 1]
2	[HDMI input 2]
3	[HDMI Input 3]
4	[HDMI Input 4]

Available values for **N2**:
1	[FHD 2CH]
2	[FHD MCH]
3	[UHD 2CH]
4	[UHD MCH]
5	[UHD+ 2CH]
6	[UHD+ MCH]
7	[User EDID 1]
8	[User EDID 2]
9	[User EDID 3]
10	[User EDID 4]
11	[Sink A EDID]
12	[Sink B EDID]

get in N1 edid↵

Show the EDID currently being used on the specified input.

Available values for **N1**:
1	[HDMI Input 1]
2	[HDMI input 2]
3	[HDMI Input 3]
4	[HDMI Input 4]

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**: 7   [User EDID 1] 8   [User EDID 2] 9   [User EDID 3] 10   [User EDID 4] **N2** = {Name}   [ASCII, 32 characters max]
get edid N1 name↵ Show the current name for the specified EDID. Available values for **N1**: 1   [FHD 2CH] 2   [FHD MCH] 3   [UHD 2CH] 4   [UHD MCH] 5   [UHD+ 2CH] 6   [UHD+ MCH] 7   [User EDID 1] 8   [User EDID 2] 9   [User EDID 3] 10   [User EDID 4] 11   [Sink A EDID] 12   [Sink B EDID]
set user N1 edid data N2↵ Upload a new EDID (in hex format) for use as the specified User EDID. Available values for **N1**: 1   [User EDID 1] 2   [User EDID 2] 3   [User EDID 3] 4   [User EDID 4] **N2** = {EDID data}   [Comma delimited hex pairs]

COMMAND
Description and Parameters

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]
4	[User EDID 4]

get sink N1 edid data↵

Show the EDID from the display connected to the specified output as hex data.

Available values for **N1**:
A	[HDMI output A]
B	[HDMI output B]

get in N1 edid data↵

Show the EDID currently used by the specified input as hex data.

Available values for **N1**:
1	[HDMI Input 1]
2	[HDMI input 2]
3	[HDMI Input 3]
4	[HDMI Input 4]

get all in edid list↵

List the EDIDs assigned to all inputs.

get internal N1 edid data↵

Show the specified internal EDID as hex data.

Available values for **N1**:
1	[FHD 2CH]
2	[FHD MCH]
3	[UHD 2CH]
4	[UHD MCH]
5	[UHD+ 2CH]
6	[UHD+ MCH]

COMMAND
Description and Parameters
set all in edid mode N1↵
Select the EDID management mode to use (All or Appoint) for all inputs.
Available values for **N1**: ON   [All] OFF   [Appoint]
get all in edid mode↵
Show the current EDID management mode used by all inputs.
set all in edid N1↵
Set the EDID to use when the "All" EDID mode is active.
Available values for **N1**: 1   [FHD 2CH] 2   [FHD MCH] 3   [UHD 2CH] 4   [UHD MCH] 5   [UHD+ 2CH] 6   [UHD+ MCH] 7   [User EDID 1] 8   [User EDID 2] 9   [User EDID 3] 10   [User EDID 4] 11   [Sink A EDID] 12   [Sink B EDID]
get all in edid↵
Show the current EDID used by the "All" EDID mode.
set audio out N1 mute N2↵
Enable or disable muting the specified audio output.
Available values for **N1**: A   [Analog audio output A] B   [Analog audio output B] Available values for **N2**: ON   [Mute] OFF   [Unmute]

COMMAND
Description and Parameters

get audio out N1 mute↵

Show the current mute state of the specified output.

Available values for **N1**:
A	[Analog audio output A]
B	[Analog audio output B]

set audio out all mute N1↵

Enable or disable muting on all analog audio outputs.

Available values for **N1**:
ON	[Mute]
OFF	[Unmute]

set audio out N1 route 1↵

Set the audio routing for the specified output to "Follow Video" mode.

Available values for **N1**:
A	[HDMI/analog audio output A]
B	[HDMI/analog audio output B]

set audio out N1 route 2 N2 N3↵

Route the specified Dante audio source to the specified audio output.

Available values for **N1**:
A	[HDMI/analog audio output A]
B	[HDMI/analog audio output B]

Available values for **N2**:
A	[Dante source, Channel pair A]
B	[Dante source, Channel pair B]

N3 = {Dante Name}	[Dante source's network name]

get audio out N1 route↵

Show the current audio routing for the specified audio output.

Available values for **N1**:
A	[HDMI/analog audio output A]
B	[HDMI/analog audio output B]

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COMMAND
Description and Parameters

set audio out N1 volume N2⏎

Set the volume level of the specified output's audio.

Available values for **N1**:
A	[Analog audio output A]
B	[Analog audio output B]

N2 = 0~100   [Audio volume level in dB]

---

get audio out N1 volume⏎

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

Available values for **N1**:
A	[Analog audio output A]
B	[Analog audio output B]

---

set audio out N1 volume up⏎

Increase the volume level of the specified output's audio by 1 unit.

Available values for **N1**:
A	[Analog audio output A]
B	[Analog audio output B]

---

set audio out N1 volume down⏎

Decrease the volume level of the specified output's audio by 1 unit.

Available values for **N1**:
A	[Analog audio output A]
B	[Analog audio output B]

---

set audio out N1 name N2⏎

Set the name for the specified output's audio.

Available values for **N1**:
A	[Audio output A]
B	[Audio output B]

N2 = {Name}   [ASCII, 32 characters max]

COMMAND
Description and Parameters

get audio out N1 name↵

Show the current name for the specified output's audio.

Available values for **N1**:
A   [Audio output A]
B   [Audio output B]

---

set dante friendly name N1↵

Set this unit's Dante device friendly network name.

N1 = {Dante Name}   [ASCII, 31 characters max]

Note: Dante device names must consist of standard alpha-numeric characters, and cannot contain space or underscore "_" characters. The hyphen character "-" can be used, but not at the beginning or end of the name.

---

get dante friendly name↵

Show this unit's current Dante device friendly network name.

---

set dante rx N1 channel name N2↵

Set the name of the specified Dante audio Rx channel.

N1 = 1~4   [Dante Rx channel number]

N2 = {Channel Name}   [ASCII, 31 characters max]

---

get dante rx N1 channel name↵

Show the current name of the specified Dante audio Rx channel.

N1 = 1~4   [Dante Rx channel number]

---

set dante tx N1 channel name N2↵

Set the name of the specified Dante audio Tx channel.

N1 = 1~4   [Dante Tx channel number]

N2 = {Channel Name}   [ASCII, 31 characters max]

---

get dante tx N1 channel name↵

Show the current name of the specified Dante audio Tx channel.

N1 = 1~4   [Dante Tx channel number]

COMMAND
Description and Parameters

set dante rx N1 route N2@N3↵

Route the specified remote Dante audio channel at the specified Dante device to the specified local Dante Rx channel.

N1 = 1~4   [Local Dante Rx channel number]

N2 = {Channel Name}   [Remote Dante channel name]

N3 = {Dante Name}   [Remote Dante device friendly name]

---

get dante rx N1 route↵

Show the remote Dante device's channel that is currently routed to the specified local Dante Rx channel.

N1 = 1~4   [Local Dante Rx channel number]

---

set dante rx stereo N1 route N2@N3↵

Route the specified remote Dante channel pair at the specified Dante device to the specified local Dante Rx channel pair.

Available values for **N1**:
A   [Local Dante Rx channel pair 1+2]
B   [Local Dante Rx channel pair 3+4]

Available values for **N2**:
A   [Remote Dante channel pair 1+2]
B   [Remote Dante channel pair 3+4]

N3 = {Dante Name}   [Remote Dante device friendly name]

Note: Only valid with compatible Dante sources from the same manufacturer.

---

get dante rx stereo N1 route↵

Show the remote Dante device's channel that is currently routed to the specified local Dante Rx channel.

Available values for **N1**:
A   [Local Dante Rx channel pair 1+2]
B   [Local Dante Rx channel pair 3+4]

COMMAND

Description and Parameters

set dante discover↵

Trigger the discovery of all available Dante devices on the local network.

Note: Only compatible Dante sources from the same manufacturer will be detected. Up to 4 additional Dante sources can be detected.

get dante N1 config↵

Show the current Dante audio configuration of the specified Dante device.

Available values for **N1**:
1	[Local Dante device]
2~5	[Remote detected Dante devices (up to 4)]

Note: Only compatible Dante sources from the same manufacturer will display results. Dante discovery must have been executed via WebGUI or console command before using this command.

set dante ip mode N1↵

Set the unit's IP address assignment mode for the Dante network port.

Available values for **N1**:
STATIC	[Static IP mode]
DHCP	[DHCP mode]

get dante ip mode↵

Show the current IP address assignment mode used by the Dante network port.

get dante ipconfig↵

Show the current IP configuration information for the Dante network port.

get dante ipaddr↵

Show the Dante network port's current IP address.

get dante netmask↵

Show the Dante network port's current netmask.

get dante gateway↵

Show the Dante network port's current gateway address.

COMMAND
Description and Parameters
set dante static ipaddr N1↵
Set the static IP address for the unit's Dante network port.
N1 = X.X.X.X   [X = 0~255, IP address]
get dante static ipaddr↵
Show the current static IP address of the unit's Dante network port.
set dante static netmask N1↵
Set the static netmask for the unit's Dante network port.
N1 = X.X.X.X   [X = 0~255, Netmask]
get dante static netmask↵
Show the current static netmask of the unit's Dante network port.
set dante static gateway N1↵
Set the static gateway address for the unit's Dante network port.
N1 = X.X.X.X   [X = 0~255, Gateway address]
get dante static gateway↵
Show the current static gateway address of the unit's Dante network port.
set dante factory default N1↵
Reset some or all of the unit's Dante settings to the factory defaults.
Available values for **N1**: ALL   [Reset all Dante settings] KEEP IP   [Reset all Dante settings except networking]

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

7. CONNECTION DIAGRAM

Powered Speakers

Media Player

HDMI Input

Game Console

Powered Speakers

Power Supply

HDMI Input

DVD/Blu-ray Player

DVD/Blu-ray Player

LAN Connection

Internet Connected Router

HDMI Output

RS-232 Control System

TV

TV

CYP
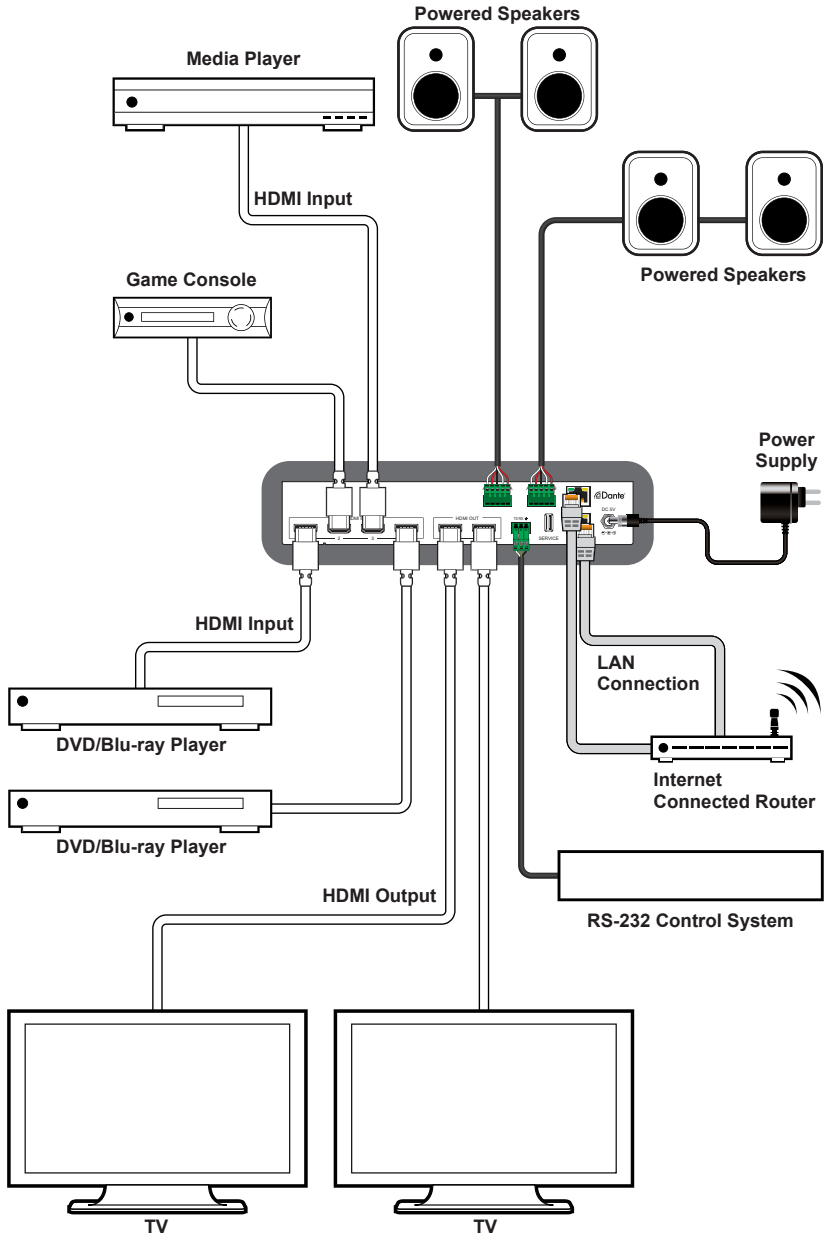
8. SPECIFICATIONS

8.1 Technical Specifications

HDMI Bandwidth	18Gbps
Dante Bandwidth	100Mbps
Input Ports	4×HDMI (Type-A)
Output Ports	2×HDMI (Type-A)
	2×Stereo Audio (5-pin Terminal Block)
Bi-directional Port	1×Dante (RJ-45)
Control Ports	1×RS-232 (3-pin Terminal Block)
	1×IP Control (RJ-45)
Service Port	1×USB 2.0 (Type-A)
Baud Rate	19200
Power Supply	5V/2.6A DC
	(US/EU standards, CE/FCC/UL certified)
ESD Protection (HBM)	±8kV (Air Discharge)
	±4kV (Contact Discharge)
Dimensions (W×H×D)	240mm×43mm×104mm [Case Only]
	240mm×48mm×112mm [All Inclusive]
Weight	807g
Chassis Material	Metal (Steel)
Chassis Color	Black
Operating Temperature	0˚C – 40˚C/32˚F – 104˚F
Storage Temperature	-20˚C – 60˚C/-4˚F – 140˚F
Relative Humidity	20 – 90% RH (Non-condensing)
Power Consumption	11.68W

8.2 Video Specifications

Supported Resolutions (Hz)	Input HDMI	Output 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 HDMI	Output 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

Dante Input	
LPCM	
Max Channels	4 Channels
Sampling Rate (kHz)	48
Bitstream	
Supported Formats	None
Dante Output	
LPCM	
Max Channels	4 Channels
Sampling Rate (kHz)	48
Bitstream	
Supported Formats	None

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8.3.2 Analog Audio

Analog Output	
Max Audio Level	4.2Vrms
THD+N	< −80dB@0dBFS 1kHz (A-wt)
SNR	> 110dB@0dBFS
Frequency Response	< ±1dB@20Hz~20kHz
Crosstalk	< −88dB@10kHz
Impedance	499Ω
Type	Balanced

8.4 Cable Specifications

Cable Length	1080p		4K30	4K60
			(4:4:4)	(4:4:4)
	8-bit	12-bit	8-bit	8-bit
High Speed HDMI Cable				
HDMI Input	15m	10m	5m	3m
HDMI Output	15m	10m	5m	3m
Ethernet Cable (Dante Audio Only)				
Cat.5e/6	100m			
Cat.6A/7	100m			

Bandwidth Category Examples:

- **1080p (FHD Video)**
  - Up to 1080p@60Hz, 12-bit color
  - Data rates lower than 5.3Gbps or below 225MHz TMDS clock
- **4K30 (4K UHD Video)**
  - 4K@24/25/30Hz & 4K@50/60Hz (4:2:0), 8-bit color
  - Data rates higher than 5.3Gbps or above 225MHz TMDS clock but below 10.2Gbps
- **4K60 (4K UHD[+] Video)**
  - 4K@50/60Hz (4:4:4, 8-bit)
  - 4K@50/60Hz (4:2:0, 10-bit HDR)
  - Data rates higher than 10.2Gbps

9. ACRONYMS

ACRONYM	COMPLETE TERM
ASCII	American Standard Code for Information Interchange
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
DAC	Digital-to-Analog Converter
dB	Decibel
DHCP	Dynamic Host Configuration Protocol
DVI	Digital Visual Interface
EDID	Extended Display Identification Data
GbE	Gigabit Ethernet
Gbps	Gigabits per second
GUI	Graphical User Interface
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
HDR	High Dynamic Range
IP	Internet Protocol
kHz	Kilohertz
LAN	Local Area Network
LED	Light-Emitting Diode
LPCM	Linear Pulse-Code Modulation
MHz	Megahertz
SNR	Signal-to-Noise Ratio
TCP	Transmission Control Protocol
THD+N	Total Harmonic Distortion plus Noise
TMDS	Transition-Minimized Differential Signaling
4K UHD	4K Ultra-High-Definition (10.2Gbps max)

ACRONYM	COMPLETE TERM
4K UHD⁺	4K Ultra-High-Definition (18Gbps max)
USB	Universal Serial Bus
VGA	Video Graphics Array
WUXGA (RB)	Widescreen Ultra Extended Graphics Array (Reduced Blanking)
XGA	Extended Graphics Array
Ω	Ohm