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# HT-EUROPA4-2

4x2 Matrix Switcher

## USER MANUAL

August 7, 2023



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# Introduction

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## OVERVIEW

The HT-EUROPA4-2 is a simple HDMI matrix switcher with four HDMI inputs and two HDMI outputs. It allows up to four Ultra HD/4K sources to be independently routed to two Ultra HD/4K displays. It supports digital optical audio de-embedding from two outputs and analog audio de-embedding from Output 1. The matrix also supports ARC function on Output 2, and the digital audio output can select ARC audio through switching the DIP slider. Each output port supports scaling from 4K to 1080P independently.

The HT-EUROPA4-2 supports IR, web UI and API commands control, EDID management via RS-232 interface, and also supports automatic/manual CEC control to turn on/off the connected display by input signal status detection.

## FEATURES

- Routes four HDMI sources to two 4K HDR Ultra HD displays
- HDCP 2.2 compliant
- Supports up to 4K@60Hz, 4:4:4 8bit
- Each output supports scaling from 4K to 1080P independently
- Analog and digital audio de-embedded from Output 1, with or without a display connected
- HDMI Output 2 supports digital audio de-embedded or ARC
- Supports 12-bit Deep Color, 3D, Lip Sync and loss-less HD audio formats pass-through
- Rich control options include RS-232, IR, LAN and push button controls

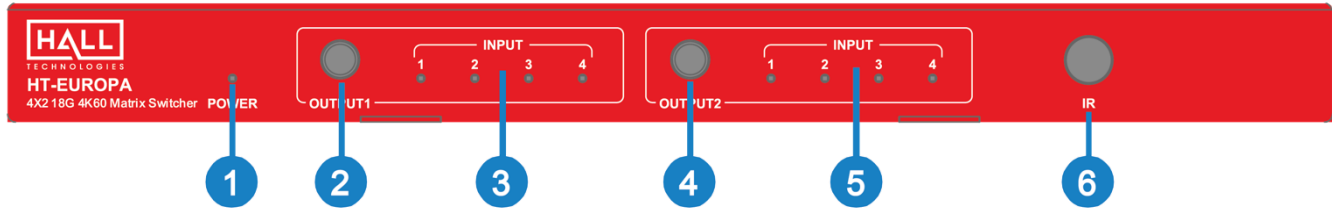
## Package Contents

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- 1 x HT-EUROPA4-2 matrix switch
- 1 x DC 5V Power Adapter w/ US, UK, EU, and AU pins
- 1 x IR Remote Controller
- 1 x Mounting Brackets

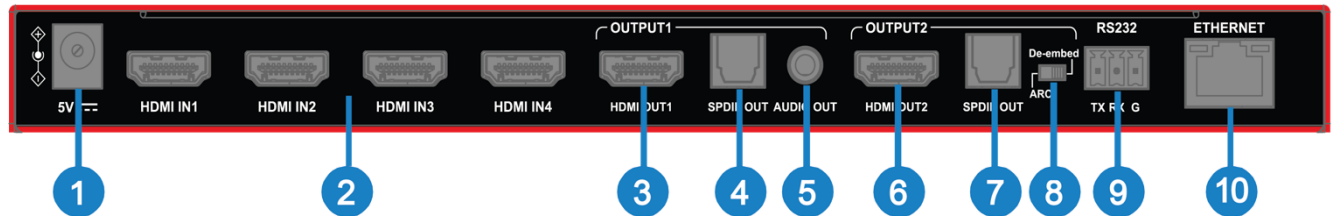
# Panel Description

## FRONT PANEL



ID	Name	Description
1	Power LED	<ul style="list-style-type: none"> <li><b>ON:</b> The device is powered on</li> <li><b>OFF:</b> The device is powered off</li> </ul>
2 & 4	Output Select Button	Click to select input source for Output 1 and Output 2
3 & 5	Input LED	<ul style="list-style-type: none"> <li><b>ON:</b> HDMI In (1-4) is selected</li> <li><b>OFF:</b> HDMI In (1-4) is not selected</li> </ul>
6	IR Window	Receives IR signals

## REAR PANEL



ID	Name	Description
1	DC 5V	Connect to the DC 5v power adapter provided
2	HDMI IN 1-4	Connect to HDMI sources
3 & 6	HDMI OUT (1-2)	Connect to HDMI displays
4	S/PDIF OUT	Connect to an audio device for digital de-embedded audio output from HDMI OUT 1
5	AUDIO OUT	Connect to an audio device for analog de-embedded audio from HDMI OUT 1
7	S/PDIF/ARC	Connect to audio devices such as AV system for digital de-embedded audio output from HDMI OUT 2 or ARC audio output from the TV connected to HDMI OUT 2
8	DIP Switch	De-embed: SPDIF OUT outputs de-embedding from HDMI OUT 2 ARC: SPDIF OUT outputs the ARC audio from the TV connected to HDMI OUT 2
9	RS-232	Connect to a control PC or control system for RS-232 serial control
10	ETHERNET	Connect to an ethernet device for LAN control

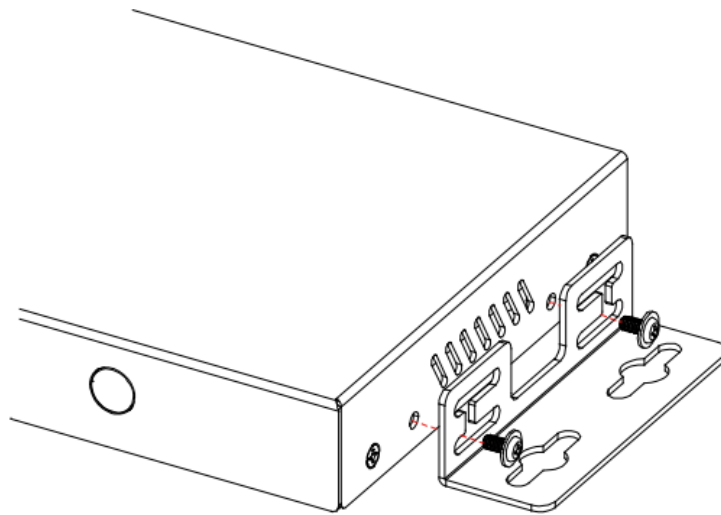
# Installation

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## INSTALLATION

**Note:** Before installation, please ensure the device is disconnected from the power source.

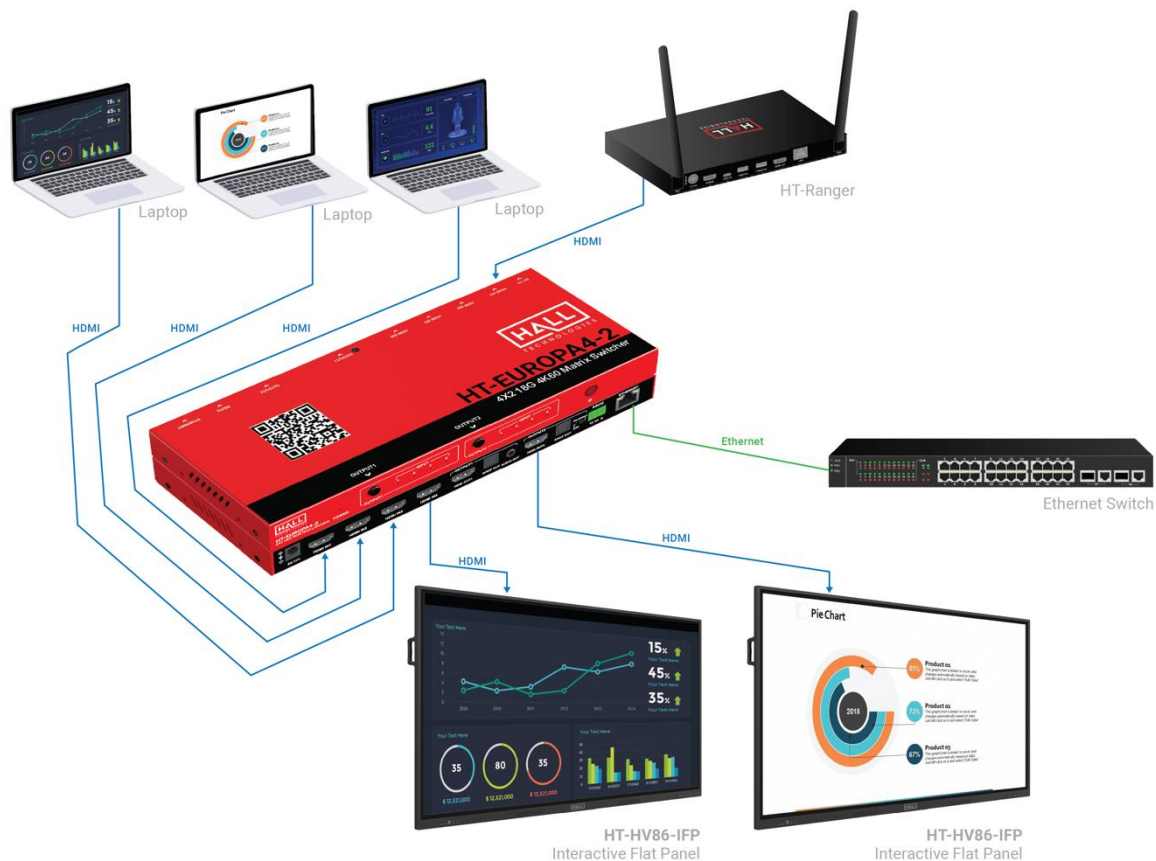
1. Attach the installation bracket to the enclosure using the screws provided.
2. Attach the brackets to the desired mounting surface using hardware provided by others.



# Application Wiring

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1. Connect the HDMI sources (such as PC, Blu-ray player, Apple TV, 4K media player, etc.) to the HDMI IN 1-4 ports.
2. Connect the HDMI display (such as a TV, monitor, projector, etc.) to the HDMI OUT 1-2 ports.
3. If not using a display with built-in speakers, connect an amplifier or powered speakers to the SPDIF OUT or AUDIO OUT.
  - a. For HDMI OUT 2 there are two options:
    - i. SPDIF OUT – set dipswitch to De-embed mode for digital audio out
    - ii. ARC audio – set dipswitch to ARC to output the ARC audio from the TV connected to HDMI OUT 2
4. Additional control options:
  - a. RS-232 control: connect a control PC or a control system to the RS-232 port
  - b. IR control: the included IR remote is for controlling the matrix
  - c. Ethernet control: connect the RJ-45 port to a local area network
5. Connect the DC 5V power supply provided
6. Power on all attached devices

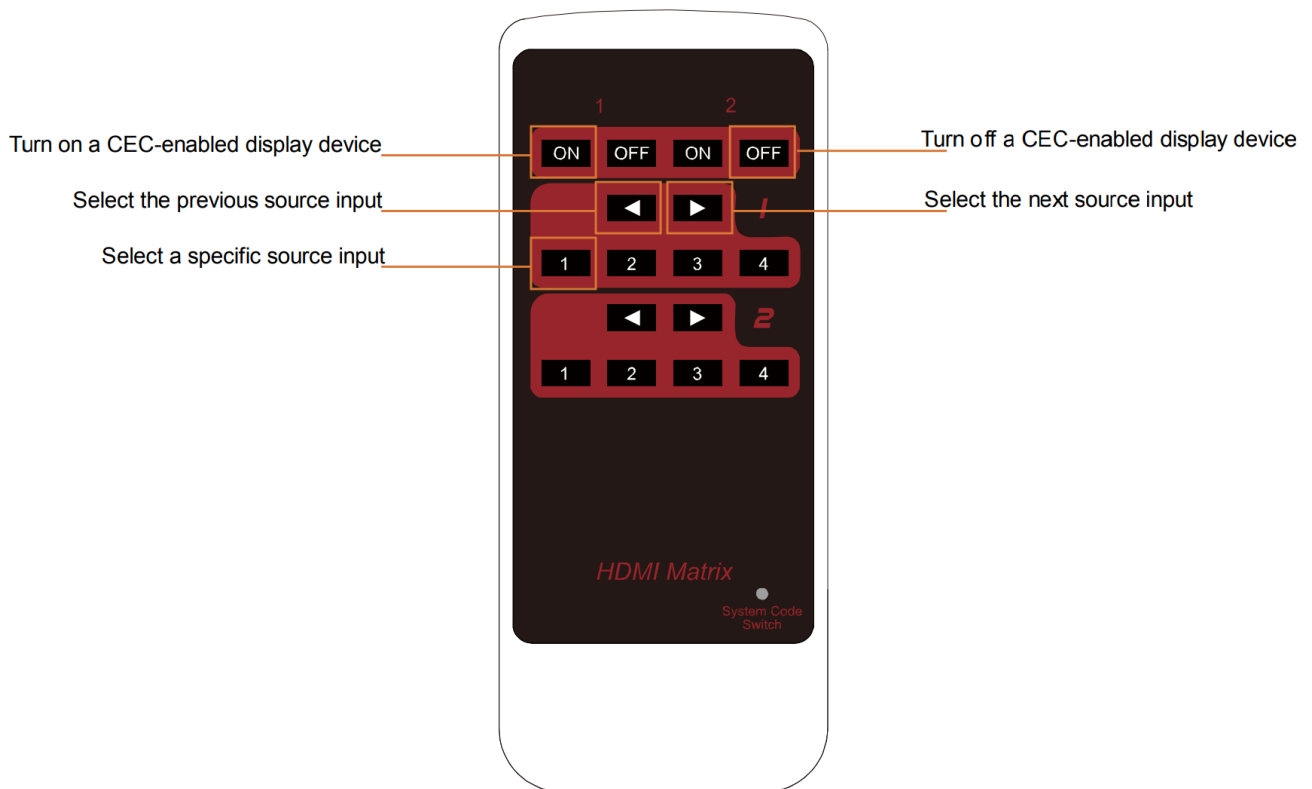


# Control – Remote Control

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## REMOTE CONTROLLER

The included remote controller can be used to turn on and off CEC-enabled displays as well as select between the desired inputs.



NOTE: The internal battery is packaged with an insulation slice – please remove before use.

## SYSTEM CODE SWITCH

The IR remote provided is shipped in “00” IR system code. In the event that the remote’s IR signal interferes with other IR devices, the remote can be switched to “4E” code by short pressing the System Code Switch on the bottom corner of the remote. In this case you will also need to redefine the IR system code in the matrix using the API command. *(See the API Commands document.)*

## Control – RS-232

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Advanced users may need to control the matrix through RS-232 serial communication. Connect a control PC or control system to the RS-232 port of the matrix. (See “HT-EUROPA4-2\_API Commands” document for a complete list of available API commands.)

Before executing the API commands through RS-232 serial connection, please ensure the RS-232 interface of the device and the control PC are configured correctly.

### RS-232 DEFAULT SETTING

Parameters	Value
Baud Rate	115200 bps
Data Bits	8 bits
Parity	None
Stop Bits	1 bit
Flow Control	None



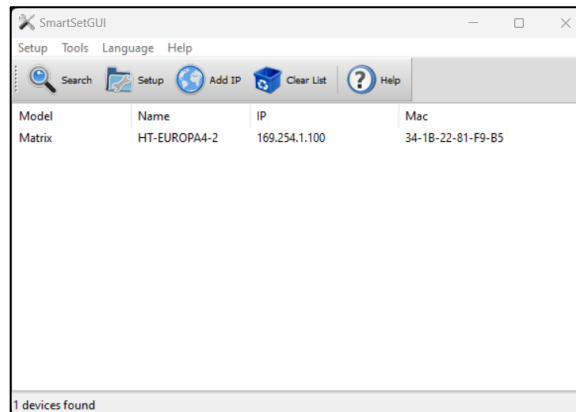
# Web UI

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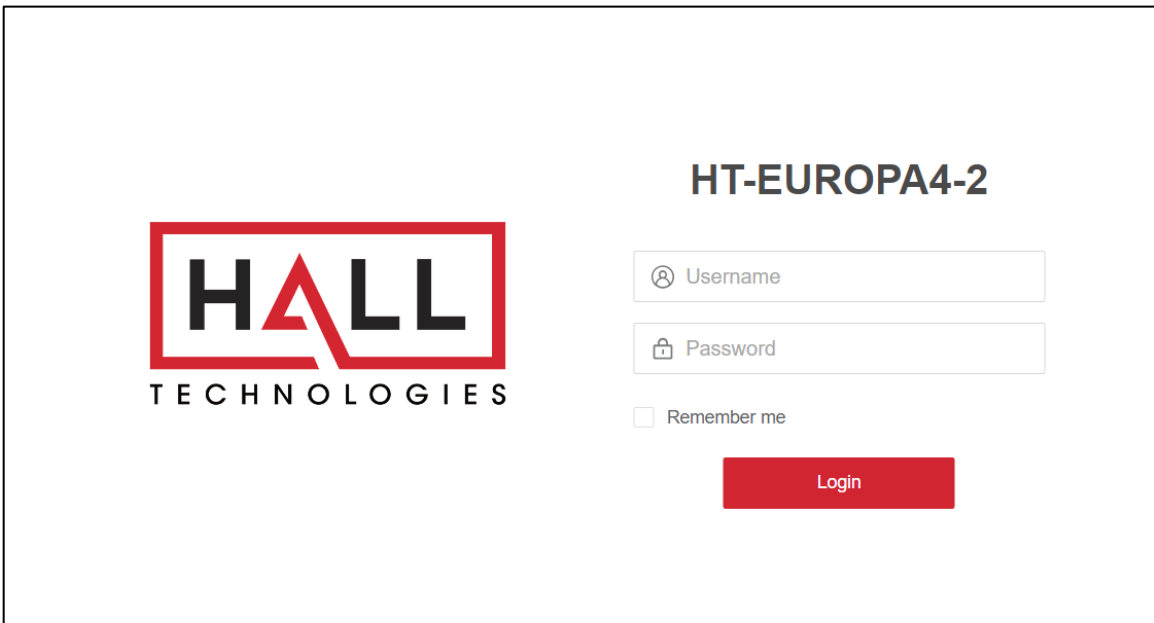
The Web UI designed for the HT-EUROPA4-2 allows for basic controls and device settings. This Web UI can be accessed through a modern browser, e.g., Chrome, Safari, Firefox, IE10+, etc.

## **To get access the Web UI:**

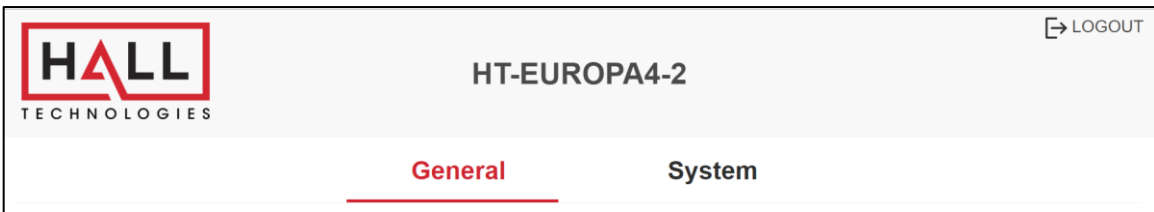
1. Connect the LAN port of the switcher to a local area network. Ensure there's a DHCP server in the network so that the device can obtain a valid IP address. If there is no DHCP server the following two methods can be used to locate the IP address:
  - a. Connect the RS-232 port of the matrix and send the API command "GET IPPADR<CR><LF>". (See "HT-EUROPA4-2\_API Commands" document for a complete list of available API commands)
  - b. Use the third-part tool "SmartSetGUI" to search the IP address. Double click the icon tool to launch the application and click "Search" to get the IP address. (To find the device make sure your PC's network settings are also set to Auto or DHCP mode.)



2. Connect the PC to the same network as the matrix switcher.
3. Input the matrix switcher's IP address in the browser and press Enter, the following window pops up.



4. Input the password (default password: **admin**) and click **Login** to enter the main page



The Web UI main page includes two main tabs: General and System.

- **General** (1<sup>st</sup> page) – provides video switching controls, audio mutes, CEC, and EDID setting changes
- **System** – provides IP settings, changing login password, and doing firmware updates

# General Page

## VIDEO SWITCHING

Video Switch				
	HDMI IN1	HDMI IN2	HDMI IN3	HDMI IN4
HDMI OUT1				
HDMI OUT2				

UI Element	Description
Video Switch	Click on the desired cross point to select the HDMI input and HDMI output. Default setting is HDMI OUT 1 and HDMI OUT 2 both selected HDMI IN 1 as the input source.

## AUDIO MUTE

**Audio Mute**

Output 1: HDMI Output

Audio De-embed

Output 2: HDMI Output

Audio De-embed

UI Element	Description
HDMI Output	Clicking this mutes the audio out of the HDMI output
Audio De-embed	Clicking this mutes the de-embedded audio out of the line out (output 1 only) and SPDIF out

## CEC

CEC				
	Manual		Auto	Delay (1-30min)
HDMI OUT1	Display ON	Display OFF	<input checked="" type="checkbox"/>	2 <input type="text"/>
HDMI OUT2	Display ON	Display OFF	<input checked="" type="checkbox"/>	2 <input type="text"/>

UI Element	Description
<b>Manual</b>	When Auto CEC is set to OFF, clicking the manual control buttons will power on/off the display manually.
<b>Auto</b>	Click to enable or disable CEC Auto Control. With Auto enabled, CEC commands will automatically be sent to the connected display to turn the display on/off. Default setting is Auto CEC ON.
<b>Delay (1~30min)</b>	Click to select the desired delay time to power off the display automatically when no signal is present. (CEC Auto must be set to ON).

## EDID

**EDID**

Input 1:

Input 2:

Input 3:

Input 4:

**Restore Defaults**

Copy EDID from HDMI out1

Copy EDID from HDMI out2

4K@60Hz 4:4:4 2.0ch with HDR

4K@60Hz 4:4:4 5.1ch with HDR

4K@60Hz 4:4:4 7.1ch with HDR

4K@30Hz 4:4:4 2.0ch with HDR and 4:2:0

4K@30Hz 4:4:4 7.1ch with HDR and 4:2:0

1080P@60Hz 2.0ch

UI Element	Description
<b>EDID</b>	<p>Sets the desired EDID for each of the inputs. The default EDID setting is “Restore Defaults”. In this mode, when the display connected to HDMI OUT 1 has a resolution less than 4k and the HDMI OUT 2 has a display resolution of 4k, the EDID will copy from HDMI OUT 2. Otherwise, it will copy HDMI OUT 1.</p> <p><b>NOTE:</b> The EDID processing priority is OUT 1 &gt; OUT 2. Last configuration will be invoked when power is restored. Setting EDID takes effect immediately.</p>

# System Page

## IP SETTINGS

### IP Settings

IP Method:  Static  DHCP

IP Address:

Subnet:

Gateway:

Note: LAN Module will automatically reboot after changing Network setting.

UI Element	Description
IP Method	Select the desired IP mode between DHCP and Static. (Default is DHCP)
IP Address	Set the IP address manually if Static mode is selected.
Subnet	Set Subnet Mask manually if Static mode is selected.
Gateway	Set gateway address manually for the device to communicate with another network that uses different communication protocols when Static mode is selected.
Apply	Click to apply setting changes. <b>Note:</b> After the IP settings are changed, please refresh the Web UI page to re-login.

## LOGIN

### Login

Current Password:

New Password:

Verify Password:

Password must be 4 to 16 characters in length (alphanumeric only).

UI Element	Description
Login	To change the password, enter the current password and then the new password.
Apply	Click to apply setting changes.

## FIRMWARE UPDATE

**Firmware Update**

MCU Update: (1.2)

ARM Update: (1.1)

WEB Update: (1.2)

UI Element	Description
<b>Firmware</b>	Click the desired MCU, ARM, or WEB update to apply the firmware update.

## SYSTEM

**System**

UI Element	Description
<b>Factory Reset</b>	Click button to reset the device to factory default settings. A pop-up will open asking to confirm factory reset.
<b>Reboot</b>	Click to reboot the device.

# Restore Factory Default Settings

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Resetting and restoring the matrix to the factory default settings will delete all information users defined, and restore the device to the original factory default settings including Ethernet status, video and audio status, CEC settings, username and password.

There are three methods for restoring the matrix to the default factory settings:

1. Open up the web UI and press the “Factory Reset” button (*see Web UI section*)
2. Send the RESET command through the RS-232 port
3. Hold OUTPUT1 and OUTPUT2 buttons simultaneously for 5 seconds. All front panel LEDs will flash once factory reset is initiated.

# Troubleshooting

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Problem Type	Problem	Options
<b>Video</b>	No Video on Display	Confirm the HDMI input on the display is correctly selected
		Confirm the connected source is sending video to the HT-EUROPA (verify the connected laptop is in duplicate or extend mode)
		Confirm the correct source is selected on HT-EUROPA
<b>Audio</b>	No Audio on HDMI OUTPUT1 or HDMI OUTPUT2	Confirm audio mute on each HDMI output is not enabled
		Confirm HT-EUROPA is selected as the desired speaker output in the laptop by clicking on the speaker icon to open the audio output
		Confirm source is playing audio (PC not muted) and turned up
	No Audio on SPDIF or 3.5mm on OUTPUT1	Confirm same steps with HDMI OUTPUT as noted above but with Audio De-embed mute not enabled
	No Audio on SPDIF on OUTPUT2	Confirm same steps with HDMI OUTPUT as noted above but with Audio De-embed mute not enabled
Confirm dip switch is in the correct De-embedded position and not ARC		



# Specifications

Audio and Video	
Interface	4 x HDMI in, 2 x HDMI out, 1 x RS-232, 2 x Optical (Digital), 1 x 3.5mm Audio Out, 1 x Ethernet, 1 x RJ45, 1 x DC 5V In
Input/Output Signal Type	HDMI w/ 4K@60Hz 4:4:4, HDR 10, HLG & Dolby Vision, HDCP 2.2
Input/Output Resolution Supported	<p><b>VESA</b> 800x600<sup>8</sup>   1024x768<sup>8</sup>   1280x768<sup>8</sup>   1280x800<sup>8</sup>   1280x960<sup>8</sup>   1280x1024<sup>8</sup>   1360x768<sup>8</sup>   1366x768<sup>8</sup>   1440x900<sup>8</sup>   1600x900<sup>8</sup>   1600x1200<sup>8</sup>   1680x1050<sup>8</sup>   1920x1200<sup>8</sup></p> <p><b>SMPTE</b> 720x576P<sup>6</sup>   1280x720P<sup>6,7,8</sup>   1920x1080P<sup>2,5,6,7,8</sup>   3840x2160<sup>2,3,5,6,8</sup>   4096x2160<sup>2,3,5,6,8</sup></p> <p>2 = @24Hz; 3 = @25Hz; 5 = @30Hz, 6 = @50Hz; 7 = @59.94Hz; 8 = @60Hz</p>
Audio Format	<ul style="list-style-type: none"> <li>• <b>HDMI IN/OUT:</b> Fully supports audio formats in HDMI 2.0 spec, including PCM 2.0/5.1/7.1, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio and DTS:X</li> <li>• <b>Audio OUT:</b> Only supports PCM 2.0</li> <li>• <b>SPDIF:</b> Support PCM 2.0/5.1, Dolby digital and DTS up to 5.1 Channel</li> </ul>
Maximum Data Rate	18Gbps

Communication and Control	
Control Method	Front Panel Buttons   LAN control (Web UI & Telnet)   RS-232   IR   CEC

General	
Operating Temperature	0°C ~ 45°C (32°F to 113°F), 10% to 90%, non-condensing
Storage Temperature	-20°C ~ 70°C (-4°F to 158°F), 10% to 90%, non-condensing
ESD Protection	Human-body Model: ±8kV (Air-gap discharge) / ±4kV (Contact discharge)
Power Supply	DC 5V 1A
Power Consumption (Max)	3.3W
Dimension (Width x Height x Depth)	9.69" x 0.87" x 3.94" (246mm x 22mm x 100.2mm)
Net Weight	1.37 lbs. (0.62kg)

Transmission Distance		
Cable Type	Range	Supported Video
HDMI	Input: 15m/50ft Output: 10m/33ft	1080P@60Hz 24bpp
	Input/Output: 10m/33ft	4K@30Hz 4:4:4 24bpp 4K@60Hz 4:2:0 24bpp
	Input/Output: 5m/16ft	4k@60Hz 4:4:4 24bpp



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