VEO-MXH48T

MATRIXES

4K HDBaseT and HDMI® 8x8 Matrix

USER MANUAL

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1. PRECAUTIONS

1.1 Important Remark

WARNING: SHOCK HAZARD - DO NOT OPEN

AVIS: RISQUE DE CHOC ÉLECTRIQUE - NE PAS OUVRIR

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING (If applicable): The terminals marked with symbol of “ ” may be of sufficient magnitude to constitute a risk of electric shock. The external wiring connected to the terminals requires installation by an instructed person or the use of ready-made leads or cords.

WARNING: To prevent fire or shock hazard, do not expose this equipment to rain or moisture.

WARNING: A device with Class I construction shall be connected to a mains socket-outlet with a protective earthing connection.

WARNING: This product must not be discarded, under any circumstance, as unsorted urban waste. Take to the nearest electrical and electronic waste treatment centre.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

1.2 Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this device near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other device (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at the plugs, convenience receptacles, and at the point where they exit from the device.
11. Only use attachments/accessories specified by the manufacturer.
12. Unplug the device during lightening sorts or when unused for long periods of time.
13. Refer all servicing to qualified personnel. Servicing is required when the device has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the device, the device has been exposed to rain or moisture, does not operate normally, or has been dropped.
14. Disconnecting from mains: When switching off the POWER switch, all the functions and light indicators of the unit will be stopped, but fully disconnecting the device from mains is done by unplugging the power cable from the mains input socket. For this reason, it always shall remain easily accessible.
15. Equipment is connected to a socket-outlet with earthing connection by means of a power cord.
16. The marking information is located at the bottom of the unit.
17. The device shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on device.

1.3 Cleaning

Clean the unit with a soft, dry clean cloth or slightly wet with water and neutral liquid soap only, then dry it with a clean cloth. Be careful that water never gets into the unit through any hole. Never use alcohol, benzine, solvents or abrasive substances to clean this unit.

NEEC AUDIO BARCELONA, S.L. accepts no liability for any damage that may be caused to people, animal, or objects due to failure to comply with the warnings above.

2. WARRANTY & ENVIRONMENT

Thank you for choosing our device Ecler VEO-MXH48T!
We appreciate your trust.

It is **VERY IMPORTANT** to carefully read this manual and to fully understand its contents before any connection in order to maximize your use and get the best performance from this equipment.

To ensure optimal operation of this device, we strongly recommend that its maintenance be carried out by our authorised Technical Services.

All ECLER products are covered by warranty, please refer to www.ecler.com or the warranty card included with this product for the period of validity and conditions.

Ecler is truly committed with the environment and planet sustainability, energy saving and CO_2 emission reduction. Recycling materials and using non-contaminant components are also top priorities in our green crusade.

Ecler has deeply evaluated and analyzed the environmental impacts of all the processes involved in the production of this product, including packaging, and has alleviated, reduced and/or compensated for them.

3. PACKAGE CONTENTS

- 1x VEO-MXH48T.
- 1 x 100-240 V AC @ 50-60Hz Power Supply with 4 plugs (EU, USA, UK, AUS).
- 1 x Remote control with button battery included.
- 17 x IR Emitter.
- 17 x IR Receiver.
- 17 x 3 Pin Euroblock (16 Audio, 1 RS-232).
- 2 x Rack mounting ears.
- First Steps Guide.
- Warranty card.

4. DESCRIPTION & FEATURES

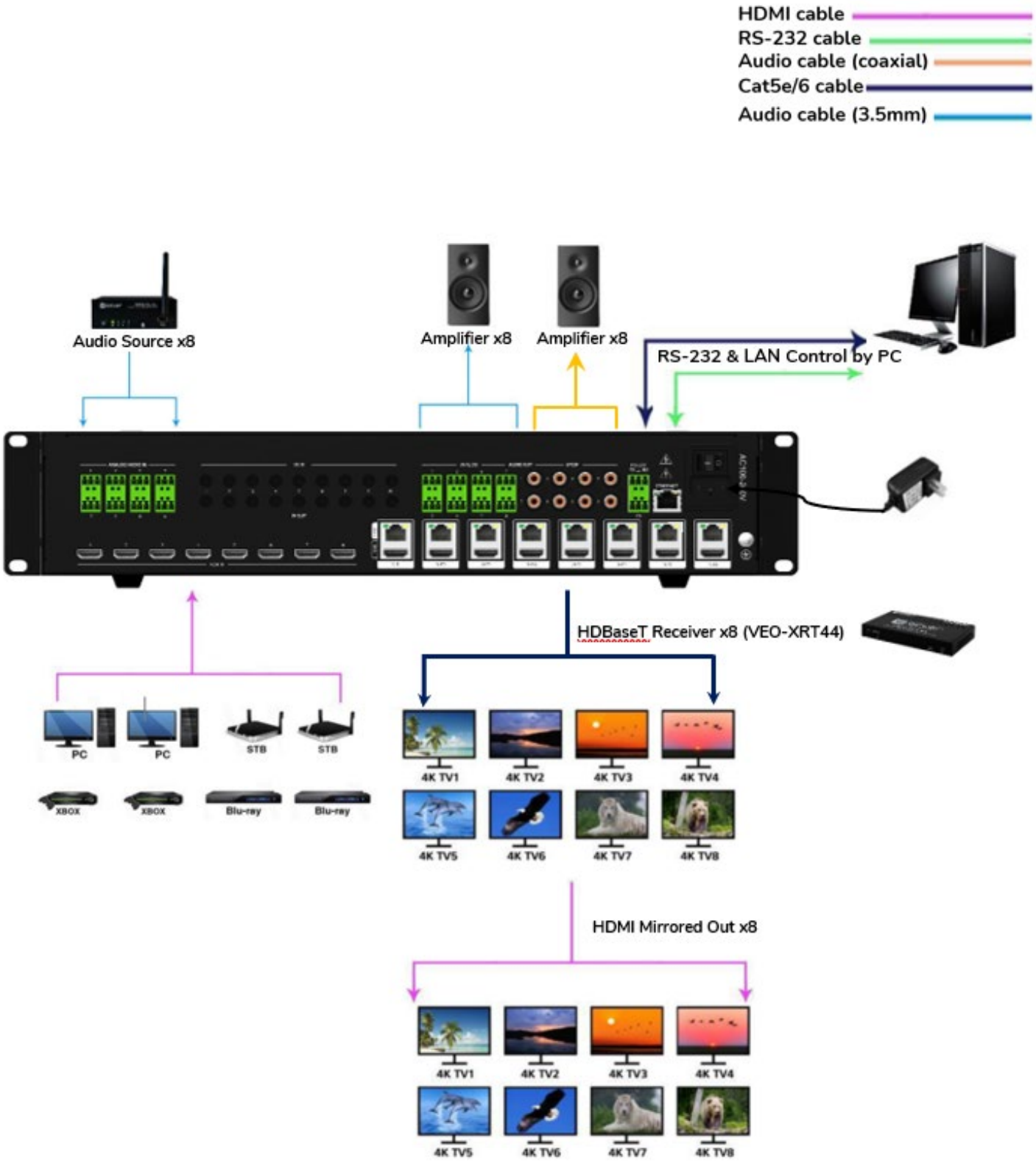
VEO-MXH48T is an 8x8 HDBaseT and HDMI® matrix with support for up to 4K/UHD video resolution, 60 Hz and 4:4:4 chroma sampling. It includes 8 analogue audio inputs and 16 analogue and digital audio de-embedding outputs as well as EDID management, an LCD display and an integrated WebGUI that allows to configure and control the unit in a very user friendly way. The HDBaseT outputs can deliver 4K/UHD video up to 40m and Full HD video up to 70m as well as PoC power supply to HDBaseT compliant receivers. It includes a video downscaler and an independent audio matrix. The HDMI® sources can be routed using the front panel's selection buttons, through the internal WEB GUI, serial commands, TCP/IP commands and IR signals. It is also HDCP 2.2 and 1.4 compliant and allows for bidirectional IR and RS-232 command controls. VEO-MXH48T can load and launch up to 8 presets which makes it a very suitable solution for professional applications that require video and audio HDMI® signals routing between 4K/UHD sources and displays with smart control management.

4.1 Main Features

- 8 x HDMI® inputs which can be independently routed to 8 x HDBaseT Outputs and 8 x HDMI® outputs.
- Advanced HDBaseT technology offering distribution of video and audio over a single CAT cable.
- Supports HDMI® up to 4K@60Hz, 4:4:4, 8 Bit. Also HDR (at 4K@60Hz 4:2:0 10 Bit).
- Extends 4K@60Hz 4:4:4 8 bit 4K video up to 40m and Full HD up to 70m.
- Independent downscaling of 4K@60Hz 4:4:4 video input resolution to the following formats:
  - Full HD@60Hz (for screens that do not support 4K).
  - 4K60Hz 4:2:0 (for screens that do not support 4K@60Hz 4:4:4).
- Independent Audio Matrix.
- Supports audio formats including Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio and DTS:X.
- Analogue audio insertion and extraction on stereo unbalanced Euroblock connectors as well as stereo and surround digital audio extraction on SPDIF coaxial connector.
- Control via front panel and display, IR remote, RS-232 control, TCP/IP control and WebGUI.
- Advanced EDID management.
- 8 preset storage.
- HDCP1.4 and 2.2 compliant.
- HDCP1.4 and 2.2 compliant
- Supports bidirectional IR and RS-232 on all HDBaseT outputs
- Supports PoC (Power over Cable) to power supplied HDBaseT receivers
- 100-240 V AC @ 50-60Hz Power Supply with 4 plugs (EU, USA, UK, AUS).

VEO-MXH48T is compatible with VEO-XRT44 HDBaseT receiver.

5. INSTALL & CONNECT



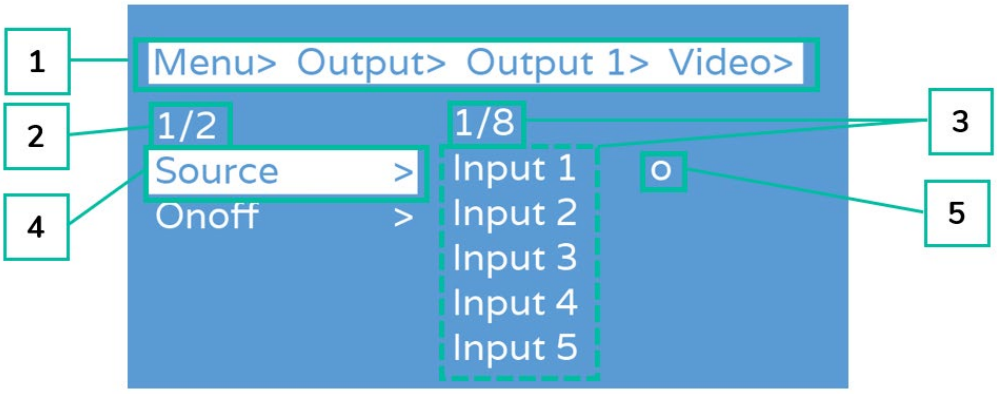
6. START-UP & OPERATION

The unit can be controlled and configured by following the steps indicated below. In addition, if you prefer, **it can also be configured by the** WebGUI.

6.1 LCD Display control menu

- **To operate through the different menus, please use:**
  - **UP/DOWN** buttons of the front panel or ▲/▼ buttons of the Remote Control to select the item.
  - **ENTER** button of the front panel to accept or ► button of the Remote Control. The selected item will be highlighted in white.
  - **MENU** button of the front panel to go back or ◄ button of the Remote Control.

- **Display Information**



1. At the top of the screen, all the menus and submenus you have selected to reach the current screen are displayed. It is very useful to always know which menu you are in.
2. Numbers on the left side of the screen: the first digit indicates the current position of the selected item among the total available items for the selected menu. The second digit indicates the total available items for the selected menu.
3. Numbers on the right side of the screen: the first digit indicates the current position of the selected option among the total available options for the selected item. The second digit indicates the total available options available for the selected item.
4. Selected Menu or item will be highlighted in white.
5. The symbol appears next to the selected option value as a confirmation of the selection.

6.2 Video Switching Control

The signal switch includes **8 free switching channels**, which **can be configured as input/output** according to the requirements, forming a matrix of 1 x 8 ~ 8 x 1, which can switch any input signal to a single output or simultaneously to all outputs.

Output	1	2	3	4	5	6	7	8
Input	1	2	3	4	5	6	7	8

- **To switch input channel to the output,** select the "output channel" + "input channel", follow these steps:
  1. Press the desired input channel selection.
  2. Press the desired output channel that you want to associate with the selected "input channel".
- **To assign an input channel all output channels,** follow these steps:
  1. Long press any input channel for 2 seconds.

Examples:

- Switch input 1 to output 4

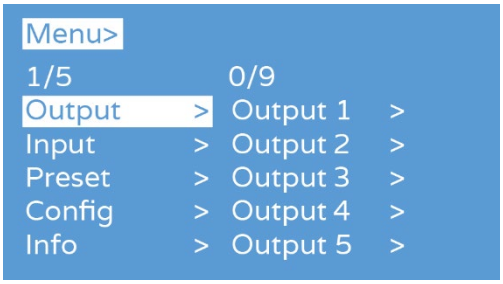
  Operation: press input1 and then output4 to complete switch
- All output switch to input 4

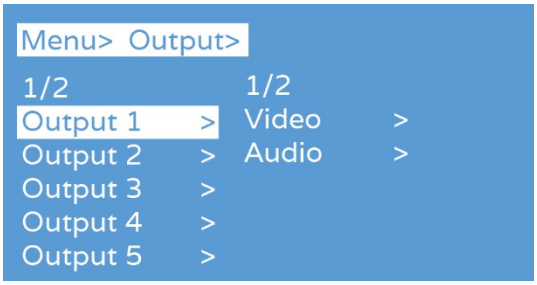
  Operation: long press any output and then long press input 4 to complete switch.

If time between pressings exceeds 10s, it will be necessary to **press output button again**.

6.3 Output Signal Control

This section allows to **control the Output signal (Audio or Video) of each one of the 8 output signals.**



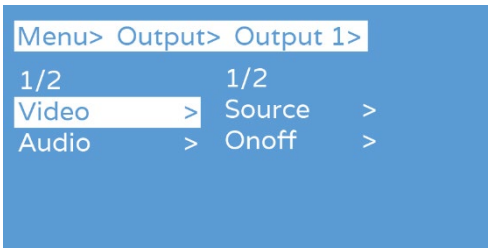


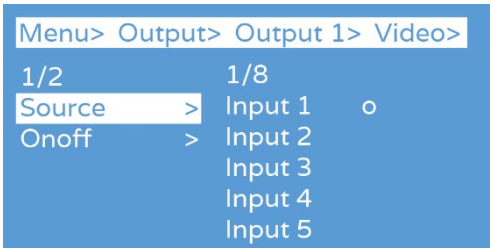
6.3.1 Output Video Control

This section allows you **to control the operation of the video features of each of the 8 output signals.**

6.3.1.1 Switching

Switch any output to one input or switch all outputs to one input. By default, 8×8 matrix, 8 inputs and 8 outputs, one to one output.

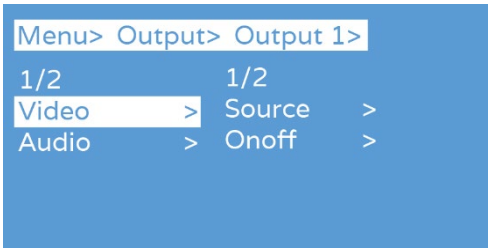


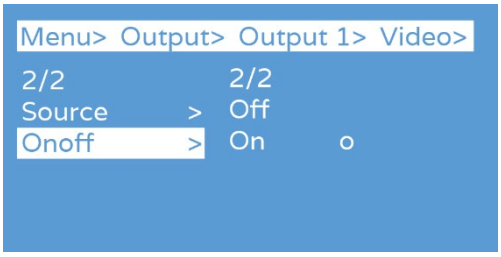


1. Select "**Output**" in the menu and press "**ENTER**".
2. Then use "**UP/▲ or DOWN/▼**" button to **select "output 1~8" or "All**" ("All" means all outputs). The selected output will be highlighted in white.
3. Press "**ENTER**" enter next page.
4. Press "**UP/▲ or DOWN/▼**" button to select "**Video**", press "**ENTER**".
5. Press "**UP/▲ or DOWN/▼**" button to select "**Source**", press "**ENTER**".
6. Press "**UP/▲ or DOWN/▼**" button to select "**Input 1~8**", press "**ENTER**". Switch is done.

6.3.1.2 On/Off

Video signal can be switched on and off on any output selected. By default, the output video is set to be active.

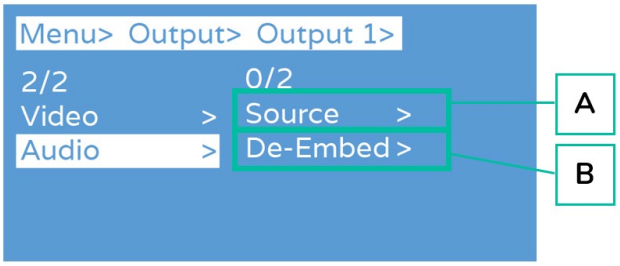




1. Select "**Output**" in the menu and press "**ENTER**".
2. Then use "**UP/▲ or DOWN/▼**" button to **select "output 1~8" or "All"** ("All" means all outputs). The selected output will be highlighted in white.
3. Press "**ENTER**" enter next page.
4. Press "**UP/▲ or DOWN/▼**" button to select "**Video**", press "**ENTER**"
5. Press "**UP/▲ or DOWN/▼**" button to select "**Onoff**", press "**ENTER**".
6. Finally, press "**UP/▲ or DOWN/▼**" button to choose "**On"** or **"Off**", and press "**ENTER**" to confirm your choice.
7. The ○ **symbol appears next to the selected value as a confirmation** of the selection.

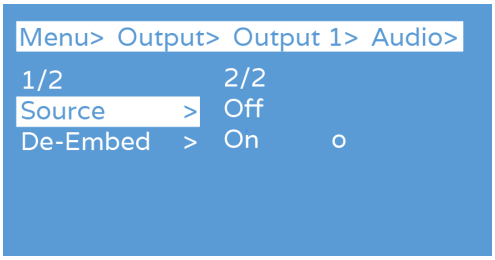
6.3.2 Output Audio Control

This section allows **to enable/disable the output audio of each one of the 8 signals**.



A. Source

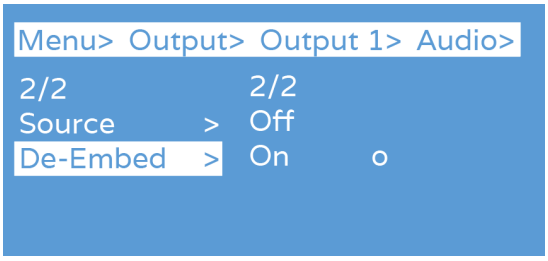
This parameter allows to **turn on and off the HDMI® audio output signal**



1. Select **"Audio"** from the main menu and **press "ENTER".**
2. Use the "**UP/▲ or DOWN/▼**" buttons to choose "**Line out**", then press **"ENTER".** The selected option will be highlighted in white.
3. Use the "**UP/▲ or DOWN/▼"** buttons **to select the desired output** (1-4 or All). Press **"ENTER"** to **choose between "On" and "Off"** for that output.

B. De -Embed

This parameter allows to **turn on and off the audio extraction**.

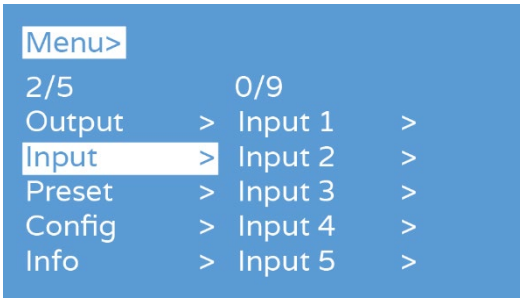


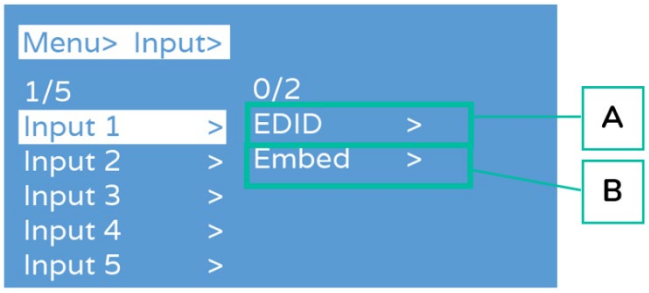
1. Select "**Audio**" from the main menu and press "**ENTER**".
2. Use the "**UP/▲ or DOWN/▼"** button to **choose "De-Embed"** and press **"ENTER".** The selected option will be highlighted in white.
3. Use the "**UP/▲ or DOWN/▼"** button to **Mute or Unmute the Output Audio selected**.

Press **"ENTER" to toggle between "Mute" and "Unmute"** for the selected output.

6.4 Input Signal Control

This section allows to **operate the features of each one of the 8 input signals.**





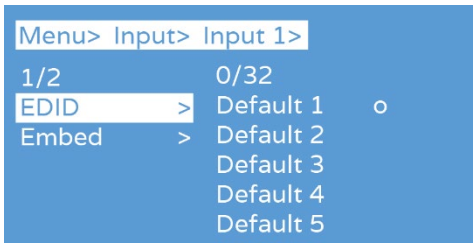
1. Select **"Input"** and press **"ENTER"**.
2. Press "**UP/▲ or DOWN/▼**" button to **select "Input1~8"· or "All"** ("All" means all inputs). The selected input will be highlighted in white. Press **"ENTER"**.
3. Press "**UP/▲ or DOWN/▼**" button to select **"EDID" or "Embed"**, press **"ENTER".**
4. Press "**UP/▲ or DOWN/▼**" button to **select the item you want to adjust.**

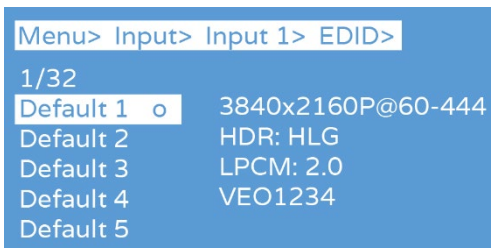
A. EDID

This parameter allows **to manage EDID settings of the desired input**..

Default 1:	4K@60Hz 444-LPCM: 2.0, HDR:HLG
Default 2:	4K@60Hz 420-LPCM: 2.0, HDR:None
Default 3:	4K@30Hz 444-LPCM: 2.0, HDR:None
Default 4:	1080p@60Hz 444-LPCM: 2.0, HDR:None

The **default EDID is "Default1".**



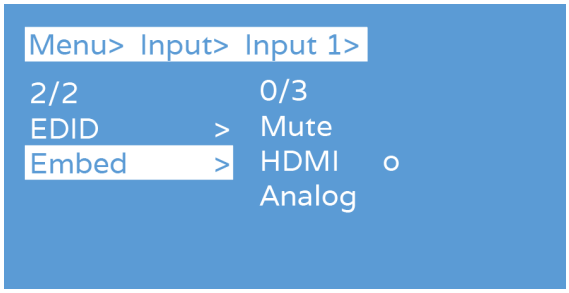


1. Press "**UP/▲ or DOWN/▼**" button **to adjust the selected item** according to your choice.
2. Press "**MENU**", **to return to the previous menu**, and then press "**UP/▲ or DOWN/▼**" button **to select the other items**. Press "**ENTER**".

3. Press "**UP/▲ or DOWN/▼**" button to adjust the selected item according to your choice.
4. The **symbol appears next to the selected value as a confirmation** of the selection **and EDID details (Name, Max resolution, audio format, soundtrack) will appear next to the chosen option**.

B. Embed

This parameter allows **to select the desired audio source to Embed.**



1. Press "**UP/▲ or DOWN/▼**" button **to adjust the selected item** according to your choice.
2. Press "**MENU**", **to return to the previous menu**, and then press "**UP/▲ or DOWN/▼**" button **to select the other items**. Press "**ENTER**".
3. Press "**UP/▲ or DOWN/▼**" button to adjust the selected item according to your choice.
4. The **symbol appears next to the selected value as a confirmation** of the selection **will appear next to the chosen option**.

6.5 Presets Configuration

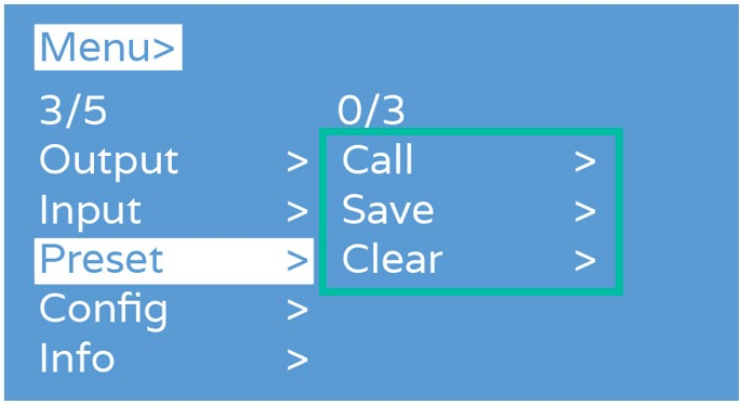
This section enables **to save the settings for Video, Audio, EDID, and System in 8 different presets to effectively manage and customize your own settings.**

Following actions can be performed for each preset:

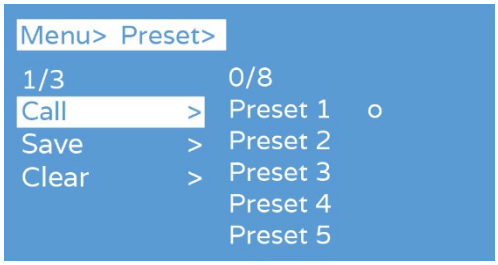
- **Clear:** Delete a saved preset to free up the preset slot for future use.
- **Save**: Save the current state of video, audio, EDID, system settings, etc., as a preset. You can save up to 8 presets.
- **Call:** Recall a previously saved preset to restore the saved state of video, audio, EDID, system settings, etc.

Presets can be selected or changed by Front Panel buttons or by WebGUI.

The **default preset is same as the factory setting** (PTP).

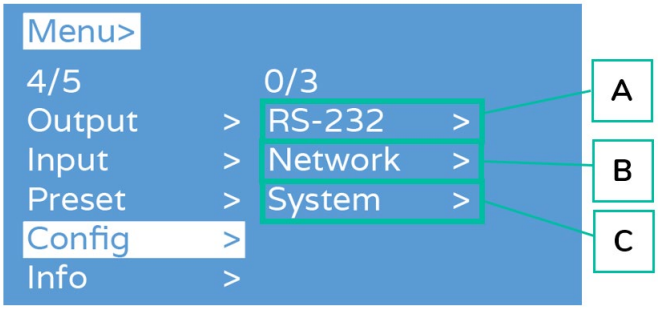


1. Select "**Preset**", press "**ENTER**", then select the preset **Scene** interface.
2. **To recall a preset**, choose "**Call**" and select the desired **Preset1~8.** Press "ENTER" to confirm.
3. **To save the current configuration as a preset,** select "**Save**" and choose one of the **Preset1~8** options. Press "**ENTER**" to save.
4. **To clear a preset and restore it to the default settings,** select "**Clear**" and choose the desired Preset1~8. Press "**ENTER**" to confirm.



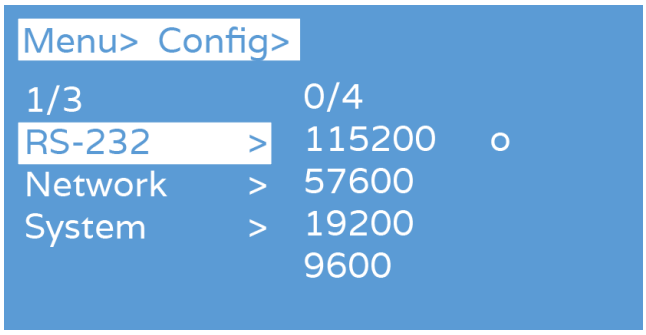
6.6 Configuration

This section **allows to set the device's Network parameter, RS-232 baud rate, and System parameters** as well.



A. RS-232

Allows **to change device's baud rate**. Device's baud rate **provides 6 choices**, 115200, 57600, 38400, 19200, 9600, 4800. The device is 115200 by default.

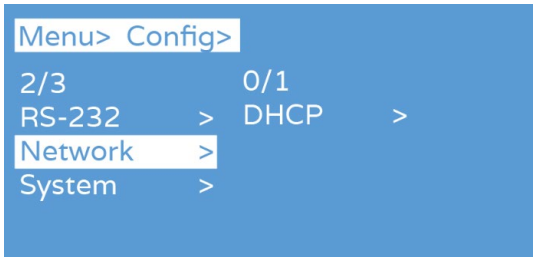


1. Select "Config", press "ENTER".
2. Press "UP/▲ or DOWN/▼" button to select "RS-232", press "ENTER".
3. Press "UP/▲ or DOWN/▼" button to select Baud rate you need, press "ENTER".
4. The ◯ symbol appears next to the selected value as a confirmation of the selection.

B. Network

Allows **to set DHCP Network parameter settings**.

- **DHCP:** Off (Static) by default. After turning on (Dynamic), IP/MASK/GW are unable to set.



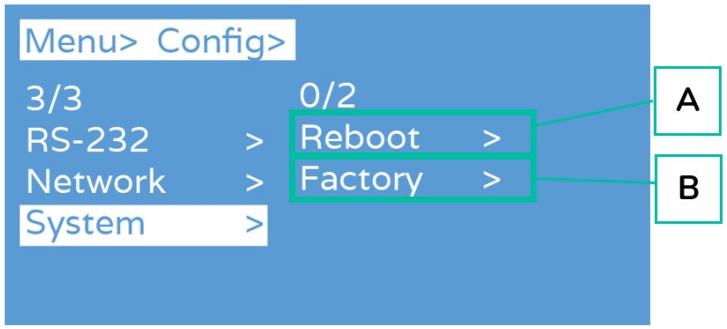
To set each one of the Network parameters:

1. Select "**Config**", press "**ENTER**".

2. Press "**UP/▲ or DOWN/▼**" button to select "**Network**", press "**ENTER**".
3. Press "**UP/▲ or DOWN/▼**" button **to select DHCP** and choose between "**Yes/No**" **to turn on/off DHCP**.
4. Press **"ENTER",** and the current network parameters will be displayed.
5. Press "**MENU**", **to return to the previous menu**, and then press "**UP/▲ or DOWN/▼**" button **to select the other items**. Press "**ENTER**".
6. Press "**UP/▲ or DOWN/▼" button to adjust the selected item according to your choice**.
7. **The** ○ **symbol appears** next to the selected value **as a confirmation of the selection**.

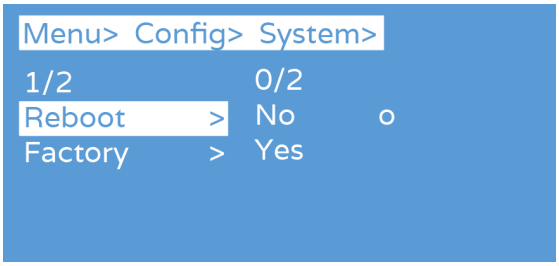
C. System

Allows to **set device's Reboot, and Factory data reset**.

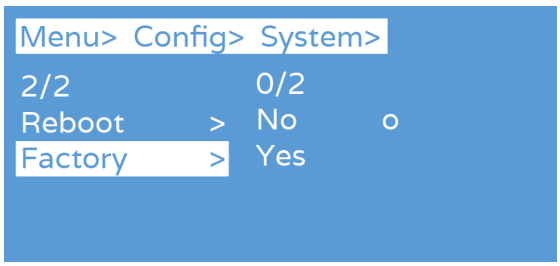


1. Select **"Config",** press **"ENTER**".
2. Press **"UP/▲ or DOWN/▼"** button to select "**System**", press "**ENTER**".
3. Press **"UP/▲ or DOWN/▼"** button to select:

   A. Reboot: select Yes or No.



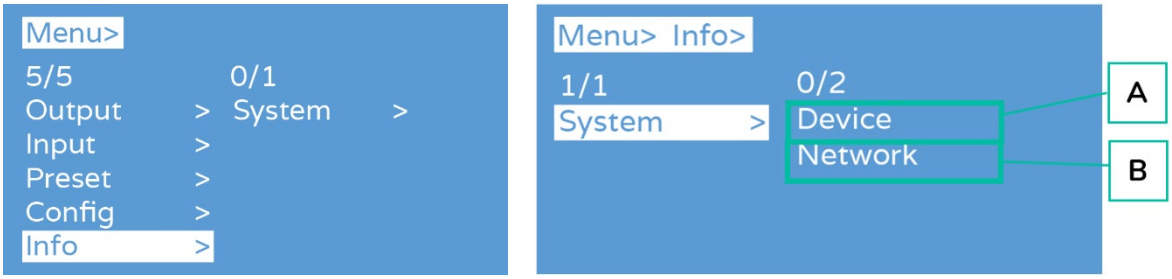
   B. Factory: select Yes or No.



4. Press "**UP/▲ or DOWN/▼**" button **to adjust the selected item** according to your choice.
5. Press **"MENU", to return to the previous menu**, and then press "**UP/▲ or DOWN/▼**" button to **select the other items.** Press "**ENTER**".
6. Press "**UP/▲ or DOWN/▼**" button to adjust the selected item according to your choice.
7. The ○ **symbol appears next to the selected value as a confirmation** of the selection.

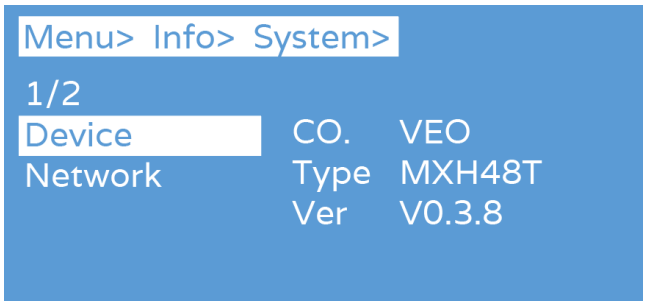
6.7 Info

This section allows **to check the status of several device settings**.

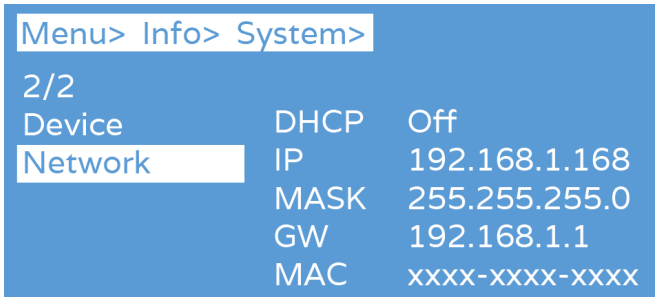


1. Press "**UP/▲ or DOWN/▼**" button to **select "Info"**. Press "**ENTER**".
2. Press "**UP/▲ or DOWN/▼**" button to **select "System"**. Press "**ENTER".**

   A. **Device**: checking Device system information (Manufacturer/Device ID/device type), Versions (MCU/web page).



   B. **Network:** Network parameter (IP/GW, Mask, MAC and TCP Port)



3. **Press "ENTER"** and with **"UP/▲ or DOWN/▼" select the item you want to check.**
4. Press **"MENU", to return to the previous menu**, and then press "**UP/▲ or DOWN/▼**" button to **select the other items.** Press "**ENTER**".
5. Press "**UP/▲ or DOWN/▼**" button to select item according to your choice.
6. The **symbol appears next to the selected value as a confirmation** of the selection.

6.8 Remote Controlling

VEO-MXH48T **can be remotely controlled over RS-232 or TCP/UDP communications protocol.**

- **For RS-232** serial communication: enter the selected parameters on Series Port Setting chapter.
- **For TCP/UDP** communication: enter the current VEO-MXH48T IP address and Port: 5000 for TCP or 5001 for UDP commands.

To operate via RS-232, it is important to note that of the two ports, the one to connect to is the RS-232 "Tx | Rx".

6.8.1 Series Port Setting

The **serial parameters for a correct transmission** are:

Baud rate 115200 (by Default) | Data bits 8 | Stop bits 1 | Parity None | Flow control None

For a correct communication, both the host PC and VEO-MXH48T need to have the same baud rate amongst the available options.

6.8.2 Command List

- All commands start with "#"
- "_" the underline cannot be omitted.
- Command head, Parameter and target need to add one "SPACE".

Command Code	Description	Command Return
#video_d input=[x] output=[y]	Switches Video Input channel [x] to Output channel [y] **PARAMETERS DESCRIPTION** • [x]: Input channel number, ranging from 1 to 8. If [y]= 0 output channel number • [y]: Input channel number, ranging from 1 to 8	<Output[x] : Video source> [Data=[y-1] : Input [y]]
#video_d output= [x] onoff=[y]	Turns on and off Output channel [x] **PARAMETERS DESCRIPTION** • [x]: Output channel number, ranging from 1 to 8. If [x]=0, all output • [y]: ON = 1 OFF = 0	<Output[x] : Video OnOff> [Data=[y-1] : Input [y]]
video_d input=[x] onoff=[y]	Enable or disable input channel [x] **PARAMETERS DESCRIPTION** • [x]: Input channel number, ranging from 1 to 8. If [x]=0, all intput • [y]: ON = 1 OFF = 0	<Input[x] : Video OnOff> [Data=[y-1] : onoff [y]]
#audio_d input=[x] enc=[y]	Enable or disable the input audio on channel [x] or switch between HDMI® audio and SPDIF audio. **PARAMETERS DESCRIPTION** • [x]: Output channel number, ranging from 1 to 8. If [x]=0, all input • [y]: enable or disable audio [y] = 0, Input all mute [y] = 1, Select HDMI Audio [y] = 2, Select SPDIF Audio	<Input[x] : Audio ENC> [Data=[y-1] : Input [y]]
#audio_d output=[x] dec=[y]	Enables or disables De-Embed audio on channel [x] **PARAMETERS DESCRIPTION** • [x]: Output channel number, ranging from 1 to 8. If [x]=0, all output • [y]: enable or disable De-Embed audio • [y] = 0, Off De-Embed audio • [y] = 1, On De-Embed audio	<Output[x] : Audio De-Embed> [Data=[y-1] : Input [y]]

#audio_d output=[x] source=[y]	Audio switch between the selected channel output [x] and channel input [y] **PARAMETERS DESCRIPTION** • [x]: Output channel number, ranging from 1 to 8. If [x]=0, all output • [y]: Input channel number, ranging from 1 to 8. If [y]=0, automatic following	<Output[x] : Audio Source> [Data=[y-1] : Input [y]]
#edid_d input=[x] mode=[y] data=[z]	Make a copy of the EDID from the parameter ("mode [y]") to the selected input [x]. **PARAMETERS DESCRIPTION** • [x]: Input channel number, ranging from 1 to 8. If [x]=00, all input • [y]: [y] = 0, default mode [y] = 1, user mode [y] = 2, copy HDMI mode [y] = 3, copy HDBaseT mode • [z]: Selection number of the item to copy, from 1 to z.	<Input[x] : EDID edid_sel> [Data=[z] : mode[y]] <Input[x] : EDID edid_sync1> [Data=[z] : mode[y]]
#edid_d user=[x] mode=[y] data=[z]	Copy the EDID of the parameter ("mode [y]") to the selected user [x]. **PARAMETER DESCRIPTION** • [x]: User EDID number, see EDID management table. If [x]=0, all user EDIDs • [y]: 0 = default mode 1 = user mode 2 = copy HDMI mode 3 = copy HDBaseT mode • [z]: Selection number of the item to copy, from 1 to z.	<User[x] : EDID copy> [Data=[z] : mode[y]]
#preset scene[x] exe=[y]	Saves, calls or clears a preset **PARAMETERS DESCRIPTION** • [x]: Preset number, ranging from 1 to 8. If [x]=0, all preset • [y]: saves, calls or clears Saves = 1 Calls = 0 Clears = 2	Preset: Preset[x] Save / Calls / Clears
#lcd bl_time=[x]	Specify the time the LCD screen is on **PARAMETERS DESCRIPTION** [x]: 0-254 = Time to turn off. 255 = LCD screen always on	New LCD bl wait : [x]
#lcd bl_lv:[x]	Increases or decreases LCD display backlight **PARAMETERS DESCRIPTION** • [x]: backlight level, ranging from 0 to 10	New LCD bl lv: [x]

#lcd home_time=[x]	Increase or decrease the return time to the main menu of the LCD screen **PARAMETERS DESCRIPTION** [x]: • 0-254 = Return time to the main menu • 255 = always fixed in the part of the menu that has been selected	New LCD home wait: [x]
#lock onoff=[x]	Lock or unlocks front panel buttons **PARAMETERS DESCRIPTION** • [x]: ON = 1 OFF = 0	front panel Lock: [x]
#factory:[x]	Performs a factory reset **PARAMETERS DESCRIPTION** • [x]: Operation data = 0 All settings = 1	System reboot...
#uart[x] baud=[y] bypass=[z]	Sets the baud rate and bypass of local RS-232 or HDBT **PARAMETERS DESCRIPTION** • [x]: Remote HDBT RS-232 from 1~8. If [x]=00, Local RS-232 • [y]: Baud rate setting from 2400~115200 • [z]: Remote HDBT RS-232 from 1~8. If [z]=00, Local RS-232	Uart baud change from 115200 to 115200. Please change the baud rate of this software synchronously Uart DB9 bypass to HDBT 1

Execution Examples:

- #video_d input=1 output=2 -> Switches input 1 with output 2.
- #edid_d input=1 mode=1 data=2 -> Input 1 copies the EDID from User 2.
- #edid_d user=2 mode=0 data=1 -> User 2 copies their EDID from Default 1.

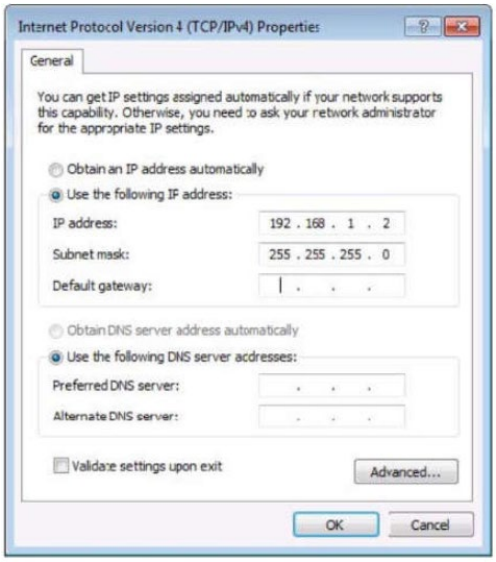
7. WebGUI

The unit can be **controlled and configured by its own built-in web interface by simply typing the IP address of the chosen device** into a web browser.

7.1 Change IP address of PC

Before configuring the device through the website, it is necessary to configure the IP address of your computer to be in the same network segment as the device.

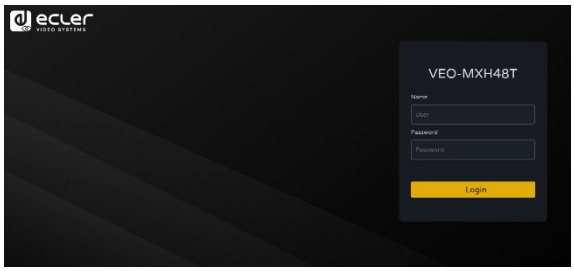
1. Open the Network Control Center on your computer.
2. Find the network connection you are using (Ethernet or Wi-Fi).
3. Right-click on the network connection and select "Properties".
4. Look for "Internet Protocol Version 4 (TCP/IPv4)" or "IPv4" and select it.
5. Choose the option to manually set the IP address.
6. Enter an IP address that is in the same network segment as the device.
7. Set the subnet mask to match the device's network configuration.
8. Leave the default gateway field blank or enter the device's IP address.
9. Save the changes and close the network properties window.



7.2 Login by Browser

To access VEO-MXH48T WEB settings, **it is necessary to enter the base unit IP address in an internet browser.**

- **Default IP address:** 192.168.1.168
- **Default username:** admin
- **Default password**: 123456

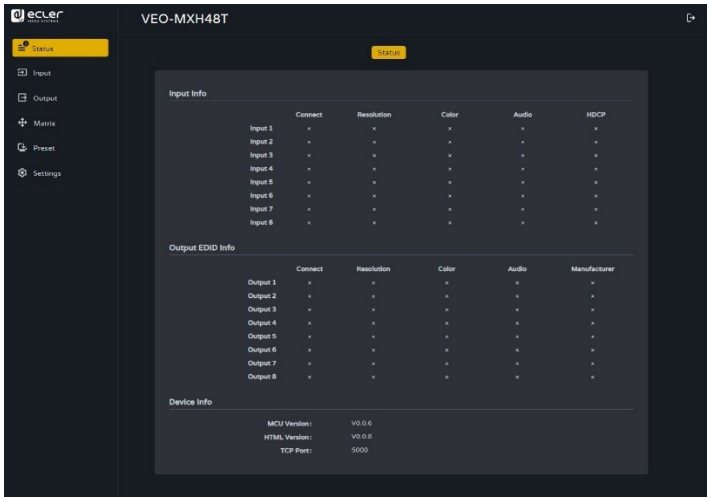


It is recommended to use Google, Firefox, IE8 and above browsers. Using other browsers may not be compatible

7.3 Status

This section allows to **check the status of several device settings**.

- **Input info**: Displays the status and information of the current device input port, Includes the connection status, input resolution, gamut colour depth, HDCP version information and input audio format of each input port.
- **Output EDID info:** Displays the status and information about the output port, Includes the connection status, output resolution and colour gamut, output audio format, EDID manufacturer of each output port.
- **Device info**: Displays the current MCU and HTML of version number (Same as on the screen) and the current TCP port.

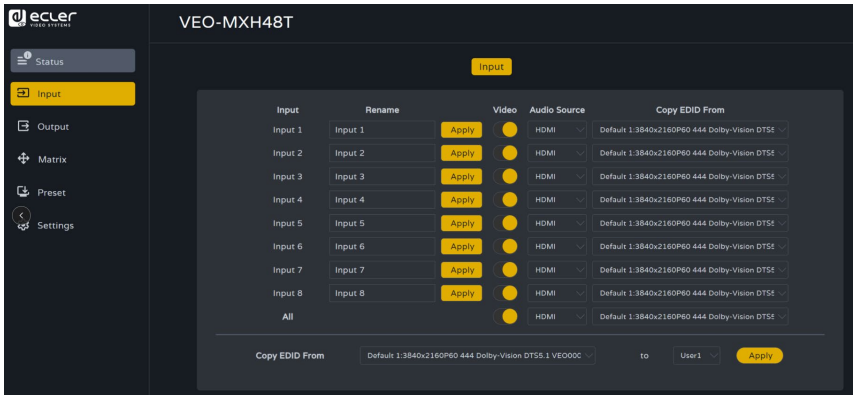


"√" **means open or normally connected**, "×" means that it is **closed or not connected**.

7.4 Input

This section allows to **rename input ports, switching video signals** (opened by default), **switching audio input, selecting EDID**, and **switching audio source signals.**

- **Rename**: Modify the current name of input port, support 1~15 characters (numbers, letters and underscores) which is synchronized with the screen. Press the “Apply” button to save changes.
- **Video**: Switch input video, Once the input video is off, the audio extraction output is muted.
- **Audio Source**: Switch audio source:
  - Mute: Disable audio.
  - HDMI: select input source audio.
  - ANALOG: select embedded analog audio input.
- **Copy EDID From**: Set default, copy, user EDID, and show EDID information (HDR, audio channel, resolution, colour gamut).
- **Copy EDID From (User [x])**: Save default/copy EDID to User EDID.
- **All**: select all input ports to realize fast switch.



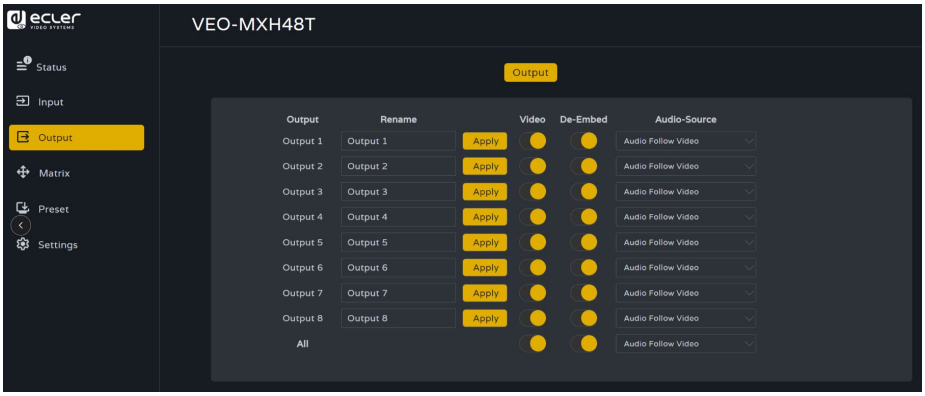
To operate each item:

1. **Rename**: Double click the left mouse button to enter the name editing to customize the name. Press "Apply" to confirm.
2. **Video**: Click the two-way button to complete the switch setting of input video (in yellow means on and in grey means off).
3. **Audio source**: Use the mouse to click the white dropdown to switch the corresponding input audio source.
4. **Copy EDID from**: Use the mouse to click the white dropdown to complete the corresponding EDID switch. The dropdown will show the current EDID information.
5. **User EDID selection**: Click the bottom box, select EDID, then select user1 ~ 4 in the box, and finally click apply.

7.5 Output

This section allows to **output port renaming, switching output video** (on by default), **switching De-Embed (**on by default) and **Audio-Source selection** (audio follow video by default).

- **Rename**: Modify the current name of output port, support 1~15 characters (numbers, letters and underscores) which is synchronized with the screen. Click “Apply” to save changes.
- **Video**: Switch output video, close the output port video does not affect the audio extraction function, the 5V output needs to be turned off at the same time.
- **Audio-Source:** Use the mouse to click the gray dropdown to switch the corresponding input 1~8 audio source (Audio Follow video by default).



In yellow means **on** and in **grey** means **off.**

7.6 EDID Control Management

The device includes **4 EDID modes**: Default EDID, User EDID, Output EDID, Temp1, control EDID by WEB and RS-232. Factory Default: Default1 4K60 444 2CH.

Refer to the EDID management commands in the table below.

Instructions are as follows:

Send instruction: "#edid_d input=1 mode=1 data=2". The input parameter "input" must be 0 or 1~8 (0 means all inputs), data =0~24 (corresponds to the following table).

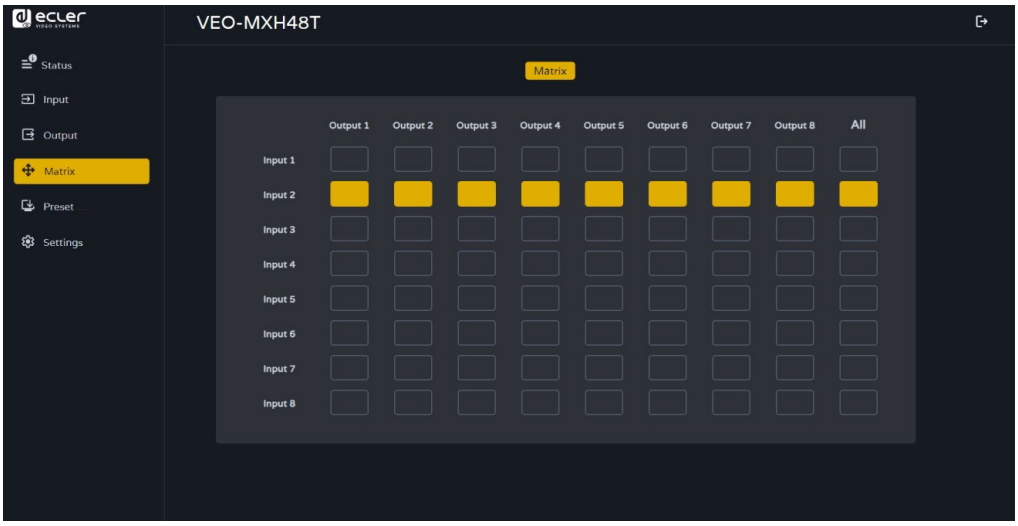
EDID MODE	EDID Index	EDID
Default EDID	0	4096x2160@60-444 HLG 2CH (default)
	1	4096x2160@60-420 HLG 2CH
	2	4096x2160@30-444 HLG 2CH
	3	1920x1080P@120-444 HLG 2CH
User EDID	4-7	User EDID is set by user, with power-off memory function, new EDID will auto-cover old EDID.
Output EDID	8-15	Copy output 1-8 ports' EDID with storage function. without power-off memory
Temp1	24	Temporary EDID

The above EDID supports 4K Downscaler 1080P.

7.7 Matrix

This section allows to **display the input source** corresponding to the current output port, **Switching the input to an output** port and **output the image**.

The vertical axis indicates the selection of the input port, the horizontal axis indicates the selection of the output port, and "All" indicates the selection of all outputs.



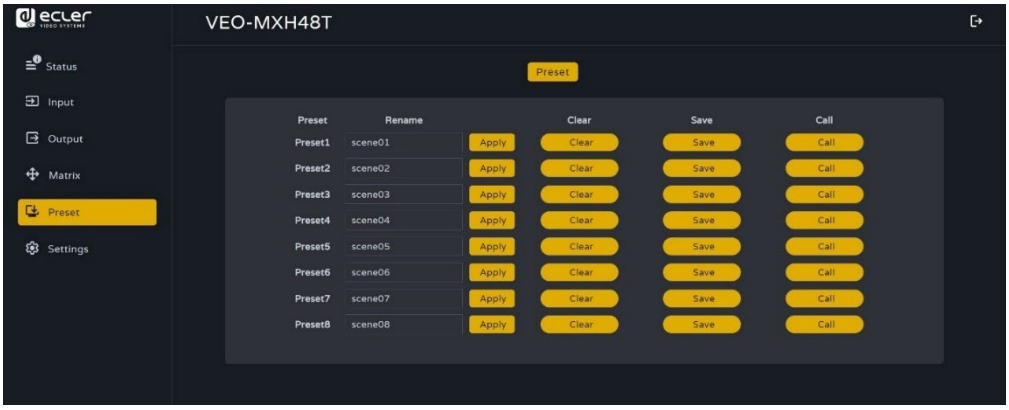
Click the desired box to switch the corresponding input port to an output port. The picture above shows the PIP one to one output.

7.8 Preset

Use this option to **rename, saving, calling, and clearing of preset scene**.

The device **can preset 8 scenes and support scene renaming**.

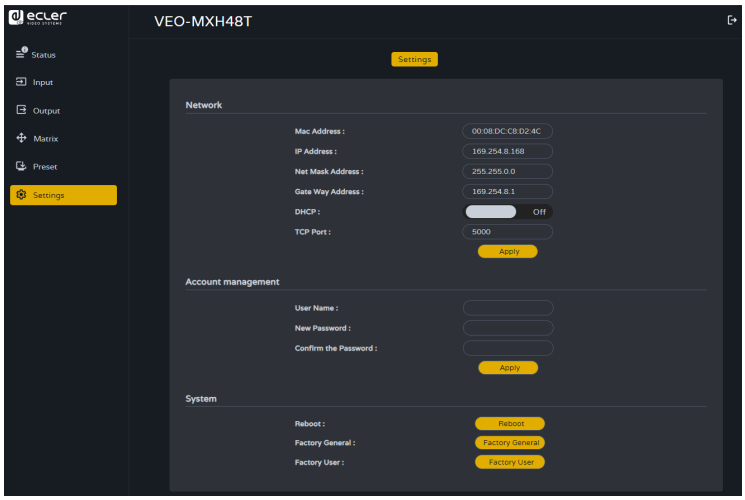
- **Clear** means clears the current saved scene.
- **Save** means save the current changed scene, the video, audio and system settings can be saved, but network parameter cannot be saved.
- **Call** means call the changed scene.



1. **Rename**: Modify the current name of the selected preset, allowing between 1 and 15 characters (numbers, letters, and underscores), and it synchronises with the screen. Click "Apply" to save the changes.
2. **Clear:** Allows you to delete the scenario.
3. **Save:** Allows you to save the current scenario.
4. **Call:** Allows you to retrieve the saved scenario.

7.9 Settings

This section allows to **modify and show network parameters and control protocol parameters TCP/UDP**, modify **web login account** and **password, reboot device**, general **restore factory**, user restore factory.



- **Mac address** can only be displayed. It cannot be modified.
- **IP address** is 192.168.1.168 by default. It can be modified.
  - After DHCP is opened, dynamic IP is used. In this case, the IP address cannot be modified and can assign by router.
  - After DHCP is off, static IP is used. In this case, the IP address can be modified. After the modification, click Apply.
- **Net Mask and Gateway address** can be modified, but the prerequisites are same as the IP address.
- **DHCP** use two-way button as switch, click directly to open DHCP (Green button means open DHCP and Gray means close DHCP).
- **TCP port:** Configure port (5000 by default) to access VEO-MXH48T.
- **Account management**: enter your account and password in the white box, Click Apply. It takes effect on next login, support 1~15 characters (numbers, letters, and underscores. Username and password both can be changed).
- **Click Reboot / Factory General / Factory User**, click enter according to your desired option.

7.10 RS-232 Pass-through

By RS-232 Command , the matrix can send RS-232 data to control the receivers, also the receiver can send RS-232 data to control the Matrix.

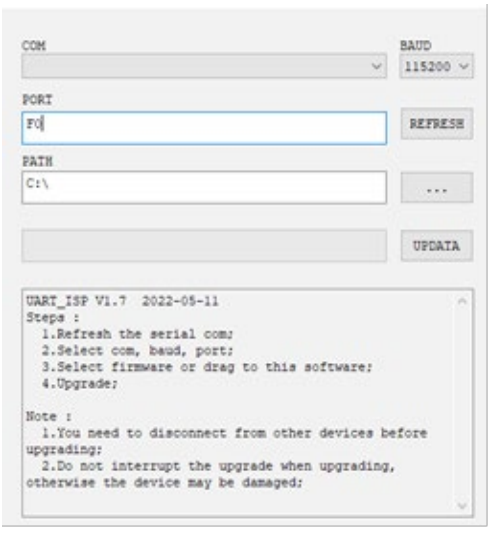
Please refer to the command list included in the manual

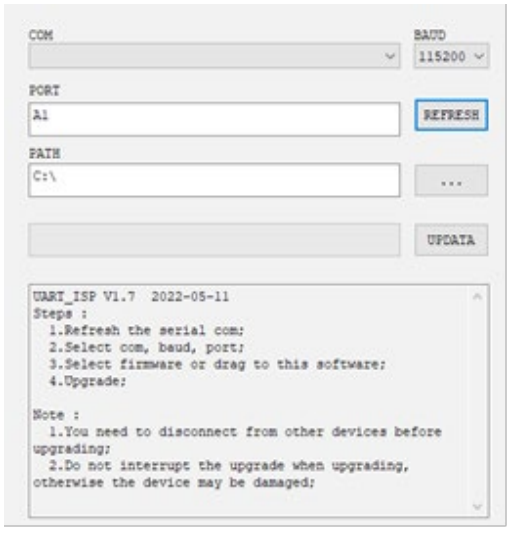
The serial port will be upgraded.

8. FIRMWARE UPGRADE

To update the MCU and web page using the updating software, follow these steps:

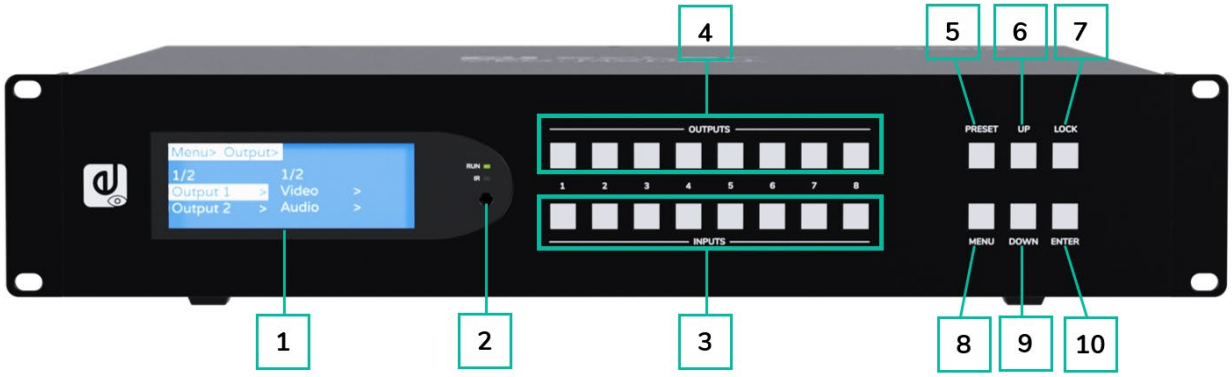
1. Connect your PC and the device using the RS-232 cable (connect to the RS-232 port named FW).
2. Open the updating software on your PC.
3. Click on the "Refresh" button to refresh the serial port list and select the correct serial port number for the device.
4. The default baud rate is 115200. Make sure the baud rate setting matches the device.
5. On the software, input "A1" in the port input field to initiate the MCU (BIN) upgrade process.
6. Select the path where the MCU upgrade program resides and follow the on-screen instructions to proceed with the upgrade.
7. After the MCU upgrade is completed, input "F0" in the port input field to initiate the web page (HTML).upgrade process.
8. Select the path where the web page upgrade program resides and follow the on-screen instructions to proceed with the upgrade.
9. Click on the "Update" button to start the update process.
10. Wait for the update process to complete. The information bar will display "Success" once the update is successful.





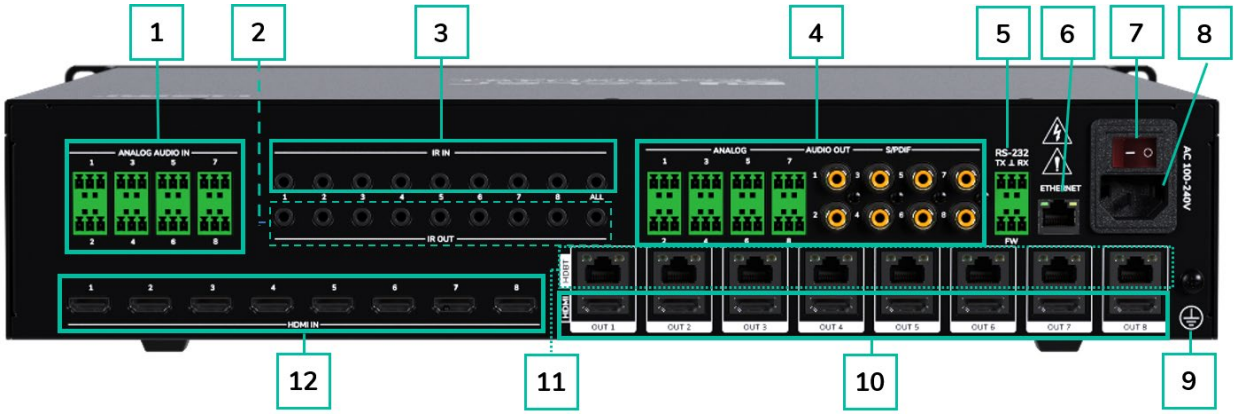
9. PANELS & REMOTE FUNCTIONS

9.1 Front Panel



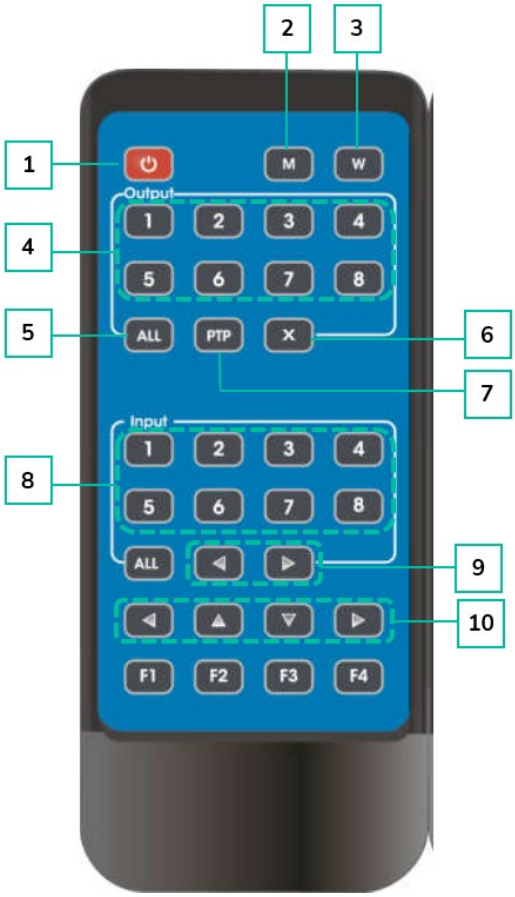
1. **LCD screen**
2. **IR receiver** window
3. **Output buttons from 1 to 8:**
   - Briefly press to assign an output to an input (press the input first).
4. **Input buttons from 1 to 8:**
   - Briefly press to select an input (then choose an output).
   - Long press to assign an input to all outputs.
5. **PRESET**: Briefly press to synchronise the preset.
6. **UP**: briefly press to move up through the menu on the screen.
7. **LOCK**: long press to lock, long press again to unlock ; when lock, all button is unworkable except for lock button.
8. **MENU**: press to access the main menu interface or return to the previous menu interface.
9. **DOWN**: short press to scroll down through the menu on the screen.
10. **ENTER**: short press to confirm the selection.

9.2 Rear Panel



1. **AUDIO IN** (Analogue x8)
2. **IR out port** x8 & All out
3. **IR in port** x8 & All in
4. **AUDIO OUT** (Analogue x8; SPDIF x8)
5. **RS-232 port x2** (one for pass through, one for Firmware update)
6. **Ethernet port**
7. **Power On/Off**
8. **100-240 V AC @ 50-60Hz input.**
9. **Grounding**
10. **HDMI® Output**×8
11. **HDBaseT out x8. & HDMI® Loop out x8**
12. **HDMI® Input** ×8

9.3 Remote Control



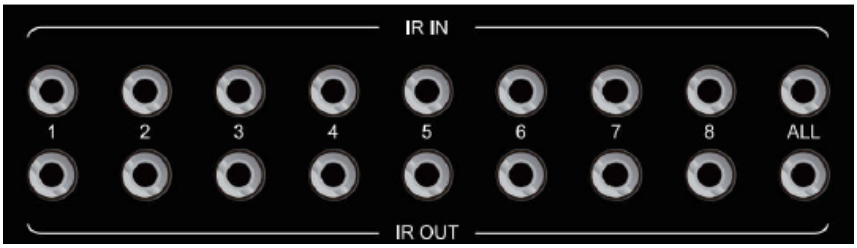
1. **Power on / Standby**
2. **M:** Turn off the HDMI® output audio
3. **W**: Lock or Unlock panel buttons.
4. **Output 1-8**
5. All **outputs** select INPUT-Y:
   - Press ALL button
   - Press INPUT-Y button (Y means 1 to 4 of the inputs).
6. **X**: Turn off output channel.
7. **PTP**: Mirror all inputs and outputs (Ex. Input 1 to output 1, input 2 to output 2, etc)
8. **Input 1-8**
9. **Switching input** left and right
10. **Up and down, left, and right.**

- **Power on/standby:**
  - Short press the power button to enter standby mode. The LCD screen will display "System Shutdown", and the HDMI® output will be disconnected, resulting in no image on the TV.
  - Short press the power button again to wake up the device. The HDMI® output will be restored to normal.
- **Video switch:**
  - To switch the video signal from one input to a specific output, press the corresponding output button followed by the input button.
  - For example, to switch the signal from input 2 to output 1, press output 1 button followed by input 2 button.
- **Turn off HDMI® output audio:**
  - To mute the audio for a specific output, press the corresponding output button followed by the "M" button.
  - For example, to turn off the audio for output 1, press output 1 button followed by the "M" button.

- **Lock remote control:**
  - To lock the remote control, press the "W" button. This will prevent any further input from the remote control.
  - To unlock the remote control, short press the "W" button again.
- **Turn off output channel:**
  - To turn off a specific output channel, press the corresponding output button followed by the "X" button.
  - For example, to turn off output 1, press output 1 button followed by the "X" button. This will result in a black screen for output 1.
  - To return the output channel to normal, press the corresponding output button followed by the "X" button again.
- **Switching input left and right:**
  - To switch between inputs in a left or right direction, press the "All" button followed by the ◄ or ► button.
  - This will change the TV image according to the switching input. If there is no input signal, it will automatically skip to the next available input

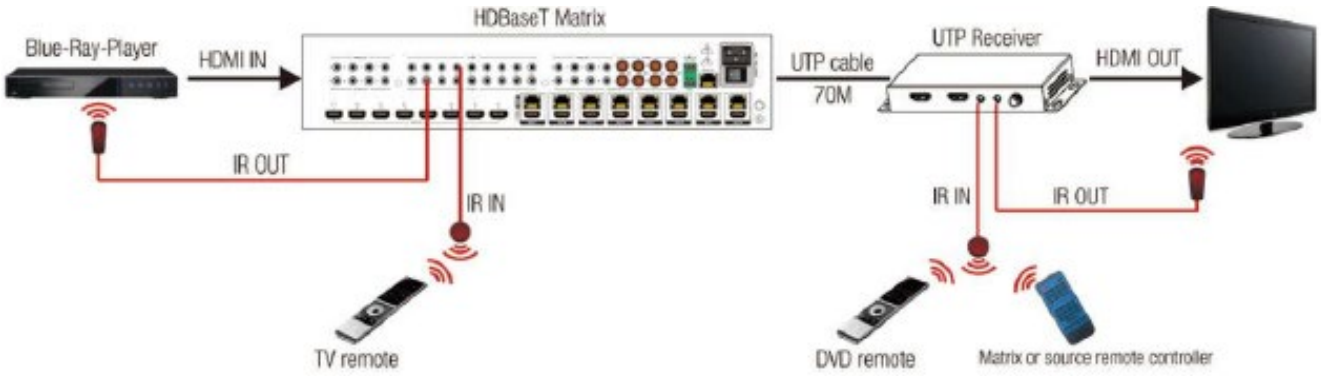
9.4 IR System

The matrix can pass the IR signal through the IR system to the HDMI® source or pass the IR signal from the HDMI® source to the HDMI® sink



Dual way IR using:

- **IR IN** is for HDBaseT output, “IR OUT” is for input channel
- **IR IN ALL** controlled by all input IR; “IR OUT ALL” Controlled by all output IR.
- **HDBaseT receiver** support connect with IR receiver to control the Matrix by remote
- **Matrix** IR channel IR IN ALL support connect with IR-RX cable to control the Matrix by
- **Remote**.



10. TECHNICAL DATA

10.1 Technical Specifications

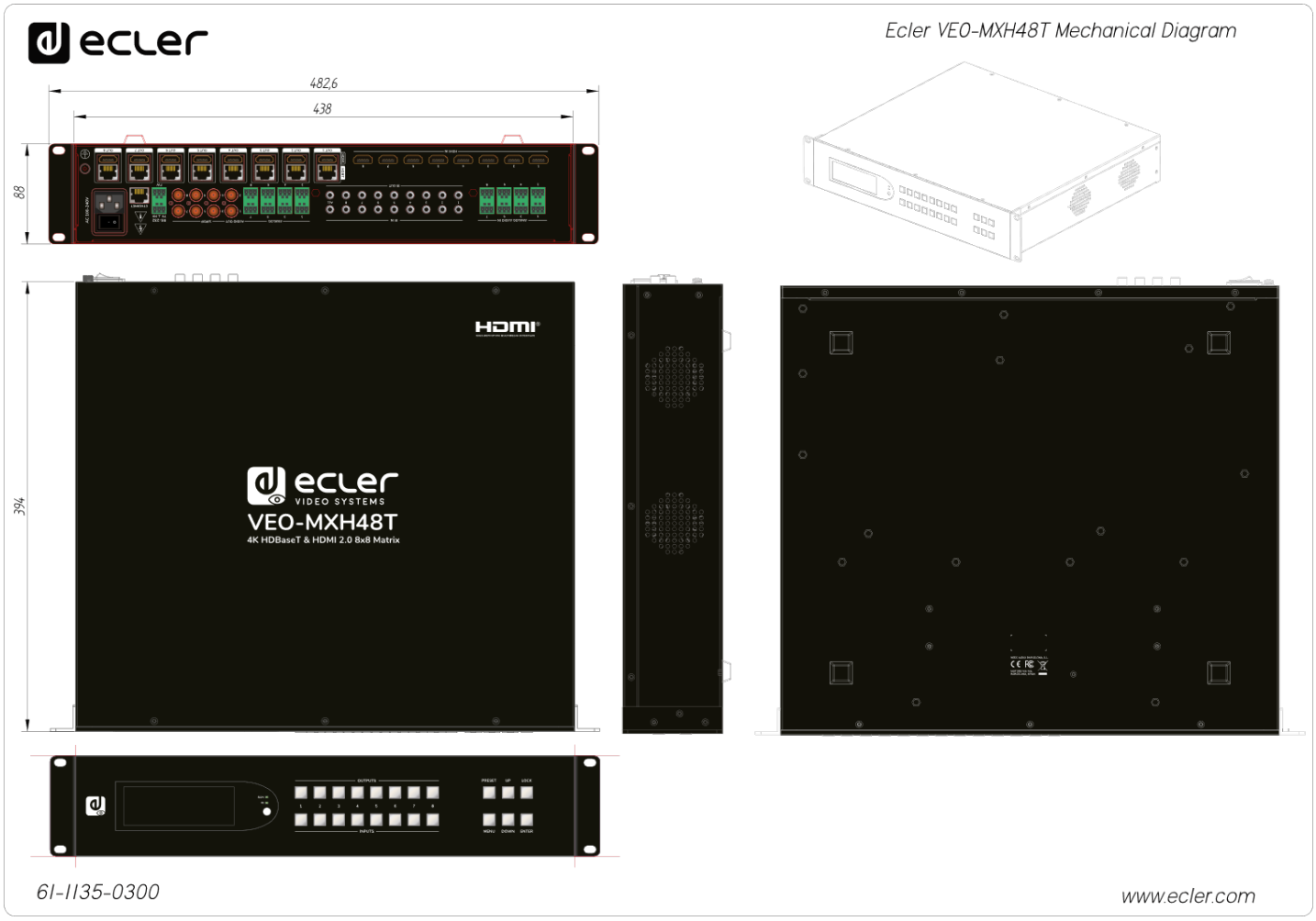
VEO-MXH48T

Video Performances	
Video Input Connectors	HDMI® Type A Female, 18 Gbps
Video Output connectors	HDMI® Type A Female, 18 Gbps
Video Input Resolution	Input support 3840x2160/60 YUV444 HDMI®
Video Output Resolution	Output support 3840x2160/60 YUV444 HDMI®
Chroma Subsampling	4:4:4,4:2:2
Colour Depth	8~12bit
Colour Space	RGB, YUV
HDCP	Support HDCP1.4/2.2
HDR	Supports HDR10
Video Composing Capabilities	8 HDMI® inputs, 8 HDBaseT outputs, 8 HDMI® mirror outputs
HDMI Distance	1080P60Hz (YUV444) Input 10 meters/output 15 meters 4K2K30Hz (YUV444) Input 5 meters/output 10 meters 4K2K60Hz (YUV444) Input 5 meters/output 3 meters
Audio Performances	
Audio Formats	PCM2.0, Dolby autos, DTS-X
Sample Rate	192 KHz
Bit Depth	16 Bit
Frequency Response	20Hz-20KHz (±3dB)
Audio De-Embedding	Yes
Audio Embedding	Yes
Device Control	
Control Connectors	RJ-45, Euroblock
Control Protocols	Web, Telnet, RS-232, IR
Control Buttons	1xPower ON ,8xinput selection, 8xoutput selection, 1xpreset, 1xright, 1xleft, 1xup, 1xdown, 1xlock
EDID Management	Software, Pass-through, Auto
Status Indicators	1xpower LED red, 1x IR LED yellow,22xbutton LED blue
Pass-through Control	
Pass-through Connectors	Euroblock, Jack 3,5mm
Pass-through Protocols	RS-232, IR
Electrical	
Power Supply	PoC; Input 90-264 VAC @ 47-63Hz, Output 1 x 100-240 V AC @ 50-60Hz
AC Mains Connector	UK, US, AU , EU power cable plug
DC Mains Connector	Built-in AC to DC power module
Power Consumption	Built-in 2 AC to DC power module 24Vx2.4A, the maximum output power of 216W
Physical	
Operating Temperature	Min. -5°C; 23°F Max. 40°C; 104°F
Operating Humidity	<85% HR
Installation Options	2U chassis hanging ear or desktop display
Included Accessories	UK, US, AU , EU cable

Dimensions (WxHxD)	482.6x88x394 mm / 19x3.46x15.51 in
Shipping Dimensions (WxHxD)	530x190x570 mm / 20.87x7.48x22.44in.
Weight	8.3 Kg / 18.30 lb
Shipping Weight	10.9 Kg / 24.03 lb
Chassis Material	Metal
Finished Colour	Black

10.2 Mechanical Diagram

All measurements are in mm.



All product characteristics are subject to variation due to production tolerances. **NEEC AUDIO BARCELONA S.L.** reserves the right to make changes or improvements in the design or manufacturing that may affect these product specifications.

For technical queries contact your supplier, distributor or complete the contact form on our website, in Support / Technical requests.

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