



## MX88-4KUHDE.2

8x8 HDMI Matrix with Analog and Digital Audio Outputs

## User Manual

Version: V1.0.0



# Important Safety Instructions



1. Do not expose this apparatus to rain, moisture, dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.



6. Clean this apparatus only with dry cloth.



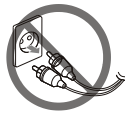
2. Do not install or place this unit in a bookcase, built-in cabinet or in another confined space. Ensure the unit is well ventilated.



7. Unplug this apparatus during lightning storms or when unused for long periods of time.



3. To prevent risk of electric shock or fire hazard due to overheating, do not obstruct the unit's ventilation openings with newspapers, tablecloths, curtains, and similar items.



8. Protect the power cord from being walked on or pinched particularly at plugs.



4. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.



9. Only use attachments / accessories specified by the manufacturer.



5. Do not place sources of naked flames, such as lighted candles, on the unit.



10. Refer all servicing to qualified service personnel.

# Warnings of FCC

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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# Introduction

## Overview

This product is an 8x8 HDMI Matrix with 4K@60 4:4:4 8bit, HDR10, HLG & Dolby Vision and HDCP 2.2 compatibility. It allows eight sources to be switched to any of the eight displays simultaneously. The matrix also provides analog and digital audio output ports, which can be set to output de-embedding audio or ARC audio from the associated HDMI output. It also supports 4K to 1080P down scaler for each output when it is connected to 1080P TV.

It can be controlled by front panel buttons, IR, RS232 and LAN control with Telnet API and Web UI.

As a compact 1U stand-alone 8x8 HDMI Matrix, it offers the convenience of future-ready Ultra HD A/V switching and distribution solution.

## Features

- Supports HDMI 2.0 with 4K@60Hz 4:4:4 8bit and HDCP 2.2 compliant
- Supports 4K HDR, HLG & Dolby Vision
- The analog and digital audio output ports have two operation modes:
  - Supports de-embedding audio from the associated HDMI output;
  - Supports ARC audio from the associated HDMI output (in this case, the HDMI output must connect to TV's HDMI ARC port)
- Built-in 4K-1080P down scaler for each HDMI Output, the matrix can downscale 4K@60Hz 444 to 1080P@60 444 automatically when the matrix is connected to 1080P display
- Supports front panel buttons, IR, RS232 and LAN (Telnet API & Web UI)

control options

- Supports the third-party remote to control the matrix through IR learning (Configure IR learning function through web UI)
- Supports firmware upgrade through web UI

## Package Contents

- 1 x Matrix
- 1 x AC Power Cord with US Pins
- 1 x IR Remote
- 8 x Phoenix Male Connector (3.5 mm, 5 Pins)
- 1 x Phoenix Male Connector (3.5mm, 3 Pins)
- 2 x Mounting Brackets (with Screws)

## Specifications

Technical	
Input/Output Port	8 x HDMI IN, 8 x HDMI OUT, 1 x LAN, 1 x RS232, 8 x AUDIO OUT (S/PDIF digital audio out and L/R analog audio out), 1 x AC IN
Input/Output Signal Type	HDMI with 4K@60Hz 4:4:4, HDR 10, HLG & Dolby Vision, HDCP 2.2
Input/Output Resolution Supported	<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> <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> 2 = at 24 Hz, 3 = at 25 Hz, 5 = at 30 Hz, 6 = at 50 Hz, 7 = at 59.94 Hz, 8 = 60 Hz
Audio Format	<b>HDMI IN/OUT:</b> Fully supports audio formats in HDMI 2.0 specification, including PCM 2.0/5.1/7.1, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio and DTS:X; <b>L/R OUT:</b> Only support PCM 2.0;

Technical	
	<b>S/PDIF OUT:</b> Support PCM, Dolby and DTS up to 5.1 Channel.
Maximum Data Rate	18Gbps
Control Method	Front panel buttons, IR, RS232, LAN (Telnet &WEB UI)

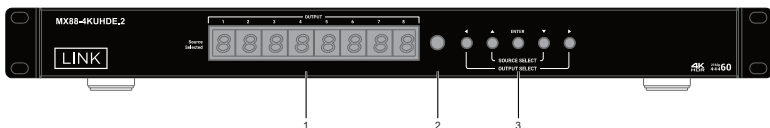
General	
Operating Temperature	0°C to 45°C (32°F to 113°F)
Storage Temperature	-20°C to 70°C (-4°F to 158°F)
Humidity	10% to 90%, non-condensing
ESD Protection	Human-body Model: ±8kV (Air-gap discharge)/ ±4kV (Contact discharge)
Power Supply	AC 100-240V 50/60Hz
<b>Power Consumption (Max)</b>	<b>TBD</b>
Device Dimension (W x H x D)	440mm x 43.5mm x 300mm/ 17.3" x 1.71" x 11.81" (Without mounting brackets)
Product Weight	3.8kg/8.38lbs
Rack Space Required	1U

### Transmission Distance

Cable Type	Range	Supported Video
HDMI	Input/Output: 15m/49ft	1080P@60Hz 24bpp
	Input/Output: 10m/33ft	4K@60Hz 4:2:0 24bpp
	Input/Output: 5m/16ft	4K@60Hz 4:4:4 24bpp

## Panel Description

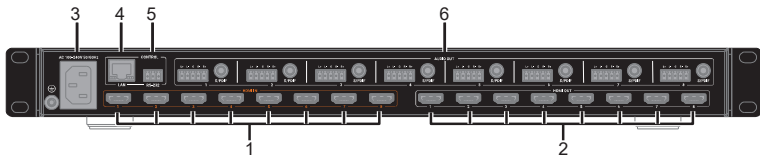
### Front Panel



No.	Name	Description
1	Output Channel	Indicates selected input for output port 1-8.

No.	Name	Description
	Indicator	
2	IR Window	Receives signals from IR remote.
3	Selection Button	<p><b>Output Select Left (◀)/Right (▶):</b> press to select output channels.</p> <p><b>Input Select Up (▲)/Down (▼):</b></p> <ul style="list-style-type: none"> <li>• Short press to select input channels.</li> <li>• Hold down the Up (▲) and Down (▼) buttons simultaneously for at least 3s to display the matrix IP address on LED indicator. (See <a href="#">“Front Panel Control”</a> section for detail information)</li> <li>• <b>ENTER:</b> Press to implement input and output selection.</li> </ul>

## Rear Panel



No.	Name	Description
1	HDMI IN 1-8	Connect to HDMI source devices.
2	HDMI OUT 1-8	Connect to HDMI displays.
3	AC 100-240V 50/60Hz	Connect the power cord provided. Accepts AC power of 100-240V 50/60Hz.
4	LAN	Connect to a control system for Web UI or Telnet control.
5	RS232	Connect to a control PC or control system for RS232 serial control.
6	AUDIO OUT 1-8	<p>Audio outputs:</p> <ul style="list-style-type: none"> <li>• 5 Pins Phoenix female port (1-8): L/R analog audio output.</li> <li>• S/PDIF port (1-8): S/PDIF digital audio output.</li> </ul> <p><b>Note:</b> Audio output ports can be set through web UI or API commands to output de-embedding audio of HDMI outputs, or output ARC audio from the TVs (with ARC function supported, and the CEC function is set to on) connected to HDMI output ports.</p>





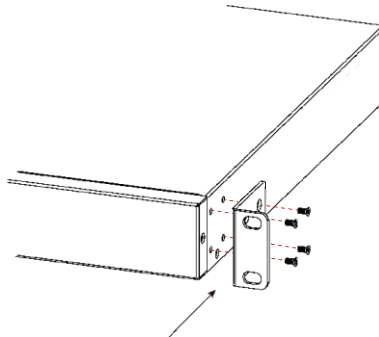
# Installation and Wiring

## Installation

The Matrix occupies 1U space and can be placed on a solid and stable surface or installed on a standard equipment rack.

### Steps to install the matrix on an equipment rack:

1. Attach the installation bracket to the enclosure using the screws provided in the package separately.
2. The bracket is attached to the enclosure as shown.



3. Repeat steps 1-2 for the other side of the unit.
4. Mount and affix the unit in the rack mount with the mounting screws (provided by others).

## Wiring

### Warnings:

- Before wiring, disconnect the power from all devices.
- During wiring, connect and disconnect the cables gently.

## Steps for device wiring:

### 1. Connect HDMI IN

Connect the HDMI sources (such as PC, Blu-ray player, Apple TV, 4K media player, etc) to the HDMI IN 1-8 of the Matrix.

### 2. Connect HDMI OUT

Connect HDMI display devices (such as TV, projector, LED/LCD display) to the HDMI OUT 1-8 of the Matrix.

### 3. Connect AUDIO OUT

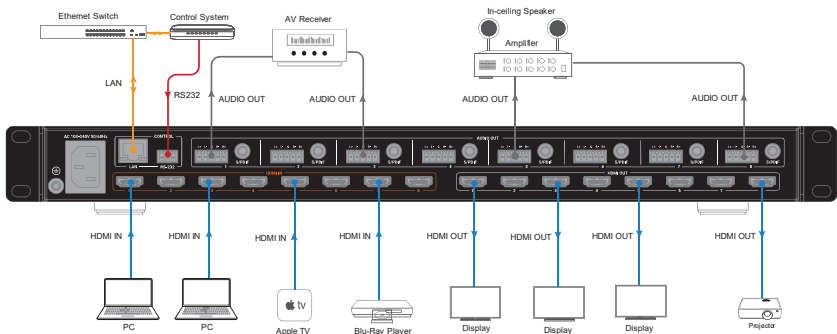
Connect AUDIO OUT 1-8 of the Matrix to audio devices such as amplifier.

### 4. Connect for additional control options:

- LAN control (Telnet/Web UI): Connect a Local Area Network to the LAN port of the Matrix.
- RS232 control: Connect a control PC or control system to RS232 port of the Matrix.
- IR control: The IR Remote provided is for controlling the Matrix through IR signal.

### 5. Connect the AC power cord provided to the Matrix.

### 6. Power on all attached devices.



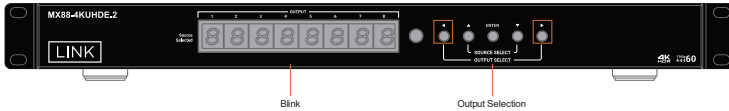
# Front Panel Control

Basic switch of input sources to output displays and matrix IP address can be achieved by using front panel buttons.

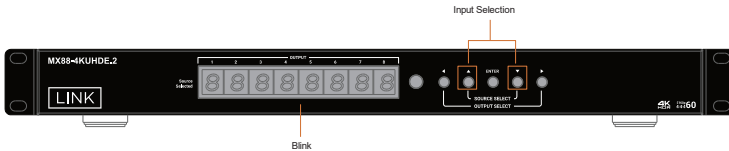
Power on matrix and wait till the front panel LED shows the input channel numbers correspond to output channels. Then the Matrix is ready for operation.

## To select input source for output display:

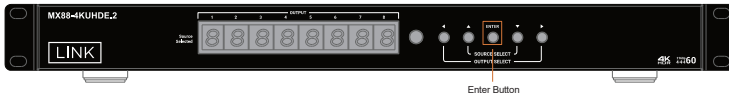
1. Press the Left (◀) or Right (▶) button to select output channel. The LED blinks to show the selected output channel.



2. Press the Up (▲) or Down (▼) button to select input channel. If the LED shows "-", the output is closed.



3. Press the Enter button to confirm the selection. When the selection takes effect, the LED stops blinking.



## To display matrix IP address on LED indicator:

(Suppose the IP address of the matrix is 192.168.11.143)

Hold down the Up (▲) and Down (▼) buttons simultaneously for at least 3 seconds and then release, the LED indicators will display the matrix IP address "192.168", ".011.143" in sequence for 3 times.

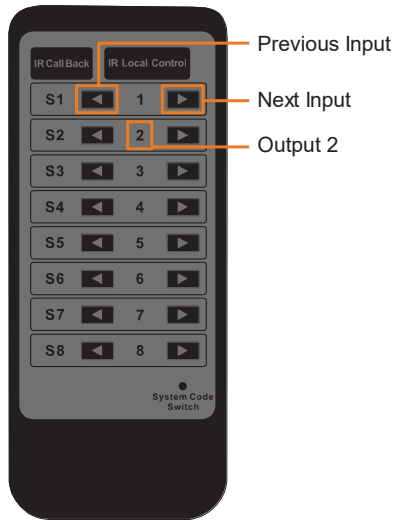
## To copy EDID:

1. Press the Left (◀) or Right (▶) button to select output channel. The LED blinks to show the selected output channel.
2. Press the Up (▲) or Down (▼) button to select input channel. The LED still blinks.
3. Hold “Enter” button for at least 3s to copy the EDID of the display connected to the selected output port to the selected input source.
4. If EDID copy is successful, the LED indicators will show “CPY OK”. If copy fails, the LED indicators will show “CPY FAIL”.

**Note:** When copy EDID fails, if the corresponding output port is not connected to a display, the input EDID will be the previous effective EDID value; if the EDID of the connected display is damaged, the input EDID will be the default value.

# IR Remote Control

The Matrix can be controlled by the IR Remote provided. Point the Remote directly to the Matrix, now you can select input source for each output display.



## To select input source for output display:

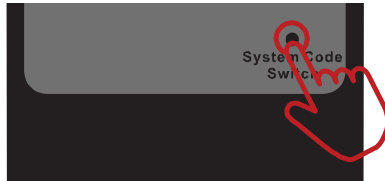
1. Locate the target output you want to switch inputs for, numbered 1-8 vertically in the middle.
2. Press the previous (◀) or next (▶) button to select the desired input source.

**Note:** The third-party remote (such as TV remote) also can control the matrix through IR Learning (More information, see “**IR Learning Section**” part of “[Web UI Control](#)” section).

## **System Code Switch**

The IR Remote provided with the Matrix is shipped in “00” IR system code. In the event that Remote's IR signal interferes with IR devices, e.g. TV, DVD

player, the Remote can be switched to "4E" code by short pressing the System Code Switch on the Remote panel. At the same time, you may redefine the IR system code of the Matrix using the API command or Web UI.



**Virtual IR Code Supported by Default (Matrix Switching Code)**

Code	Out1	Out2	Out3	Out4	Out5	Out6	Out7	Out8
In1	0x80	0x90	0xA0	0xB0	0xC0	0xD0	0xE0	0xF0
In2	0x81	0x91	0xA1	0xB1	0xC1	0xD1	0xE1	0xF1
In3	0x82	0x92	0xA2	0xB2	0xC2	0xD2	0xE2	0xF2
In4	0x83	0x93	0xA3	0xB3	0xC3	0xD3	0xE3	0xF3
In5	0x84	0x94	0xA4	0xB4	0xC4	0xD4	0xE4	0xF4
In6	0x85	0x95	0xA5	0xB5	0xC5	0xD5	0xE5	0xF5
In7	0x86	0x96	0xA6	0xB6	0xC6	0xD6	0xE6	0xF6
In8	0x87	0x97	0xA7	0xB7	0xC7	0xD7	0xE7	0xF7

# RS232 Control

Advanced users may need to control the matrix through RS232 serial communication. Connect a control PC or control system to the RS232 port of the receiver. API command for RS232 control is available in the separate document “ **API Command Set MX88-4KUHDE.2** ”. A professional RS232 serial interface software (e.g. Serial Assist) may be needed as well.

Before executing the API command through RS232 serial connection, please ensure RS232 interface of the device and the control PC are configured correctly.

Parameters	Value
Baud Rate	9600 bps
Data Bits	8 bits
Parity	None
Stop Bits	1 bit
Flow Control	None



# Web UI Control

The Web UI designed for the matrix is available for basic controls and advanced settings of the device. The Web UI can be accessed through a browser with latest version, e.g. Chrome, Firefox, Safari, Opera, IE, etc.

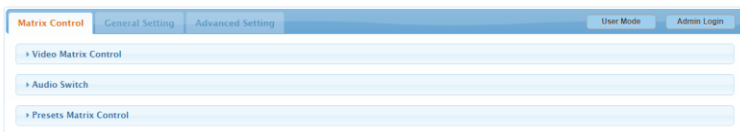
The default network mode of matrix is DHCP, if it isn't connected to a DHCP server, the matrix supports for local 169.254 IP address.

## Get Access to the Web UI

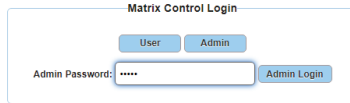
1. Connect the LAN port of the matrix to your PC using a straight UTP cable, or connect the matrix to a local area network, and connect your PC to the same network.
2. Get IP address through pressing front panel buttons (see "[Front Panel Control](#)") or sending API commands (see the separate document "[API Command Set\\_ MX0808-1022-000](#)"). Set your PC to the same network segment as the matrix if you connect the matrix to your PC directly.
3. Input the IP address in your browser and press Enter. The following window will display.



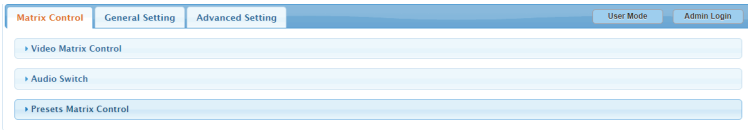
- To implement basic video and audio control of the matrix, click "User" to login as User. When login as User, no password is required.



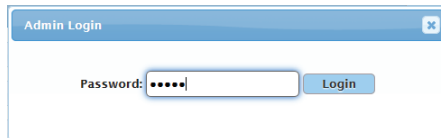
- If advanced setting is required, click “Admin” and enter “admin” (default password) to login as Admin. The main page will appear.



A dialog box titled "Matrix Control Login". It contains two buttons at the top: "User" and "Admin". Below these buttons is a text input field labeled "Admin Password:" with a masked password "\*\*\*\*\*". To the right of the input field is a button labeled "Admin Login".



- In User mode, you can also click “Admin Login” on the upper right corner, then input the default password “admin” to enter General Setting and Advanced Setting pages.



A dialog box titled "Admin Login". It contains a text input field labeled "Password:" with a masked password "\*\*\*\*\*". To the right of the input field is a button labeled "Login".

The main page includes three tabs: Matrix Control, General Setting and Advanced Setting.

# Matrix Control

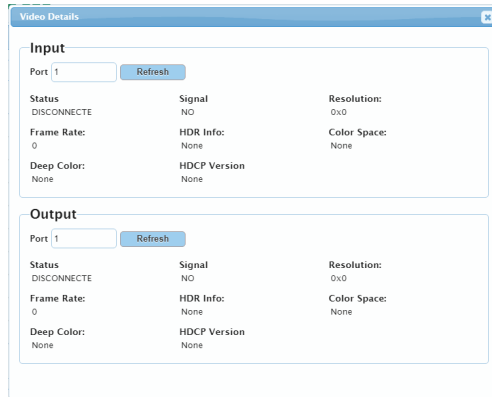
## (1) Video Matrix Control

The screenshot shows a 'Video Matrix Control' window. It features a table with 8 rows (OUTPUT 1 to OUTPUT 8) and 8 columns (INPUT 1 to INPUT 8). A diagonal of green cells indicates the current routing: OUTPUT 1 to INPUT 1, OUTPUT 2 to INPUT 2, ..., OUTPUT 8 to INPUT 8. To the right of the table is an 'A/V Mute' column and a 'CEC Control' column with 'On' and 'Off' buttons for each output. A 'Video Details' button is at the top right. A legend at the bottom right shows a green square for 'Working' and a red square for 'Error'.

Outputs/Inputs	INPUT 1	INPUT 2	INPUT 3	INPUT 4	INPUT 5	INPUT 6	INPUT 7	INPUT 8	A/V Mute	CEC Control
OUTPUT 1	Working									On Off
OUTPUT 2		Working								On Off
OUTPUT 3			Working							On Off
OUTPUT 4				Working						On Off
OUTPUT 5					Working					On Off
OUTPUT 6						Working				On Off
OUTPUT 7							Working			On Off
OUTPUT 8								Working		On Off
All Outputs										On Off

This section manages distribution of input video sources to output displays. Click the button in the table to select the input for the output display (button turns from white to green once selection is done). By default, INPUT 1 routes to OUTPUT 1, ..., INPUT 7 routes to OUTPUT 7, INPUT 8 routes to OUTPUT 8.

- **All Outputs:** Click to route one input to all outputs.
- **A/V Mute:** Click to disable the video output.
- **CEC Control On/Off:** Click to power on or off the CEC-enabled display device immediately.
- **Video Details:** Click to enter the following window to get video details (such as connection status, signal and resolution) of input and output.
  - **Port:** Click to select the input/output port to show its video details.
  - **Refresh:** Click to refresh the current video information.



## (2) Audio Matrix Control



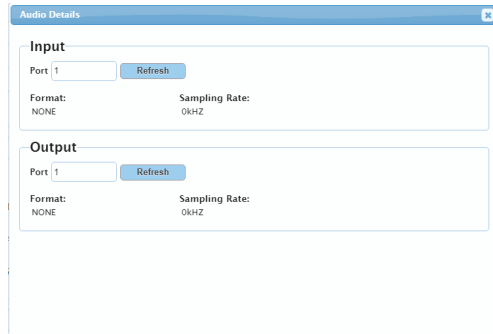
This section allows you to select audio for analog audio output (1~8) and S/PDIF output (1~8) between HDMI and ARC.

- **HDMI:** Set analog and S/PDIF port (1-8) outputs de-embedding audio of HDMI output. OUTPUT 1 outputs de-embedding audio of HDMI OUT 1...OUTPUT8 outputs de-embedding audio of HDMI OUT 8.
- **ARC:** Set analog and S/PDIF port (1-8) outputs ARC audio from the TV connected to HDMI output port (1-8) (ensure the TV supports ARC function, and its CEC function is set to enable). OUTPUT 1 outputs ARC audio from the TV connected to HDMI OUT 1...OUTPUT8 outputs from the TV connected to HDMI OUT 8.

By default, AUDIO OUT 1-8 output de-embedding audio of HDMI OUT 1-8.

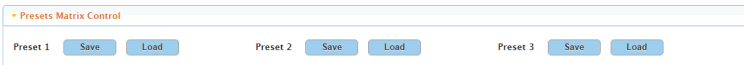
- **Audio Details:** Click to enter the following window to get audio details (Format and Sampling Rate) of input and output.

- **Port:** Click to select the HDMI input / output port to show its audio details.
- **Refresh:** Click to refresh the current audio information.



The screenshot shows a window titled "Audio Details" with a close button in the top right corner. It is divided into two main sections: "Input" and "Output". Each section contains a "Port 1" dropdown menu, a "Refresh" button, and two labels: "Format:" and "Sampling Rate:". In both sections, the "Format:" is set to "NONE" and the "Sampling Rate:" is set to "0KHZ".

### (3) Presets



The screenshot shows a window titled "Presets Matrix Control". It contains three preset entries: "Preset 1", "Preset 2", and "Preset 3". Each entry has a "Save" button and a "Load" button.

This section saves/loads the input/output switch settings to or from the Matrix.

- **Save:** Save the selection settings to local PC.
- **Load:** Preset already saved is loaded.

# General Setting

The screenshot displays the 'General Setting' page with three sections for naming:

- Input Naming:** Contains eight input fields labeled Input 1 through Input 8, each with a text input box containing the default name (e.g., 'INPUT 1').
- Zone Naming:** Contains eight output fields labeled Output 1 through Output 8, each with a text input box containing the default name (e.g., 'OUTPUT 1').
- Audio Zone Naming:** Contains eight output fields labeled Output 1 through Output 8, each with a text input box containing the default name (e.g., 'OUTPUT 1').

Each section includes a red note: "Note: The length of alias name is limited to 15 characters total." and 'Save' and 'Reset' buttons.

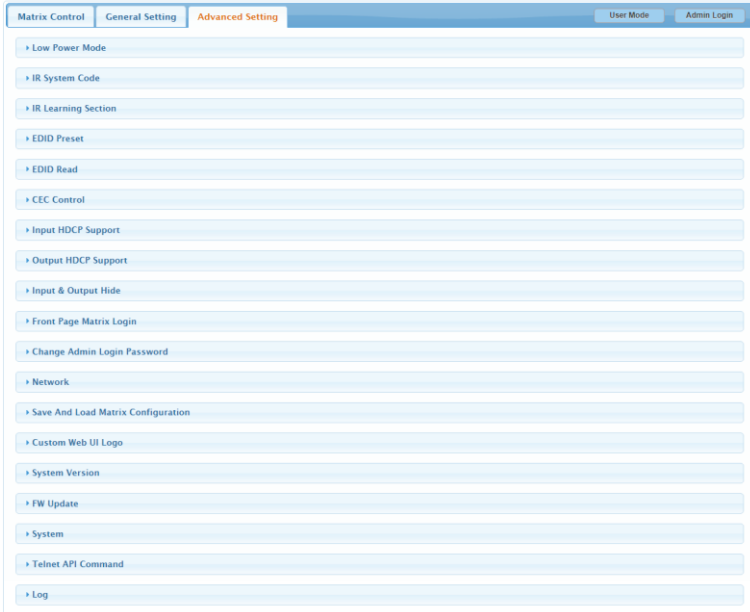
General Setting page allows you to redefine names of video inputs and outputs, audio de-embedded outputs and audio outputs easy to remember.

- **Save:** Click to save the name change.
- **Reset:** Click to reset the name change.

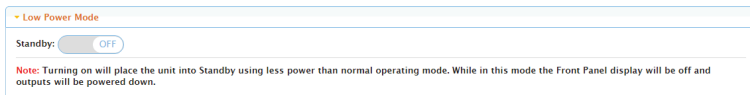
**Note:** The length of alias name is limited to 15 characters total.

# Advanced Setting

Advanced Setting page is user for advanced control of the following functions:



## (1) Lower Power Mode



The Lower Power Mode allows you to set standby function to on or off. The default setting is OFF.

### Note:

- When set to “ON”, the unit will enter into the Standby mode, which save power than normal operating mode. While in this mode, the front panel display will be off and outputs will be powered down.

- Switch video channel through web UI, IR or API commands also can exit standby mode.

## (2) IR System Code

▼ IR System Code

System Code: mode1

This matrix has 2 different IR code sets to help alleviate interference with devices that may contain a similar IR code.  
 Mode1=0x00 enabled (default)  
 Mode2=0x4E enabled  
 All=Both 0x00 and 0x4E are enabled.  
Note: We recommend that the IR code set be left to default unless absolutely required to resolve a code sharing issue.

This section allows you to set IR System Code from the drop-down menu. The matrix has 2 different IR codes sets to help alleviate interference with devices that may contain a similar IR code.

▼ IR System Code

System Code: mode1

This matrix has 2 different IR code sets to help alleviate interference with devices that may contain a similar IR code.  
 Mode1=0x00 enabled (default)  
 Mode2=0x4E enabled  
 All=Both 0x00 and 0x4E are enabled.  
Note: We recommend that the IR code set be left to default unless absolutely required to resolve a code sharing issue.

- **Mode 1:** 0x00 enabled (default).
- **Mode 2:** 0x4E enabled.
- **All:** Both 0x00 and 0x4E are enabled.

**Note:** We recommend that the IR code set be left to default unless absolutely required to resolve a code sharing issue.

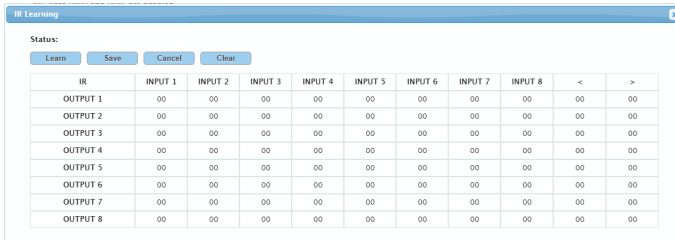
## (3) IR Learning Section

▼ IR Learning Section

Enter

This section allows you to set IR learning function. Click Enter to access the IR Learning Section.





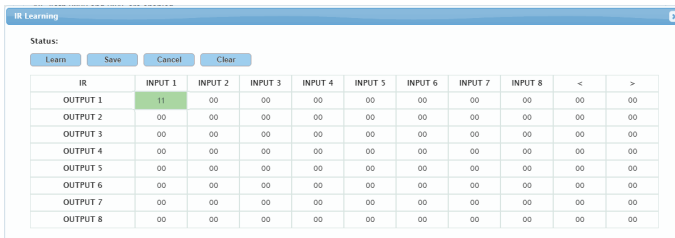
- **Learn:** Click to begin IR learning.
- **Save:** After IR learning is finished, click to save the current learning.
- **Cancel:** After IR learning is finished, click to cancel the current learning.
- **Clear:** Clear the current learning selection.

**Note:** You can also set IR Learning function through API Commands. See apparent document “**API Command Set\_MX88-4KUHDE.2**”.

Steps about IR Learning:

Take learning “switch input 1 to output 1 function” as an example:

- Click on the appropriate box to change from white to green.
- Click “Learn” button.
- Use the third-party remote to be directed at the IR window of the matrix, click the button you want to be used to learn. The box will display the code.



- After the status on the left corner shows success, click “Save” to finish learning. Or click “Cancel” to cancel the current learning.

**Note:** If the remote’s button for learning has the same IR code with the matrix, or the remote button has been already learned and use it to learn another

function again, the box you click on the window will turn red and blink, shows the IR code learning is conflicting.

#### (4) EDID Preset

EDID Preset			
Input	Preset	Input	Preset
INPUT 1	4K60 5.1CH Encoded Audio with HDR	INPUT 2	4K60 5.1CH Encoded Audio with HDR
INPUT 3	4K60 5.1CH Encoded Audio with HDR	INPUT 4	4K60 5.1CH Encoded Audio with HDR
INPUT 5	4K60 5.1CH Encoded Audio with HDR	INPUT 6	4K60 5.1CH Encoded Audio with HDR
INPUT 7	4K60 5.1CH Encoded Audio with HDR	INPUT 8	4K60 5.1CH Encoded Audio with HDR

This section allows you to configure EDID setting of each input port.

To set up the EDID setting for HDMI input:

Go to the target HDMI Input and select the settings from its drop-down menu.

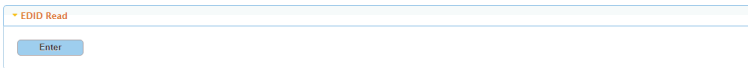
The screenshot shows the EDID Preset configuration window. On the left, there is a sidebar with navigation buttons: EDID Read, CEC Control, Input HDCP Support, Output HDCP Support, Input & Output Hi, Front Page Matrix, and Change Admin Log. The main area displays a table with columns 'Input' and 'Preset'. The 'INPUT 1' row is selected, and its 'Preset' dropdown menu is open, showing a list of options. The options are categorized into 'Copy' and 'Fix'. The 'Copy' options are: Copy From HDMI Output 1, Copy From HDMI Output 2, Copy From HDMI Output 3, Copy From HDMI Output 4, Copy From HDMI Output 5, Copy From HDMI Output 6, Copy From HDMI Output 7, and Copy From HDMI Output 8. The 'Fix' options are: 4K60 7.1CH Encoded Audio with HDR, 4K60 5.1CH Encoded Audio with HDR, 4K60 2.0CH PCM Audio with HDR, 4K60 2.0CH PCM Audio with SDR, 4K30 7.1CH Encoded Audio with HDR, 4K30 5.1CH Encoded Audio with HDR, 4K30 2.0CH PCM Audio with HDR, 4K30 2.0CH PCM Audio with SDR, 1080p@60Hz 7.1CH Encoded Audio with HDR, 1080p@60Hz 5.1CH Encoded Audio with HDR, and 1080p@60Hz 2.0CH PCM Audio with HDR.

By default, input EDID is set as 4K60 5.1CH Encoded Audio with HDR.

**Note:** When copy EDID fails, if the corresponding output port is not connected to a display, the input EDID will be the previous effective EDID

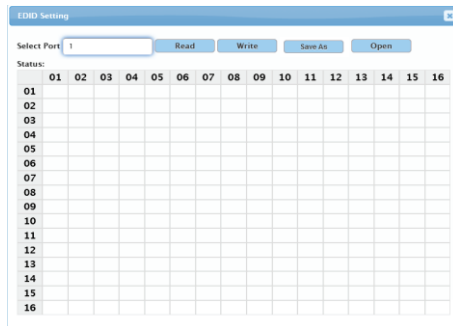
value; if the EDID of the connected display is damaged, the input EDID will be the default value.

## (5) EDID Read



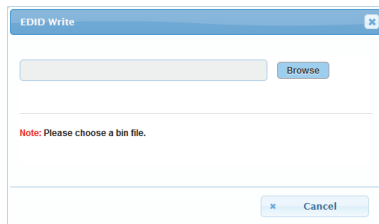
A dialog box titled "EDID Read" with a light blue border. It contains a text input field and a blue "Enter" button below it.

This section allows you to read/save EDID of an output port, or write specific EDID to an output port. Click “Enter” to enter EDID setting page:



A dialog box titled "EDID Setting" with a light blue border. It features a "Select Port" dropdown menu set to "1", and four buttons: "Read", "Write", "Save As", and "Open". Below these is a "Status:" label and a 16x16 grid. The grid has columns labeled 01 through 16 and rows labeled 01 through 16.

- **Select Port:** Select one output/input port from the drop-down menu for EDID setting.
- **Read:** Click to read EDID of the desired output port.
- **Write:** Click to write EDID to the selected input port.
- **Save As:** Save the EDID as a bin file on your local computer.
- **Open:** Click to open the EDID bin file on your local computer.



A dialog box titled "EDID Write" with a light blue border. It contains a text input field and a blue "Browse" button. Below the input field is a red note: "Note: Please choose a bin file." At the bottom right is a blue "Cancel" button.

## (6) CEC Control

CEC Control					
Output	Command Setting	Manual		On/Off	Auto
		Display On	Display Off	ON/OFF	Delay Time(1~30min)
OUTPUT 1	<input type="button" value="Edit"/>	<input type="button" value="Display On"/>	<input type="button" value="Display Off"/>	<input type="button" value="ON"/>	2
OUTPUT 2	<input type="button" value="Edit"/>	<input type="button" value="Display On"/>	<input type="button" value="Display Off"/>	<input type="button" value="ON"/>	2
OUTPUT 3	<input type="button" value="Edit"/>	<input type="button" value="Display On"/>	<input type="button" value="Display Off"/>	<input type="button" value="ON"/>	2
OUTPUT 4	<input type="button" value="Edit"/>	<input type="button" value="Display On"/>	<input type="button" value="Display Off"/>	<input type="button" value="ON"/>	2
OUTPUT 5	<input type="button" value="Edit"/>	<input type="button" value="Display On"/>	<input type="button" value="Display Off"/>	<input type="button" value="ON"/>	2
OUTPUT 6	<input type="button" value="Edit"/>	<input type="button" value="Display On"/>	<input type="button" value="Display Off"/>	<input type="button" value="ON"/>	2
OUTPUT 7	<input type="button" value="Edit"/>	<input type="button" value="Display On"/>	<input type="button" value="Display Off"/>	<input type="button" value="ON"/>	2
OUTPUT 8	<input type="button" value="Edit"/>	<input type="button" value="Display On"/>	<input type="button" value="Display Off"/>	<input type="button" value="ON"/>	2

- **Edit:** Click to enter the following window to do command testing, set and save commands of Display On/Off.

Command Setting
✕

Output:

Command Testing:

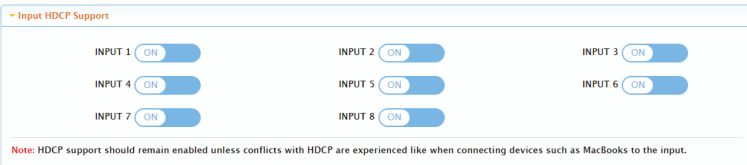
Display On:

Display Off:

- **Output:** Select one port (OUTPUT 1~8) to set.
- **Command Testing:** Input a Display on/off command, and then click "Send" to send it to the selected output to test if it takes effects.
- **Display On/Off:** Input the corresponding CEC command, then click "Save" to save it.
  - Note:** If you want to change CEC commands, please refer to the CEC specification document.
- **Display On:** Click to send the saved Display On command to the connected CEC-enabled display to power on it immediately.
- **Display Off:** Click to send the saved Display Off command to the connected CEC-enabled display to power off it immediately.
- **Auto On/Off:** Click to enable or disable the CEC Auto Control. By default, the auto CEC control is ON.
- **Delay Time (1~30min):** click the up/down arrow to set the time for the

display to power off automatically when no signal is present. For example, if Auto control is set as on and the time is set to 2 minutes, the output display will power off automatically when there's no signal at the display for 2 minutes.

## (7) Input HDCP Support



This section allows you to enable or disable HDCP capability of each input. By default, HDCP Support is switched to ON at each input to allow for HDCP-protected content transmission.

**Note:** HDCP support should remain enabled conflicts with HDCP are experienced like when connecting devices such as MacBook to input.

## (8) Output HDCP Support



Output HDCP Support allows you to set output HDCP support from "FOLLOW", "HDCP1.4" and "OFF". By default, Output HDCP Support is "FOLLOW", follow the input HDCP. For example, input HDCP is HDCP 2.2, output HDCP is also HDCP 2.2.

## (9) Input & Output Hide

▼ Input & Output Hide

<input checked="" type="checkbox"/> INPUT 1	<input checked="" type="checkbox"/> INPUT 2	<input checked="" type="checkbox"/> INPUT 3	<input checked="" type="checkbox"/> INPUT 4
<input checked="" type="checkbox"/> INPUT 5	<input checked="" type="checkbox"/> INPUT 6	<input checked="" type="checkbox"/> INPUT 7	<input checked="" type="checkbox"/> INPUT 8
<input checked="" type="checkbox"/> OUTPUT 1	<input checked="" type="checkbox"/> OUTPUT 2	<input checked="" type="checkbox"/> OUTPUT 3	<input checked="" type="checkbox"/> OUTPUT 4
<input checked="" type="checkbox"/> OUTPUT 5	<input checked="" type="checkbox"/> OUTPUT 6	<input checked="" type="checkbox"/> OUTPUT 7	<input checked="" type="checkbox"/> OUTPUT 8

Apply

This section is used to hide or unhide input and output ports in Video Matrix Control and Audio Matrix Control sections.

To hide specific input and output ports:

1. Uncheck the boxes next to the desired ports, click “Apply”.

▼ Input & Output Hide

<input checked="" type="checkbox"/> INPUT 1	<input checked="" type="checkbox"/> INPUT 2	<input checked="" type="checkbox"/> INPUT 3	<input checked="" type="checkbox"/> INPUT 4
<input type="checkbox"/> INPUT 5	<input checked="" type="checkbox"/> INPUT 6	<input checked="" type="checkbox"/> INPUT 7	<input type="checkbox"/> INPUT 8
<input checked="" type="checkbox"/> OUTPUT 1	<input type="checkbox"/> OUTPUT 2	<input checked="" type="checkbox"/> OUTPUT 3	<input type="checkbox"/> OUTPUT 4
<input checked="" type="checkbox"/> OUTPUT 5	<input checked="" type="checkbox"/> OUTPUT 6	<input type="checkbox"/> OUTPUT 7	<input checked="" type="checkbox"/> OUTPUT 8

Apply

2. The Input 5, Input 8, Output 2, Output 4 and Output 7 disappear in Video Matrix Control and Audio Matrix Control sections.

▼ Video Matrix Control

Video Details

Outputs\Inputs	INPUT 1	INPUT 2	INPUT 3	INPUT 4	INPUT 6	INPUT 7	A/V Mute	CEC Control
OUTPUT 1	Working							On Off
OUTPUT 3			Working					On Off
OUTPUT 5								On Off
OUTPUT 6					Working			On Off
OUTPUT 8								On Off
All Outputs								On Off

Working Error

By default, all the input and output ports are set as unhide.

## (10) Front Page Matrix Login

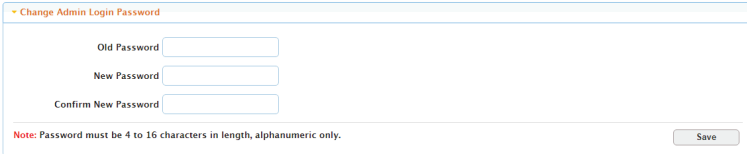
▼ Front Page Matrix Login

Remove login step

This section allows you to remove login step and re-login Web UI in User Mode directly.

By default, Remove login step is set as disabled.

## (11) Change Password



Change Admin Login Password

Old Password

New Password

Confirm New Password

Note: Password must be 4 to 16 characters in length, alphanumeric only.

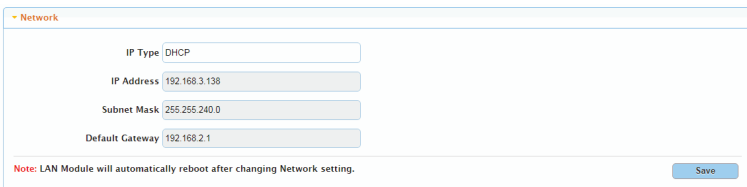
Save

This section is where Admin Login Password to be changed.

**Note:** Password must be 4 to 16 characters in length, alphanumeric only.

By default, Login password is **admin**.

## (12) Network



Network

IP Type

IP Address

Subnet Mask

Default Gateway

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

Save

Network is used to set between the static and dynamic IP address.

- **DHCP:** When enabled, the IP address of the Matrix is assigned automatically by the DHCP server connected.
- **Static:** When enabled, set up the IP address manually.
- **Apply:** Click to enable the network setting.

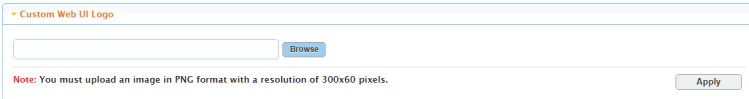
### Note:

- When "Static" is selected, please ensure your PC is in the same network segment as the Matrix, i.e. the IP address of your PC should be set as 192.168.xxx.xxx.
- Please wait for 2-3 minutes for the Matrix's LAN module to reboot and reconnect after the network setting is changed.

By default, the IP type is set as DHCP. If the matrix isn't connected to a

DHCP server, the matrix supports for local 169.254 IP address.

### (13) Custom Web UI Logo



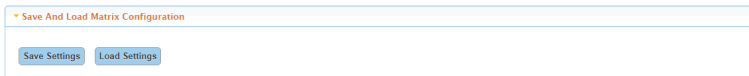
The screenshot shows a configuration panel titled "Custom Web UI Logo". It features a text input field for the logo file name, followed by a blue "Browse" button. Below the input field, a red note states: "Note: You must upload an image in PNG format with a resolution of 300x60 pixels." At the bottom right of the panel is a grey "Apply" button.

This section allows you to create your own logo for the Web UI.

To create customized Web UI logo: click "Browse" for the new logo file, and choose "Apply".

**Note:** The new logo used should be in PNG format and less than 300x60 pixels.

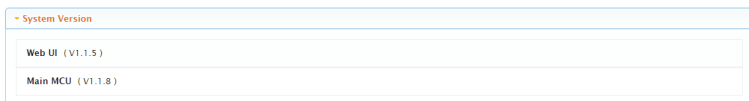
### (14) Save and Load Matrix Configurations



The screenshot shows a configuration panel titled "Save And Load Matrix Configuration". It contains two blue buttons: "Save Settings" and "Load Settings".

- **Save Settings:** Click to save the current settings of the matrix to the local PC.
- **Load Settings:** Click to load the saved settings file from the local PC. When the uploading is successful, the matrix will reboot automatically.

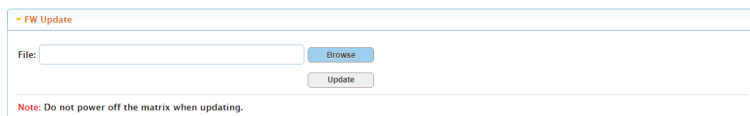
### (15) System Version



The screenshot shows a configuration panel titled "System Version". It displays two lines of text: "Web UI ( V1.1.5 )" and "Main MCU ( V1.1.8 )".

This section allows you to obtain information of the current firmware in use.

### (16) FW Update



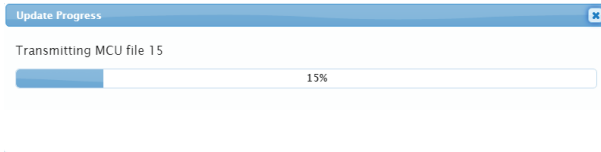
The screenshot shows a configuration panel titled "FW Update". It features a "File:" label followed by a text input field, a blue "Browse" button, and a grey "Update" button. Below the input field, a red note states: "Note: Do not power off the matrix when updating."



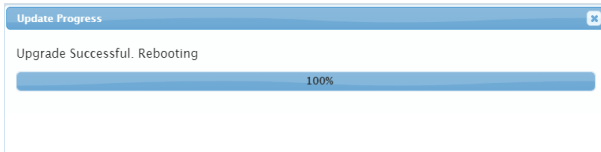
This Section allows you to update firmware.

To update Firmware:

1. Click “Browse” for the update bin file.
2. Click “Update” to proceed.

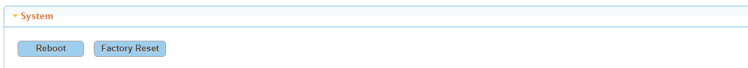


3. The matrix will reboot automatically after upgrading is completed.



**Note:** Do not power off the matrix during the upgrading.

## (17) System



This section allows you to reboot or reset the matrix to factory defaults.

- **Reboot:** Click to reboot matrix.
- **Factory Reset:** Click to reset matrix to factory default.

To reboot matrix:

Click “Reboot” and click “OK” in the pop-up window. Then wait about 2 minutes to refresh and re-login the Web UI.



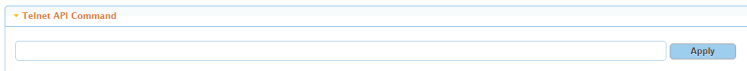
To reset matrix to factory defaults:

1. Click "Factory Reset" and then click "OK" in the pop-up window.



2. When the reset is successful, all the matrix settings will be restored to factory default and matrix will reboot automatically. Please wait for about 2 minutes to reassess the Web UI.

**(18) Telnet API**

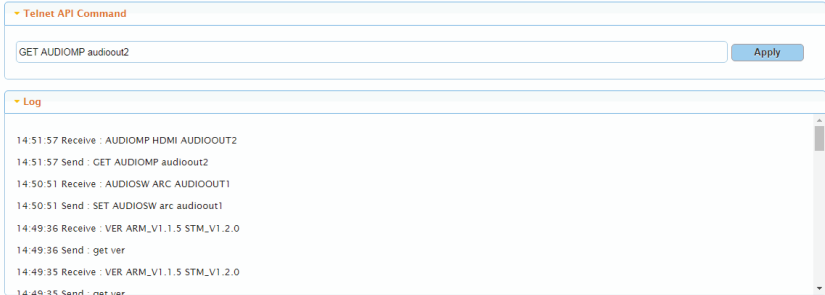


This section allows you to input API commands to control the matrix.

**Apply:** Click to send the command to the matrix.

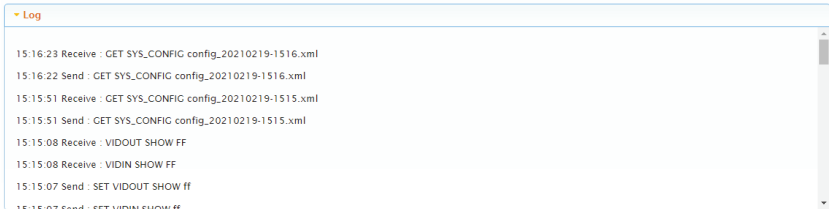
## Note:

- More API commands, please refer to the separate document “API Command Set\_MX88-4KUHDE.2”.
- The return value will display in “Log” window.



The screenshot shows two windows from a device's web interface. The top window, titled "Telnet API Command", contains a text input field with the command "GET AUDIOMP audioout2" and an "Apply" button. The bottom window, titled "Log", displays a list of system messages with timestamps and details of received and sent commands, including "AUDIOMP HDMI AUDIOOUT2", "AUDIOSW ARC AUDIOOUT1", and "VER ARM\_V1.1.5 STM\_V1.2.0".

## (19) Log



The screenshot shows the "Log" window with a list of system messages. The messages include timestamps and details of received and sent commands, such as "GET SYS\_CONFIG config\_20210219-1516.xml", "VIDEOUT SHOW FF", and "SET VIDEOUT SHOW ff".

The Log window is where Web UI setting change records display and where the return value of the telnet commands display.

# Warranty

All LINK products come with a 2-year limited liability warranty. This warranty includes parts and labor repairs on all components found to be defective in material or workmanship under normal conditions of use. This warranty shall not apply to products which have been abused, modified, or disassembled. Warranty items only by authorized resellers. Warranty not eligible for products purchased through non-authorized online sellers.

A product that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for 90 days from the date of reshipment to the buyer. If the unit is delivered by mail, customers agree to insure the unit or assume the risk of loss or damage in transit. Under no circumstances will a unit be accepted without a return authorization number. The warranty is in lieu of all other warranties expressed or implied, including without limitations, any other implied warranty or fitness or merchantability for any particular purpose, all of which are expressly disclaimed. Proof of sale may be required in order to claim warranty.

