ALF-MUK88A-N
18Gbps 8x8 HDMI Matrix

with ARC Function

Preface

Read this user manual carefully before using this product. Pictures shown in this manual is for reference only, different model and specifications are subject to the real product.

This manual is only for operation instruction, not for any maintenance usage. The functions described in this version are updated till March 2017. Any changes in functions and parameters since then will be informed separately. Please refer to the dealers for the latest details.

Trademarks

Product model and logo are trademarks. Any other trademarks mentioned in this manual are acknowledged as the properties of the trademark owner. No part of this publication may be copied or reproduced without the prior written consent.

FCC Statement

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. It 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 commercial installation.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference

Any changes or modifications not expressly approved by the manufacture would void the user's authority to operate the equipment.

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Do not dispose of this product with the normal household waste at the end of its life cycle. Return it to a collection point for the recycling of electrical and electronic devices. This is indicated by the symbol on the product, user manual or packaging. The materials are reusable according to their markings. By reusing, recycling or other forms of utilisation of old devices you make an important contribution to the protection of our environment. Please contact your local authorities for details about collection points.

Important Safety Instructions

- Do not expose this device to rain, moisture, dripping or splashing. No objects filled with liquids, such as vases, shall be placed on the device.

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

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

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

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

- Clean this device only with dry cloth.

- Unplug this device during lightning storms or when unused for long periods of time.

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

- Only use attachments / accessories specified by the manufacturer.

- Refer all servicing to qualified service personnel

Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lighting strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

Table of Contents

1. Introduction

The ALF-MUK88A-N 18Gbps is an 8x8 HDMI Matrix which supports the transmission of video (up to 4K2K@60Hz YUV 4:4:4), and multi-channel high resolution digital audio from 8 HDMI sources to 8 HDMI displays. Audio de-embedded to analog and coaxial audio is supported from 8 HDMI output ports. While HDMI output ARC function is enabled, the ARC audio from HDMI display devices will be extracted to coaxial audio output. Each HDMI output of this 8x8 HDMI Matrix supports 4K2K to 1080P downscaling independently. Control is via front panel buttons, IR remote, RS-232, LAN and Web GUI.

2. Features

- HDMI 2.0b, HDCP 2.2, and HDCP 1.4 compliant
- Video resolution up to 4K2K@60Hz (YUV 4:4:4) on all HDMI ports
- Support 18Gbps video bandwidth
- Dolby Vision, HDR10+ and HLG are supported.
- Support 4K->1080P Down Scaler for each output port
- HDMI audio pass-through up to 7.1CH HD audio (LPCM, Dolby TrueHD and DTS-HD Master Audio)
- Audio de-embedded is supported via analog and coax ports
- ARC, CEC and smart EDID management are supported
- 1U rack mounted design with front panel OLED display
- Control via front panel buttons, IR remote, RS-232, LAN and Web GUI

3. Package Contents

1 x 18Gbps 8 x 8 HDMI Matrix
1 x 12V/5A Power Adapter
1 x IR Remote
1 x IR Receiver cable (1.5 meters)
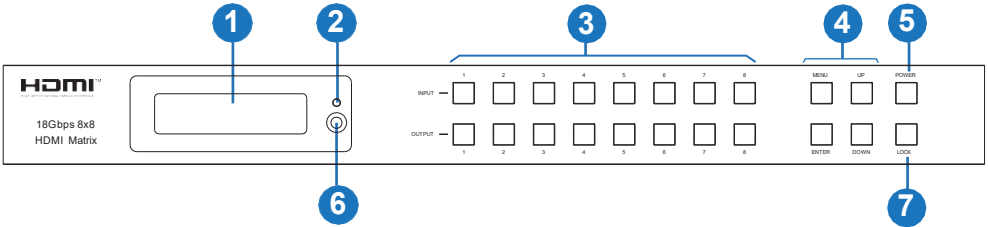1 x RS-232 serial cable (1.5 meters, male to female head)
2 x Mounting Ear

4. Specifications

Technical	
HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.2 and HDCP 1.4
Video Bandwidth	18Gbps
Video Resolution	Up to 4K2K@50/60Hz (4:4:4)
Color Space	RGB, YCbCr 4:4:4/4:2:2/4:2:0
Color Depth	8-bit, 10-bit, 12-bit
HDMI Audio Formats (Pass-through)	LPCM 2/5.1/7.1, Dolby Digital, DTS 5.1, Dolby Digital+, Dolby TrueHD, DTS-HD Master Audio, Dolby Atmos, DTS:X
Coax Audio Formats	LPCM 2.0, Dolby Digital / Plus, DTS 5.1
L/R Audio Formats	PCM2.0
HDR formats	HDR10, HDR10+, Dolby Vision, HLG
ESD Protection	Human-body Model: ±8kV (Air-gap discharge), ±4kV (Contact discharge)
Connection	
Input Ports	8×HDMI Type A [19-pin female] 1×IR EXT [3.5mm Stereo Mini-jack]
Output Ports	8×HDMI Type A [19-pin female] 8×Coax Audio (RCA) 8×L/R Audio [3.5mm Stereo Mini-jack]
Control Ports	1×TCP/IP [RJ45] 1×RS-232 [D-Sub 9]
Mechanical	
Housing	Metal Enclosure
Color	Black
Dimensions	440mm (W)×200mm (D)×44.5mm (H)
Weight	2.8kg
Power Supply	Input: AC 100 - 240V 50/60Hz Output: DC 12V/5A (US/EU standard, CE/FCC/UL certified)
Power Consumption	43W
Operating Temperature	-10°C ~ 45°C / 14°F ~ 113°F
Storage Temperature	-20°C ~ 60°C / -4°F ~ 140°F
Relative Humidity	20~90% RH (non-condensing)

Resolution / Cable length	4K60 - Feet / Meters	4K30 - Feet / Meters	1080P60 - Feet / Meters
HDMI IN / OUT	16ft / 5M	32ft / 10M	50ft / 15M

The use of "Premium High Speed HDMI" cable is highly recommended.

5. Operation Controls and Functions

Front Panel

NO.	Name	Function Description
1	OLED screen	Display matrix switching status, input / output port, EDID, Baud rate, IP Address.
2	Power LED	The LED will illuminate in green when the product is connected to power supply, and red when the product is on standby.
3	Input / Output buttons	You need to press an output button (1~8) firstly, and then press an input button (1~8) to select the corresponding input source for the output port.
4	MENU / ENTER / UP /DOWN	①**EDID Check:** On the initial OLED display screen, press "MENU" button to enter the Matrix switching state interface, then press "UP/DOWN" button to check the current EDID information of each HDMI input port. ②**EDID setting:** On the initial OLED display screen, press "MENU" button to enter the EDID setting interface, press "UP/DOWN" button to select the required EDID and press the "ENTER" button. A prompt "copy to input:" will appear. Then press "UP/DOWN" button to select the input port you need to set, and press "ENTER" button again to confirm. ③**Baud rate setting:** On the initial OLED display screen, press "MENU" button to enter the Baud rate interface, and press "UP/DOWN" button to select the required Baud rate, finally press the "ENTER" button to confirm the setting. ④**IP Address Check:** On the initial OLED display screen, press "MENU" button to enter the IP interface, then press "UP/DOWN" button to check the current IP address. Pressing the "MENU" button again will return to the initial OLED display status.
5	POWER button	Long press the POWER button for 3 seconds to enter the standby mode, then short press it to wake up the device.
6	IR Window	IR receiver window, it only receives the IR remote signal from this product.
7	LOCK button	Short press the LOCK button to lock front panel buttons (Except the power button); Press it again to unlock.

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Rear Panel

No.	Name	Function Description
1	IR EXT	If the IR receiver window of the unit is blocked, or the unit is installed in a closed area out of infrared line of sight, the IR receiver cable can be inserted to the "IR EXT" port to receive the IR remote signal.
2	L/R OUT (1-8)	Analog audio output port connects to an amplifier or speaker via a 3.5mm audio cable.
3	COAX OUT (1-8)	Coaxial audio output port connects to audio output device such as an audio amplifier via a coaxial cable.
4	TCP/IP port	TCP/IP control port, connects to PC or router with an RJ45 cable.
5	RS-232 port	Connects to a PC or control system via D-Sub 9-pin cable to transmit RS-232 command.
6	GND	Connects the housing to ground.
7	INPUT ports (1-8)	HDMI input ports connect to HDMI source devices such as DVD or set-top box with an HDMI cable.
8	OUTPUT ports (1-8)	HDMI output ports connect to HDMI display devices such as a TV or monitor with an HDMI cable.
9	DC 12V	Connect to 12V/5A power adapter.

6. IR Remote
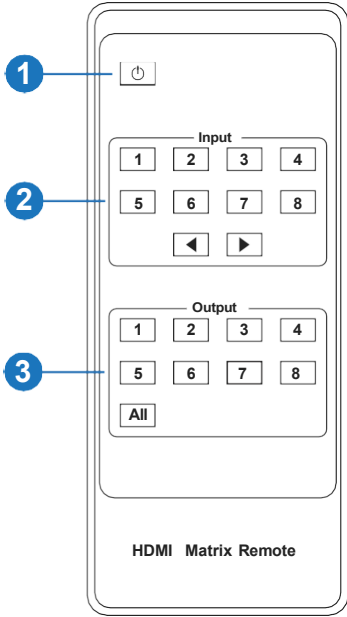
① **Power on or Standby:** Power on the Matrix or set it to standby mode.

② **Input 1/2/3/4/5/6/7/8:** Select input source button.
◀ ▶ : Select the last or next input source button.

③ **Output 1/2/3/4/5/6/7/8:** Select output source button.
All: Select all output sources simultaneously. For example, when you press the "All" button and then press input "1" button, at this time the input "1" source will output to all display devices.

Operation instruction: You need to press the output button firstly and then press input button to select the corresponding input source. For example:
Press Output-X
(X means output button from 1 to 8, including "All" button)
Then press Input-Y
(Y means input button from 1 to 8)

The Matrix can be selected input and output source by using the IR remote. There are two ways to receive the IR remote signal.

The first way: The IR window accepts the IR remote signal. When using the IR remote, the furthest distance is 7 meters, and the angle is ± 45°. The diagram is shown as below:
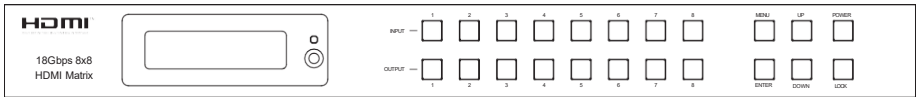
IR remote of the Matrix

The second way: If the IR receiver window of the Matrix is blocked or the Matrix is installed in a closed area out of infrared line of sight, the IR receiver cable can be inserted to the "IR EXT" port to receive the IR remote signal. The furthest distance of using the IR remote is 7 meters and the IR remote is directly faced to the IR receiver head. The diagram is shown as below:
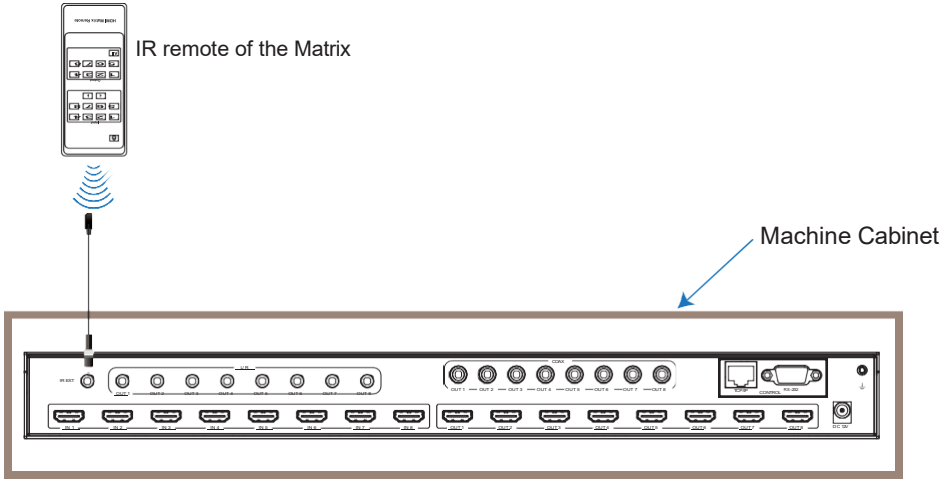

7. IR Cable Pin Assignment
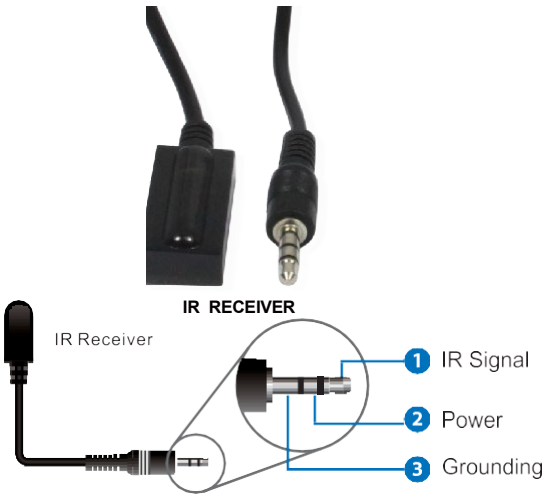
8. EDID Management

The Matrix has 21 factory defined EDID settings, 2 user-defined EDID modes and 8 copy EDID modes. You can select defined EDID mode or copy EDID mode to input port through front panel buttons, RS-232 control or Web GUI.

On-panel button operation: On the initial OLED display screen, press "MENU" button to enter the EDID setting interface, press the "UP/DOWN" button to select the required EDID, and press the "ENTER" button. A prompt "copy to input:" will appear. Then press "UP/DOWN" button to select the input port you need to set, and press the "ENTER" button again to confirm this operation.

RS-232 control operation: Connect the Matrix to a PC with a serial cable, then open a Serial Command tool on a PC to send ASCII command "s edid in x from z!" to set EDID. For details, please refer to "EDID Setting" in the ASCII command list of "10. RS-232 Control Command".

Web GUI Operation: Please check the EDID management in the "Input page" of "9. Web GUI User Guide".
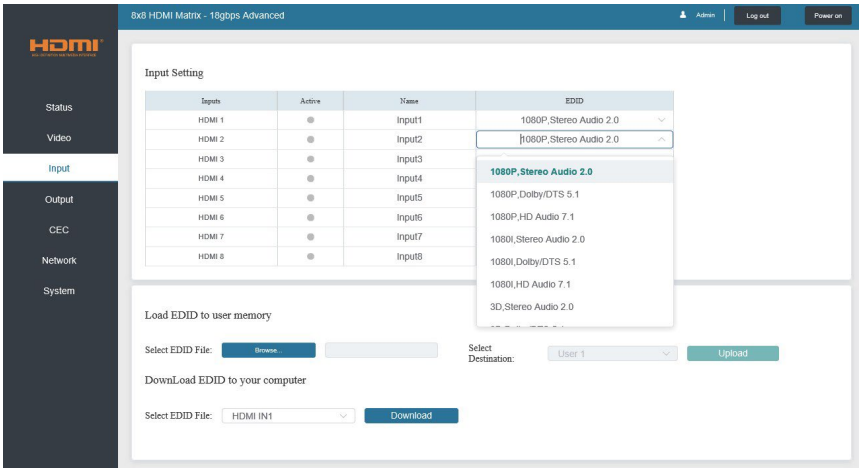
The defined EDID setting list of the product is shown as below:

EDID Mode	EDID Description
1	1080p, Stereo Audio 2.0
2	1080p, Dolby/DTS 5.1
3	1080p, HD Audio 7.1
4	1080i, Stereo Audio 2.0
5	1080i, Dolby/DTS 5.1
6	1080i, HD Audio 7.1
7	3D, Stereo Audio 2.0
8	3D, Dolby/DTS 5.1
9	3D, HD Audio 7.1
10	4K2K30_444, Stereo Audio 2.0
11	4K2K30_444, Dolby/DTS 5.1
12	4K2K30_444, HD Audio 7.1
13	4K2K60_420, Stereo Audio 2.0
14	4K2K60_420, Dolby/DTS 5.1
15	4K2K60_420, HD Audio 7.1
16	4K2K60_444, Stereo Audio 2.0
17	4K2K60_444, Dolby/DTS 5.1
18	4K2K60_444, HD Audio 7.1
19	4K2K60_444, Stereo Audio 2.0 HDR
20	4K2K60_444, Dolby/DTS 5.1 HDR
21	4K2K60_444, HD Audio 7.1HDR
22	USER1
23	USER2
24	Copy from hdmi output 1
25	Copy from hdmi output 2
26	Copy from hdmi output 3
27	Copy from hdmi output 4
28	Copy from hdmi output 5
29	Copy from hdmi output 6
30	Copy from hdmi output 7
31	Copy from hdmi output 8

9. Web GUI User Guide

The Matrix can be controlled via Web GUI. The operation method is shown as below:
Step 1: Get the current IP Address.
The default IP address is 192.168.1.100. You can get the current Matrix IP address in two ways:
The first way: You can get the IP address via panel buttons. On the initial OLED display, press "MENU" button to enter the IP interface, then press "UP/DOWN" button to check the current IP address.

The second way: You can get the IP address via RS-232 control. Send the command "r ipconfig!" through an ASCII Command tool, then you'll get the feedback information as shown below:

```
IP Mode: DHCP
IP:192.168.62.109
Subnet Mask:255.255.255.0
Gateway:192.168.62.1
TCP/IP port:8000
Telnet port:23
Mac address:6c-df-fb-0c-b3-8e
```

IP:192.168.62.109 in the above figure is the IP Address of the Matrix (the IP address is variable, depending on what the specific machine returns).
**For the details of ASCII control, please refer to "10. RS-232 Control Command".**

Step 2: Connect the TCP/IP port of the Matrix to a PC with an UTP cable and set the IP address of the PC to be in the same network segment with the Matrix.
Step 3: Input the IP address of the Matrix into your browser on the PC to enter Web GUI page.

After entering the Web GUI page, there will be a Login page as shown below:
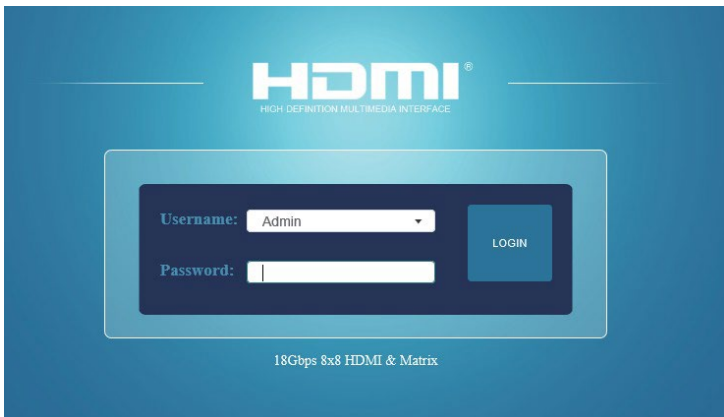
Select the Username from the list and enter the password. The default passwords are:

Username	**User**	**Admin**
Password	**user**	**admin**

After entering the password, click the "LOGIN" button and the following Status page will appear:

■ Status Page

The Status page provides basic information about the Model, the installed firmware version, and the network settings of the device.

■ Video Page

You can do the following operations on the Video page:

1. **Output:** The current device's OUTPUT port. You can select the signal source for it.
2. **Input:** You can click the drop-down menu to select signal source for the corresponding OUTPUT port.
3. **Presets Name:** You can name the current scene with maximum length of 12 characters.
4. **Presets Set:** You can restore the settings of the last saved audio-video matrix switching   relationship.
5. **Presets Save:** You can save the audio-video matrix switching relationship.
6. **Presets Clear:** You can clear the saved audio-video matrix switching relationship.

■ Input Page
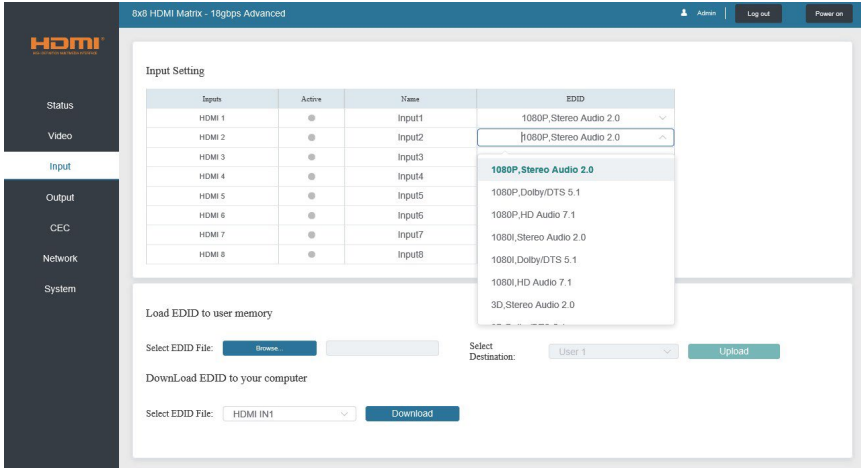
You can do the following operations on the Input page:

1. **Inputs:** Input channel of the device.
2. **Active:** This indicates whether the channel is connected to a signal source.
3. **Name:** The input channel's name. You can modify it by entering the corresponding name
4. (Max length: 12 characters) in the input box.
5. **EDID:** You can set the current channel's EDID. The specific operation is as follows:

Set EDID for the User

Click the "Browse" button, then select the bin file. If you select the wrong EDID file, there will be a prompt, as shown in the following figure:
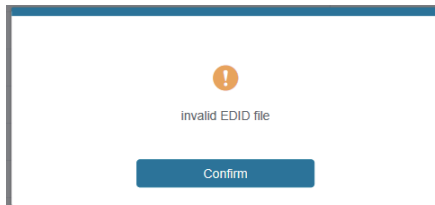
Make sure to select the correct file, then you can check the name of the selected file. Select "User 1" or "User 2", then click "Upload". Once successful, it will prompt the below:
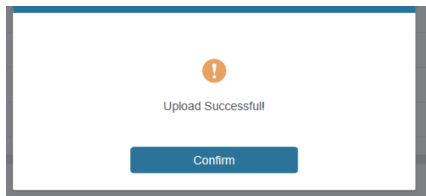
Download the EDID File of the Corresponding Input Channel

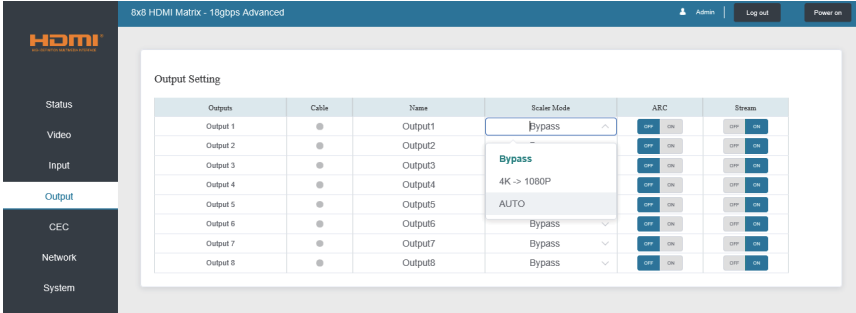Click the drop-down box of "Select EDID File" to select the corresponding input channel. Then click "Download" to download the corresponding EDID file.

■ **Output Page**

You can do the following operations on the Output page:
1. **Outputs:** Output channel of the device.
2. **Name:** The current output channel's name. You can modify it by entering the corresponding name (max length: 12 characters) in the input box.
3. **Cable:** It indicates the connection status of output ports. When the output port is connected to the display, it displays green, if not, it displays grey.
4. **Scalar Mode:** Set the current output resolution mode.
5. **ARC:** Turn on/off the ARC function.
6. **Stream:** Turn on/off the output stream.

■ **CEC Page**

You can perform CEC management on this page:
1. **Input Control:** You can control the operation of each input source by clicking the icons on the page.
2. **Output Control:** You can control the operation of each display, such as power on/off, volume +/-, and active source switching.
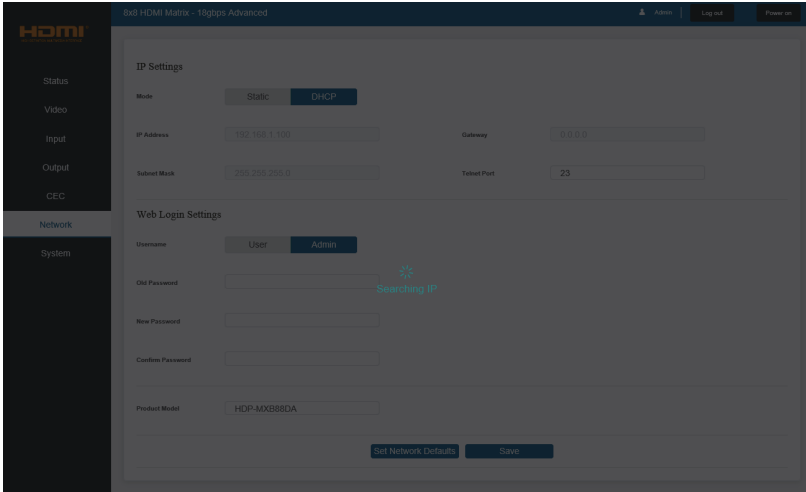
■ **Network Page**

Set the Default Network

Click "Set Network Defaults", there will be a prompt, as shown below:

Click "OK" to search the IP Address again, as shown below:

After searching is completed, it will switch to the login page, the default network setting is completed.

Modify Username

Click the "User" button, enter the correct Old Password, New Password, and Confirm Password, then click "Save". After successful modification, the below prompt will be displayed:
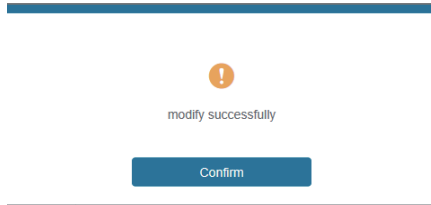
Note: Input rules for changing passwords:
1. The password cannot be empty.
2. New Password cannot be the same as Old Password.
3. New Password and Confirm Password must be the same.

Modify Network Setting

Modify the Mode / IP Address / Gateway / Subnet Mask / Telnet Port as required, click "Save" to save the settings, then it will come into effect.
After modification, if the Mode is "Static", it will switch to the corresponding IP Address; if the Mode is "DHCP", it will automatically search and switch to the IP Address assigned by the router.

■ System Page
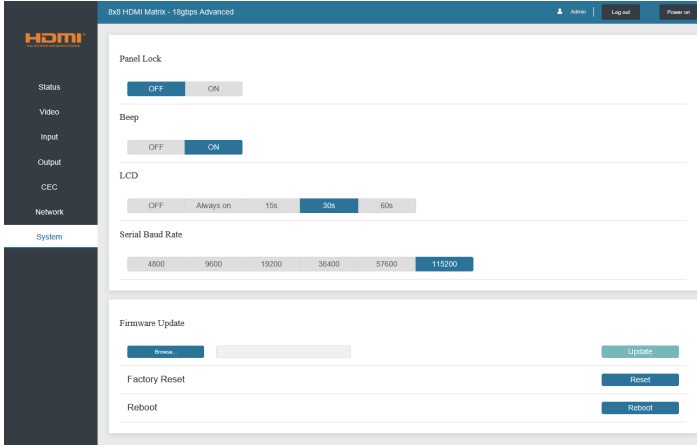
1. **Panel Lock:** Click "Panel Lock" to lock/unlock panel buttons. "On" indicates that panel buttons are unavailable; "Off" indicates panel buttons are available.
2. **Beep:** Click "Beep" to turn on/off the beep.
3. **LCD:** You can turn on/off the LCD and set the switch-on time (15s/30s/60s).
4. **Serial Baud Rate:** Click the value to set the Serial Baud Rate.
5. **Firmware Update:** Click "Browse" to select the update file, then click "Update" to complete firmware update.
6. **Factory Reset:** You can reset the unit to factory defaults by clicking "Reset".
7. **Reboot:** You can reboot the unit by clicking "Reboot".

Note: After reset/reboot, it will switch to the login page.

10. RS-232 Control Command

The Matrix also supports RS-232 control. You need a serial cable with an RS-232 male head and DB9 transfer USB male head. The RS-232 head of the serial cable is connected to the RS-232 control port with DB 9 at the rear of the Matrix, the USB head of the serial cable connects to a PC. The connection method is as follows:
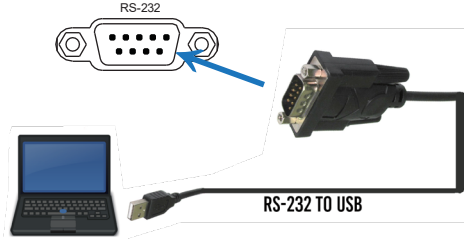
Then, open a Serial Command tool on the PC to send ASCII command to control the Matrix. The ASCII command list is shown as below:

ASCII Command				
Serial port protocol. Baud rate: 115200, Data bits: 8bit, Stop bits:1, Check bit: 0				
x - Parameter 1 y - Parameter 2 ! - Delimiter				
Command Code	**Function Description**	**Example**	**Feedback**	**Default Setting**
Power				
s power z!	Power on/off the device,z=0~1 (z=0 power off, z=1 power on)	s power 1!	Power on System Initializing... Initialization Finished! power off	power on
r power!	Get current power state	r power!	power on/power off	
s reboot!	Reboot the device	s reboot!	Reboot... System Initializing... Initialization Finished! FW version x.xx.xx	
System Setup				
help!	List all commands	help!		
r type!	Get device model	r type!	HDP-MXB88DA	
Command Code	**Function Description**	**Example**	**Feedback**	**Default Setting**
r status!	Get device current status	r status!	Get the unit all status: power, beep, lock, in/out connection, video/audio crosspoint, edid, scaler, network status	
r fw version!	Get Firmware version	r fw version!	MCU BOOT: Vx.xx.xx MCU APP: Vx.xx.xx WEB GUI: Vx.xx	
r link in x!	Get the connection status of the x input port, x=0~8(0=all)	r link in 1!	hdmi input 1: connect	

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r link out y!	Get the connection status of the y output port, y=0~8(0=all)	r link out 1!	hdmi output 1: connect	
s reset!	Reset to factory defaults	s reset!	Reset to factory defaults System Initializing... Initialization Finished! FW version x.xx.xx	
s beep z!	Enable/Disable buzzer function, z=0~1(z=0 beep off, z=1 beep on)	s beep 1!	beep on beep off	beep on
r beep!	Get buzzer state	r beep!	beep on / beep off	
s lock z!	Lock/Unlock front panel button, z=0~1 (z=0 lock off,z=1 lock on)	s lock 1!	panel button lock on panel button lock off	panel button lock off
r lock!	Get panel button lock state	r lock!	panel button lock on/off	
s lcd on time z!	Set LCD screen remain on time, z=0~4 (0:off, 1:always on, 2:15s, 3:30s, 4:60s)	s lcd on time 1!	lcd on 15 seconds	lcd on 30 seconds
r lcd mode!	Get the backlight status of lcd screen	r lcd mode!	lcd always on	
s save preset z!	Save switch state between all output port and the input port to preset z, z=1~8	s save preset 1!	save to preset 1	
s recall preset z!	Call saved preset z scenarios, z=1~8	s recall preset 1!	recall from preset 1	
s clear preset z!	Clear stored preset z scenarios, z=1~8	s clear preset 1!	clear preset 1	
r preset z!	Get preset z information, z=1~8	r preset 1!	video/audio crosspoint	
s logo1 ****************!	Set the logo name displayed on the first line of LCD screen,the max character is 16	s logo1 Initializing…!	logo1:Initializing…	
s logo2 ****************!	Set the logo name displayed on the second line of LCD screen,the max character is 16	s logo2 HDP-MXB88DA!	logo2 HDP-MXB88DA!	
s baud rate xxx!	Set the serial port baud rate of RS02 module, z=(115200,57600, 38400,19200,9600,4800)	s baud rate 115200!	Baudrate:115200	115200
r baud rate!	Get the serial port baud rate of RS02 module	r baud rate!	Baudrate:115200	
s id z!	Set the control ID of the product, z=000~999	s id 888!	id 888!	0
Output Setting				
s in x av out y!	Set input x to output y, x=1~8, y=0~8(0=all)	s in 1 av out 2!	input 1 -> output 2	PTP
r av out y!	Get output y signal status y=0~8(0=all)	r av out 0!	input 1 -> output 1 input 2 -> output 2 …… input 8 -> output 8	
Command Code	**Function Description**	**Example**	**Feedback**	**Default Setting**
s hdmi y stream z!	Set output y stream on/off, y=0~8 (0=all) z=0~1(0:disable,1:enable)	s hdmi 1 stream 1! s hdmi 0 stream 1!	Enable hdmi output 1 stream Disable hdmi output 1 stream Enable hdmi all outputs stream Disable hdmi all outputs stream	enable

Command	Description	Example	Response	Default
r hdmi y stream!	Get output y stream status, y=0~8(0=all)	r hdmi 1 stream!	Enable hdmi output 1 stream	
s hdmi y scaler z!	Set hdmi output y port output scaler mode, y=0~8(0=all), z=1~3(1=bypass,2=4k->1080p, 3=Auto)	s hdmi 1 scaler 1! s hdmi 0 scaler 1!	hdmi output 1 set to bypass mode hdmi all outputs set to bypass mode	hdmi all outputs set to bypass mode
r hdmi y scaler!	Get hdmi output y port output mode y=0~8(0=all)	r hdmi 1 scaler !	hdmi output 1 set to bypass mode	
EDID Setting				
s edid in x from z!	Set input x EDID from default EDID z, x=0~8(0=all),z=1~31 1, 1080p,Stereo Audio 2.0 2, 1080p,Dolby/DTS 5.1 3, 1080p,HD Audio 7.1 4, 1080i,Stereo Audio 2.0 5, 1080i,Dolby/DTS 5.1 6, 1080i,HD Audio 7.1 7, 3D,Stereo Audio 2.0 8, 3D,Dolby/DTS 5.1 9, 3D,HD Audio 7.1 10, 4K2K30_444,Stereo Audio 2.0 11, 4K2K30_444,Dolby/DTS 5.1 12, 4K2K30_444,HD Audio 7.1 13, 4K2K60_420,Stereo Audio 2.0 14, 4K2K60_420,Dolby/DTS 5.1 15, 4K2K60_420,HD Audio 7.1 16, 4K2K60_444,Stereo Audio 2.0 17, 4K2K60_444,Dolby/DTS 5.1 18, 4K2K60_444,HD Audio 7.1 19, 4K2K60_444,Stereo Audio 2.0 HDR 20, 4K2K60_444,Dolby/DTS 5.1 HDR 21, 4K2K60_444,HD Audio 7.1 HDR 22, User1 23, User2 24~31, copy from hdmi output 1~8	s edid in 1 from 1! s edid in 0 from 1!	input 1 EDID:1080p, Stereo Audio 2.0 all inputs EDID:1080p, Stereo Audio 2.0	1080p,Stereo Audio 2.0
r edid in x!	Get EDID status of the input x, x=0~8(0=all input)	r edid in 0!	input 1 EDID: 4K2K60 _444,Stereo Audio 2.0 …… input 8 EDID: 4K2K60 _444,Stereo Audio 2.0	
r edid data hdmi y!	Get the EDID data of the hdmi output y port, y=1~8	r edid data hdmi 1!	EDID: 00 FF FF FF FF FF FF 00 ………	
Audio Setting				
s hdmi y arc z!	Turn on/off ARC of HDMI output y, y=0~8(0=all) z=0~1(z=0,off,z=1 on)	s hdmi 1 arc 1! s hdmi 0 arc 1!	hdmi output 1 arc on hdmi output 1 arc off hdmi all outputs arc on hdmi all outputs arc off	off
r hdmi y arc!	Get the ARC state of HDMI output y, y=0~8(0=all)	r hdmi 1 arc!	hdmi output 1 arc on	

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Command Code	Function Description	Example	Feedback	Default Setting
CEC Setting				
s cec in x on!	set input x power on by CEC, x=0~8(0=all input)	s cec in 1 on!	input 1 power on	
s cec in x off!	set input x power off by CEC, x=0~8(0=all input)	s cec in 1 off!	input 1 power off	
s cec in x menu!	set input x open menu by CEC, x=0~8(0=all input)	s cec in 1 menu!	input 1 open menu	
s cec in x back!	set input x back operation by CEC, x=0~8(0=all input)	s cec in 1 back!	input 1 back operation	
s cec in x up!	set input x menu up operation by CEC, x=0~8(0=all input)	s cec in 1 up!	input 1 menu up operation	
s cec in x down!	set input x menu down operation by CEC, x=0~8(0=all input)	s cec in 1 down!	input 1 menu down operation	
s cec in x left!	set input x menu left operation by CEC, x=0~8(0=all input)	s cec in 1 left!	input 1 menu left operation	
s cec in x right!	set input x menu right operation by CEC, x=0~8(0=all input)	s cec in 1 right!	input 1 menu right operation	
s cec in x enter!	set input x menu enter by CEC, x=0~8(0=all input)	s cec in 1 enter!	iInput 1 menu enter operation	
s cec in x play!	set input x play by CEC, x=0~8(0=all input)	s cec in 1 play!	input 1 play operation	
s cec in x pause!	set input x pause by CEC, x=0~8(0=all input)	s cec in 1 pause!	iInput 1 pause operation	
s cec in x stop!	set input x stop by CEC, x=0~8(0=all input)	s cec in 1 stop!	input 1 stop operation	
s cec in x rew!	set input x rewind by CEC, x=0~8(0=all input)	s cec in 1 rew!	input 1 rewind operation	
s cec in x mute!	set input x volume mute by CEC, x=0~8(0=all input)	s cec in 1 mute!	input 1 volume mute	
s cec in x vol-!	set input x volume down by CEC, x=0~8(0=all input)	s cec in 1 vol-!	input 1 volume down	
s cec in x vol+!	set input x volume up by CEC, x=0~8(0=all input)	s cec in 1 vol+!	input 1 volume up	
s cec in x ff!	set input x fast forward by CEC, x=0~8(0=all input)	s cec in 1 ff!	input 1 fast forward operation	
s cec in x previous!	set input x previous by CEC, x=0~8(0=all input)	s cec in 1 previous!	input 1 previous operation	
s cec in x next!	set input x next by CEC, x=0~8(0=all input)	s cec in 1 next!	input 1 next operation	
s cec hdmi out y on!	set output y power on by CEC, y=0~8(0=all output)	s cec hdmi out 1 on!	hdmi output 1 power on	
s cec hdmi out y off	set output y power off by CEC, y=0~8(0=all output)	s cec hdmi out 1 on!	hdmi output 1 power off	
s cec hdmi out y mute!	set output y volume mute by CEC, y=0~8(0=all output)	s cec hdmi out 1 mute!	hdmi output 1 volume mute	
s cec hdmi out y vol-!	set output y volume down by CEC, y=0~8(0=all output)	s cec hdmi out 1 vol-!	hdmi output 1 volume down	
s cec hdmi out y vol+!	set output y volume up by CEC, y=0~8(0=all output)	s cec hdmi out 1 vol+!	hdmi output 1 volume up	

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s cec hdmi out y active!	set output y active source by CEC, y=0~8(0=all output)	s cec hdmi out 1 active!	hdmi output 1 active source	

Command Code	Function Description	Example	Feedback	Default Setting
Network Setting				
r ipconfig!	Get the Current IP Configuration	r ipconfig!	IP Mode: Static IP: 192.168.1.72 Subnet Mask: 255.255.255.0 Gateway: 192.168.1.1 TCP/IP port=8000 Telnet port=10 Mac address: 00:1C:91:03:80:01	
r mac addr!	Get network MAC address	r mac addr!	Mac address: 00:1C:91:03:80:01	
s ip mode z!	Set network IP mode to static IP or DHCP, z=0~1 (z=0 Static, z=1 DHCP)	s ip mode 0!	Set IP mode:Static (Please use "s net reboot!" command or repower device to apply new config!)	
r ip mode!	Get network IP mode	r ip mode!	IP Mode: Static	
s ip addr xxx.xxx.xxx.xxx!	Set network IP address	s ip addr 192.168.1.100!	Set IP address: 192.168.1.100 (Please use "s net reboot!" command or repower device to apply new config!) DHCP on, Device can't config static address, set DHCP off first.	
r ip addr!	Get network IP address	r ip addr!	IP address: 192.168.1.100	
s subnet xxx.xxx.xxx.xxx!	Set network subnet mask	s subnet 255.255.255.0!	Set subnet Mask: 255.255.255.0 (Please use "s net reboot!" command or repower device to apply new config!) DHCP on, Device can't config subnet mask, set DHCP off first.	
r subnet!	Get network subnet mask	r subnet!	Subnet Mask: 255.255.255.0	
s gateway xxx.xxx.xxx.xxx!	Set network gateway	s gateway 192.168.1.1!	Set gateway: 192.168.1.1 Please use "s net reboot!" command or repower device to apply new config! DHCP on, Device can't config gateway, set DHCP off first.	
r gateway!	Get network gateway	r gateway!	Gateway:192.168.1.1	
s tcp/ip port x!	Set network TCP/IP port (x=1~65535)	s tcp/ip port 8000!	Set TCP/IP port:8000	

r tcp/ip port!	Get network TCP/IP port	r tcp/ip port!	TCP/IP port:8000	
s telnet port x!	Set network telnet port (x=1~65535)	s telnet port 23!	Set Telnet port:23	
r telnet port!	Get network telnet port	r telnet port!	Telnet port:23	
Command Code	**Function Description**	**Example**	**Feedback**	**Default Setting**
s net reboot!	Reboot network modules	s network reboot!	Network reboot… IP Mode: Static IP: 192.168.1.72 Subnet Mask: 255.255.255.0 Gateway: 192.168.1.1 TCP/IP port=8000 Telnet port=10 Mac address: 00:1C:91:03:80:01	

11. Application Example