



## UHD816-EX230-K

**18Gbps 8 x 8 HDMI Matrix (70m)  
with IR Matrix Function**

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**USER MANUAL**

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## Thank you for purchasing this product

Thank you for purchasing this product. For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

## Surge protection device recommended

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

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# Introduction

The UHD816-EX230-K Matrix can connect up to 8 HDMI sources and output to 16 displays. It features eight HDMI outputs, and each HDMI output is mirrored to provide a CAT-Cable output which runs simultaneously. It supports transmission of video with resolutions up to 4K@60Hz 4:4:4 and supports HD digital audio formats such as LPCM 7.1CH, Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio. The Matrix can be used for multi-room connectivity, and the HDMI signals can be extended up to 230ft/70m via CAT-Cable outputs by connecting the included CAT Receivers. The Matrix supports one-way IR matrix function. It can be controlled via front panel buttons, IR remote, RS-232, LAN, and Web GUI.



## Features

1. HDMI 2.0b and HDCP 2.2/1.x compliant
2. Video resolution up to 4K@60Hz (YUV 4:4:4) on all HDMI & CAT ports
3. 8 HDMI inputs, 8 HDMI & CAT mirrored outputs
4. HDMI ports support 18Gbps lossless compressed video bandwidth
5. HDR, HDR10, HDR10+, Dolby Vision, HLG are supported
6. CAT output can extend the transmission distance up to 230ft/70m via a single CAT6 cable
7. HDMI audio pass-through up to 7.1CH HD audio (LPCM, Dolby TrueHD and DTS-HD Master Audio)
8. Advanced EDID management and CEC control are supported
9. 12V PoC on all CAT ports
10. Supports one-way IR matrix function
11. Control via front panel buttons, IR remote, RS-232, LAN and Web GUI

# Package Contents

1.	UHD816-EX230-K Matrix	1pcs
2.	CAT Receiver	8pcs
3.	IR Remote	1pcs
4.	12V/5A Power Supply	1pcs
5.	RS-232 Serial Cable (1.5m, DP9 female head to 3 pin Phoenix connector)	1pcs
6.	IR Blaster Cable (1.5m)	8pcs
7.	IR Receiver Cable (1.5m)	9pcs
8.	Machine Screw (KM3*6)	8pcs
9.	Mounting Ear (Matrix and Receiver)	18pcs
10.	User Manual	1pcs

# Specifications

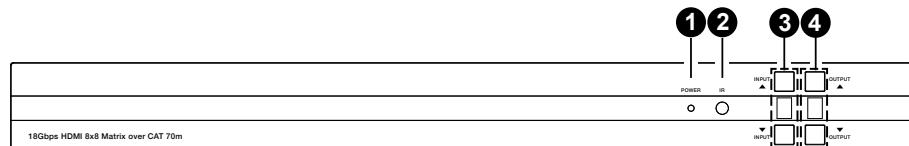
Technical	
HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.2 and HDCP 1.x
Video Bandwidth	18Gbps
Video Resolution	Up to 4K@50/60Hz (4:4:4)
Color Depth	8-bit, 10-bit, 12-bit (1080p@60Hz) 8-bit (4K@60Hz YUV4:4:4) 8-bit, 10-bit, 12-bit (4K@60Hz YCbCr 4:2:2/4:2:0)
Color Space	RGB 4:4:4, YCbCr 4:4:4/4:2:2/4:2:0
HDMI Audio Formats	LPCM 2.0/2.1/5.1/6.1/7.1, Dolby Digital, Dolby TrueHD, Dolby Digital Plus (DD+), DTS-ES, DTS HD Master, DTS HD-HRA, DTS-X
HDR formats	HDR 10, HDR 10+, Dolby Vision, HLG
Transmission Distance	230ft/70m (via a single CAT6 cable)
ESD Protection	Human body model – ±8kV (Air-gap discharge) & ±4kV (Contact discharge)

# Specifications

Connection			
Matrix	Inputs: 8 × HDMI Type A [19-pin female] Outputs: 8 × HDMI Type A [19-pin female] 8 × CAT port [RJ45] Controls: 1 × TCP/IP [RJ45] 1 × RS-232 [3-pin phoenix connector] 8 × IR OUT [3.5mm Stereo Mini-jack] 1 × IR EXT [3.5mm Stereo Mini-jack]		
CAT Receiver	Inputs: 1 × IR IN [3.5mm Stereo Mini-jack] 1 × CAT port [RJ45] Output: 1 × HDMI Type A [19-pin female] Control: 1 × SERVICE [Micro USB, Update port]		
Mechanical			
Housing	Metal Enclosure		
Silkscreen Color	Black		
Dimensions	Matrix: 440mm (W) × 250mm (D) × 44.5mm (H) Receiver: 61mm (W) × 88mm (D) × 18mm (H)		
Weight	Matrix: 3.2kg, Receiver: 155g		
Power Consumption	50W (Max)		
Power Supply	Input: AC 100-240V 50/60Hz Output: DC 12V/5A (US/EU standards, CE/FCC/UL certified)		
Operating Temperature	32~104°F / 0~40°C		
Storage Temperature	-4~140°F / -20~60°C		
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.			

# Operation Controls and Functions

## Front Panel



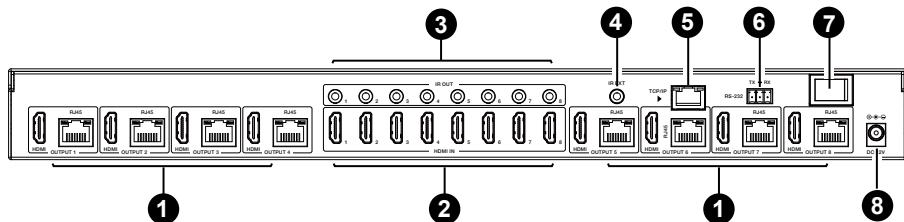
No.	Name	Function Description
1.	Power LED	The LED will light up green when the product is working normally, and red when the product is on standby.
2.	IR window	IR receiver window. It only receives the IR remote signal from this Matrix.
3.	INPUT ▲/▼ buttons	Short press the INPUT ▲/▼ button to circularly select HDMI signal input channels 1~8. The input Nixie tube will display the corresponding input channel number. Long press the INPUT ▲ button for 3 seconds; the Matrix enters the standby mode. Short press the INPUT ▲ button to turn on the Matrix.
4.	OUTPUT ▲/▼ buttons	Short press the OUTPUT ▲/▼ button to circularly select HDMI signal output channels 1~8 / A (A indicates all output channels). The output Nixie tube will display the corresponding output channel number. Long press the OUTPUT ▲ and ▼ button at the same time for 10 seconds, the Nixie tube displays "FC" and flashes 5 seconds for 1HZ, then the Matrix will restore to factory default setting (including IP address and other configuration).

### Input and output switching operation:

First press the OUTPUT ▲/▼ button to select HDMI signal output channel 1~8 with the input Nixie tube showing the corresponding number, then press the INPUT ▲/▼ button to select HDMI signal input channel 1~8 with the output Nixie tube showing the corresponding number. After two Nixie tubes flash 3 times, the input signal will be switched to the output channel successfully, and two Nixie tubes will show "0A". If you select the output channel A, then select HDMI signal input channel 1~8, the input 1~8 source signal will be output to all display devices.

# Operation Controls and Functions

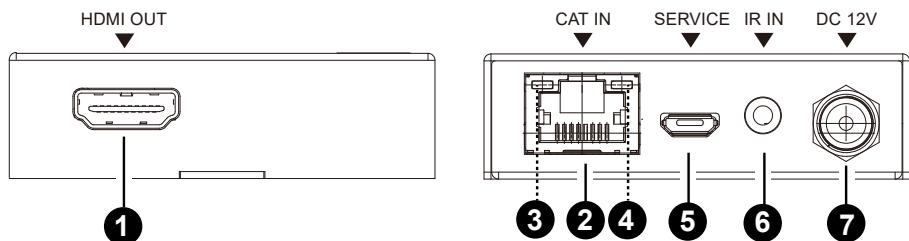
## Rear Panel



No.	Name	Function Description
1	OUTPUT 1~8 ports	HDMI signal output ports, connected to HDMI display devices such as TV or monitor with HDMI cable.
		CAT mirrored output ports, connected to CAT Receivers with CAT cable.
2.	HDMI IN 1~8 ports	HDMI signal input ports, connected to HDMI source device such as DVD or PS4 with HDMI cable.
3.	IR OUT 1~8 ports	Connect with IR blaster cable. The IR signal is from the "IR IN" port of the CAT Receiver.
4.	IR EXT	Connect with IR receiver cable to be able to control the matrix if it is placed in a closet or a rack.
5.	TCP/IP port	The link port for TCP/IP control. Connected to an active Ethernet link with an RJ45 cable.
6.	RS-232	RS-232 command control port, connect to a PC or control system with a D-Sub 9-pin cable to control the Matrix.
7.	Power switch	Press the switch to turn on/off the Matrix.
8.	DC 12V	DC 12V power input port.

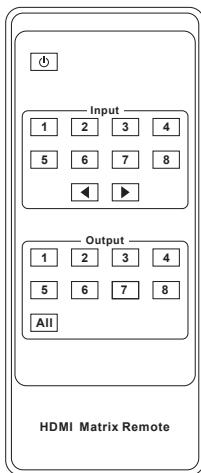
# Operation Controls and Functions

## CAT Receiver Panel



No.	Name	Function Description
1	HDMI OUT	HDMI signal output port, connect to a HDMI display device such as TV or Projector with an HDMI cable.
2.	CAT IN	Connect to the CAT OUTPUT port on the Matrix with a CAT cable.
3.	Power Indicator (Green)	When the receiver is powered on, the power indicator will light up.
4.	Data signal Indicator (Orange)	When there is signal transmission between the Matrix and the receiver, the indicator will light up.
5.	SERVICE port	Used for firmware update.
6.	IR IN	Connect with the IR Receiver cable. The IR signal will be sent to the IR OUT port of the Matrix.
7.	DC 12V	Plug DC 12V/2.5A power supply into the unit and connect the adapter to an AC outlet. <b>(Note:</b> The CAT receiver also can be powered by the Matrix via a CAT cable. )

# IR Remote



## Power on or Standby:

Power on the Matrix or set it to standby mode.

## Input 1/2/3/4/5/6/7/8:

Press these buttons to select the input signal source.

◀ ▶ :

Select the last or next signal input channel.

## Output 1/2/3/4/5/6/7/8:

Press these buttons to select the signal output channel.

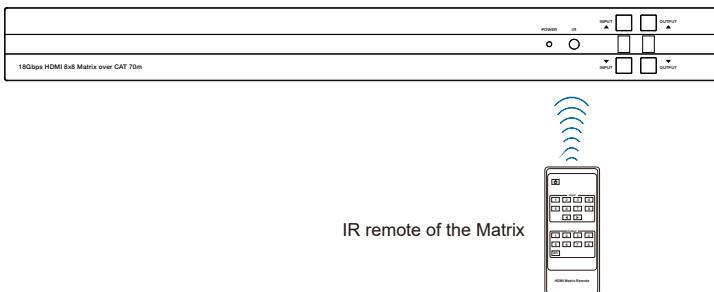
## ALL:

Select all output channels simultaneously. For example, when you press the "ALL" button and then press INPUT "1" button, at this time the input "1" source will be output to all display devices.

**Operation Instruction:** You need to press the Output button first and then press the Input button to select the corresponding input source. For example, press Output-X (X means the output button from 1 to 8, including "ALL" button), then press Input-Y (Y means the input button from 1 to 8).

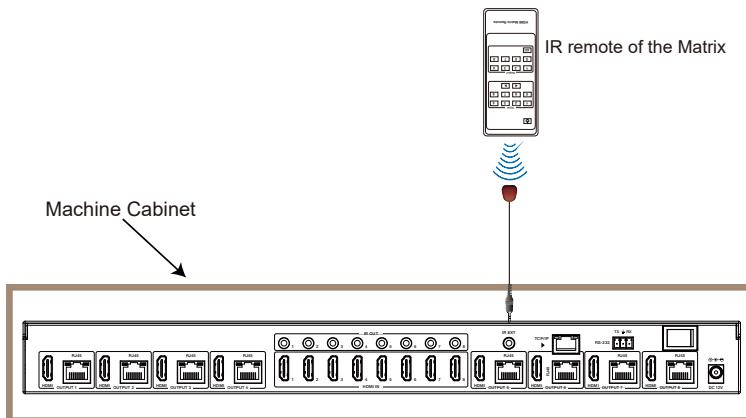
The Matrix supports selecting input and output channel by using the IR remote. There are two ways to receive the IR remote signal.

**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  $\pm 45^\circ$ . The diagram is shown as below:



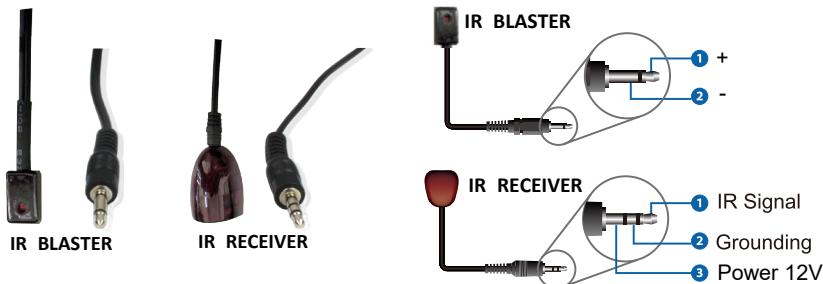
# IR Remote

**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.



## IR Cable Pin Assignment

IR Blaster and Receiver pin definition is as below:



# IR Control System

The product supports one-way IR matrix function. When Matrix is connected to CAT Receiver through CAT6 cable, you can control the input source device (local end) by the IR control signal from the CAT receiver (remote end). For example, the HDMI output signal on the CAT Receiver 4 is from the HDMI IN 4 port, so IR input signal of the CAT Receiver 4 will be emit to IR OUT 4 port of the Matrix. The HDMI output signal on the CAT Receiver 6 is from the HDMI IN 6 port. Then, IR input signal of the CAT Receiver 6 will be emit to IR OUT 6 port of the Matrix etc. The IR OUT signal of the Matrix depends on your IR remote of source device. Please see the following connection diagram.

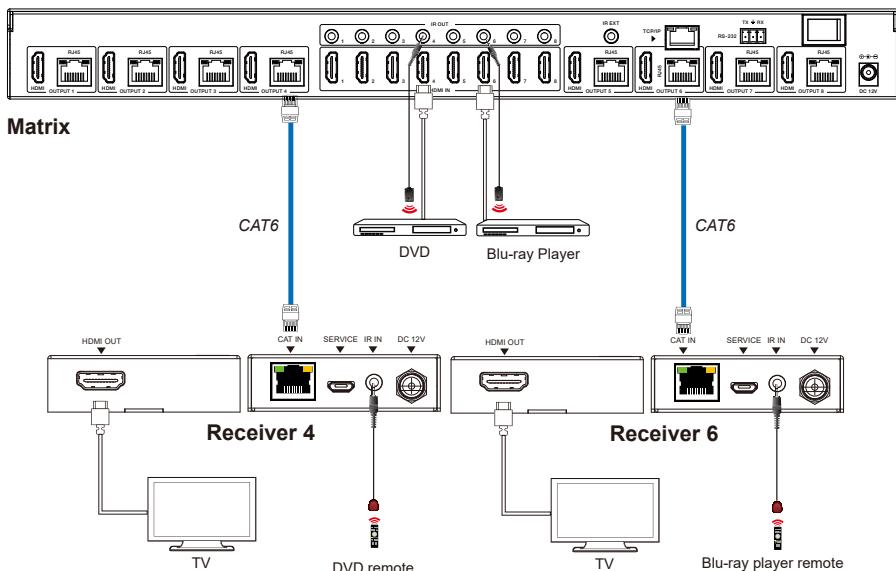


Figure 1: IR connection diagram

# EDID Management

This Matrix has 21 factory defined EDID settings, 2 user-defined EDID modes and 16 copy EDID modes. You can select defined EDID mode or copy EDID mode to input port through RS-232 control or Web GUI.

**RS-232 control operation:** Connect the Matrix to PC with a serial cable, then open a Serial Command tool on 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 “RS-232 Control Command”.

**Web GUI Operation:** Please check the EDID management in the “Input page” of “Web GUI User Guide”.

The screenshot shows the 'Input Setting' page of the web interface. On the left, there's a vertical sidebar with navigation links: HDMI (selected), Status, Video, Input (selected), Output, CEC, Network, and System. The main content area has a header '18Gbps 8x8 HDMI & Matrix' with user info ('Admin'), 'Log out', and 'Power on'. Below the header is a table titled 'Input Setting' with columns: Inputs, Active, Name, and EDID. The table lists 8 HDMI inputs, each with its active status, name, and EDID setting (1080P Stereo Audio 2.0). Below the table is a section for loading EDID to memory, with fields for 'Select EDID File:' (with a 'Browse' button) and 'Select Destination:' (with a dropdown menu and 'Upload' button). At the bottom, there's a section for downloading EDID, with a field 'Select EDID File:' containing 'HDMI IN1' and a 'Download' button.

# EDID Management

The defined EDID setting list of the product is shown as below:

EDID Mode	EDID Description	EDID Mode	EDID Description
1.	1080p, Stereo Audio 2.0	21.	4K2K60, HD Audio 7.1HDR
2.	1080p, Dolby/DTS 5.1	22.	USER1
3.	1080p, HD Audio 7.1	23.	USER2
4.	1080i, Stereo Audio 2.0	24.	copy from hdmi output 1
5.	1080i, Dolby/DTS 5.1	25.	copy from hdmi output 2
6.	1080i, HD Audio 7.1	26.	copy from hdmi output 3
7.	3D, Stereo Audio 2.0	27.	copy from hdmi output 4
8.	3D, Dolby/DTS 5.1	28.	copy from hdmi output 5
9.	3D, HD Audio 7.1	29.	copy from hdmi output 6
10.	4K2K30_444, Stereo Audio 2.0	30.	copy from hdmi output 7
11.	4K2K30_444, Dolby/DTS 5.1	31.	copy from hdmi output 8
12.	4K2K30_444, HD Audio 7.1	32.	copy from cat output 1
13.	4K2K60_420, Stereo Audio 2.0	33.	copy from cat output 2
14.	4K2K60_420, Dolby/DTS 5.1	34.	copy from cat output 3
15.	4K2K60_420, HD Audio 7.1	35.	copy from cat output 4
16.	4K2K60_444, Stereo Audio 2.0	36.	copy from cat output 5
17.	4K2K60_444, Dolby/DTS 5.1	37.	copy from cat output 6
18.	4K2K60_444, HD Audio 7.1	38.	copy from cat output 7
19.	4K2K60, Stereo Audio 2.0 HDR	39.	copy from cat output 8
20.	4K2K60, Dolby/DTS 5.1 HDR		

# Web GUI User Guide

The Matrix can be controlled by Web GUI. The operation method is shown as below:

**Step 1:** Get the current IP Address.

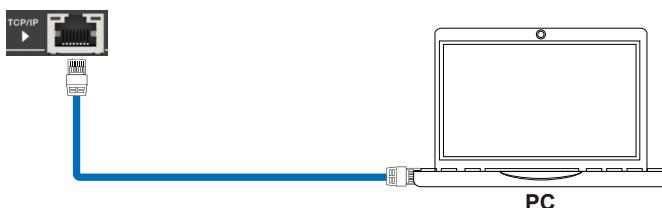
The default IP address is 192.168.0.100. You can get the current Matrix IP address via RS-232 control. Send the ASCII command “r ipconfig!” through a Serial Command tool, then you'll get the feedback information as shown below:

```
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 RS-232 control, please refer to “[RS-232 Control Command](#)”.

**Step 2:** Connect the TCP/IP port of the Matrix to a PC with a UTP cable (as shown in the following figure), and set the IP address of the PC to be in the same network segment with the Matrix.



**Step 3:** Enter the IP address of the Matrix into your browser on the PC to enter Web GUI page. There will be a Login page as shown below:

# Web GUI User Guide



Select the Username from the drop-down 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 product model, installed firmware version and the network settings of the device.

A screenshot of the Status page for the '18Gbps 8x8 HDMI &amp; Matrix' device. The left sidebar has navigation links for Status, Video, Input, Output, CEO, Network, and System. The main content area displays a table of system status information. The table includes rows for Model (HDP-MX888D70M), Main MCU Version (V1.08.03), Web Version (V2.04), Sub1 MCU Version (V1.08.03), Sub2 MCU Version (V1.08.02), CPLD Version (V1.00.01), Hostname (IP-module-21CAD), IP Address (192.168.1.100), Subnet Mask (255.255.255.0), and Gateway (192.168.1.1). The top right of the page shows 'Admin', 'Log out', and 'Power on' buttons.

# Web GUI User Guide

## ■ Video Page

The screenshot shows the 'Video' page of the web interface. On the left, a sidebar menu includes 'HDMI' (selected), 'Status', 'Video', 'Input', 'Output', 'CEC', 'Network', and 'System'. The main content area is titled '16Gbps 8x8 HDMI & Matrix'. It has two main sections: 'Switch' and 'Presets'. The 'Switch' section contains tables for 'Output' and 'Input'. The 'Output' table lists ports 1 through 8 with dropdown menus for selecting signal sources. The 'Input' table lists ports 1 through 8 with dropdown menus. The 'Presets' section contains tables for 'Presets Name', 'Presets Set', 'Presets Save', and 'Presets Clear'. Each table has 8 rows corresponding to the output ports, with buttons for 'Set', 'Save', and 'Clear'.

You can do the following operations on the Video page:

- ① **Output:** The current device's OUTPUT port. You can select 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 (Chinese name is unsupported).
- ④ **Presets Set:** You can restore the settings of the last saved audio-video matrix switching relationship.
- ⑤ **Presets Save:** You can save audio-video matrix switching relationship.
- ⑥ **Presets Clear:** You can clear the saved audio-video matrix switching relationship.

## ■ Input Page

The screenshot shows the 'Input' page of the web interface. The sidebar menu is identical to the 'Video' page. The main content area is titled '16Gbps 8x8 HDMI & Matrix'. It has two main sections: 'Input Setting' and 'EDID Management'. The 'Input Setting' section contains a table for 'Inputs'. It lists ports 1 through 8 with columns for 'Active' (radio buttons), 'Name' (dropdown menus), and 'EDID' (dropdown menus). The 'EDID' column for all ports shows '1000P/Stereo Audio 2.0'. The 'EDID Management' section contains sections for 'Load EDID to user memory' (with a 'Browse...' button) and 'Select Destination' (with a dropdown menu and 'Upload' button). It also has sections for 'DownLoad EDID to your computer' (with a 'Select EDID File' dropdown and 'Download' button) and 'Select EDID File' (with a dropdown menu).

# Web GUI User Guide

You can do the following operations on the Input page:

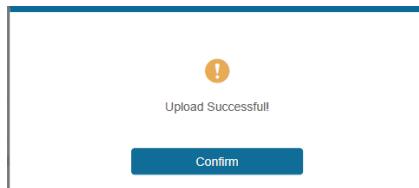
- ① **Inputs:** Input channel of the device.
- ② **Active:** It indicates whether the channel is connected to a signal source.
- ③ **Name:** The input channel's name. You can modify it by entering the corresponding name (max length: 12 characters) in the input box (Chinese name is unsupported).
- ④ **EDID:** 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”. After successful setting, a prompt will appear as follows:



## Download the EDID File for 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.

# Web GUI User Guide

## ■ Output Page

Outputs	Name	Type	Cable	Stream
Output 1	hdmioutput1	HDMI	○	ON
	catoutput1	CAT	○	ON
Output 2	hdmioutput2	HDMI	○	ON
	catoutput2	CAT	○	ON
Output 3	hdmioutput3	HDMI	○	ON
	catoutput3	CAT	○	ON
Output 4	hdmioutput4	HDMI	○	ON
	catoutput4	CAT	○	ON
Output 5	hdmioutput5	HDMI	○	ON
	catoutput5	CAT	○	ON
Output 6	hdmioutput6	HDMI	○	ON
	catoutput6	CAT	○	ON
Output 7	hdmioutput7	HDMI	○	ON
	catoutput7	CAT	○	ON
Output 8	hdmioutput8	HDMI	○	ON
	catoutput8	CAT	○	ON

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 (Chinese name is unsupported).
- ③ **Type:** The current output channel's type (HDMI or CAT).
- ④ **Cable:** It indicates the connection status of output ports. When the output port is connected to the display, it shows green, otherwise, it shows gray.
- ⑤ **Stream:** Turn on/off the output stream.

## ■ CEC Page

Input Control

Input1	+
Input2	+
Input3	▲ ▼
Input4	☰
Input5	▶
Input6	◀
Input7	↔
Input8	—

Output Control

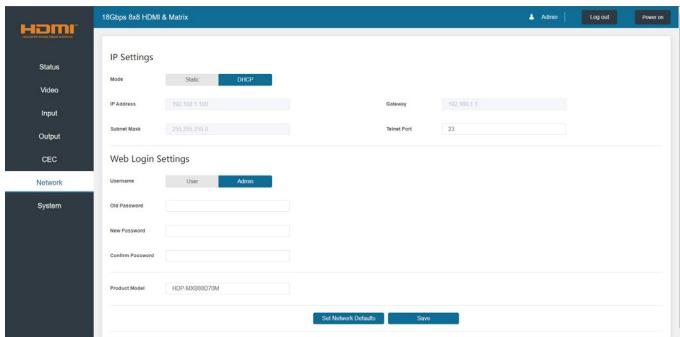
hdmioutput1	+
hdmioutput2	—
hdmioutput3	—
hdmioutput4	—
hdmioutput5	—
hdmioutput6	—
hdmioutput7	—
hdmioutput8	—

# Web GUI User Guide

You can perform CEC management on this page:

- ① **Input Control:** You can control the operation of each input source by pressing the icons on the page. (You can control multiple inputs simultaneously.)
- ② **Output Control:** You can control the operation of each display, such as power on/off, volume +/-, active source switching.

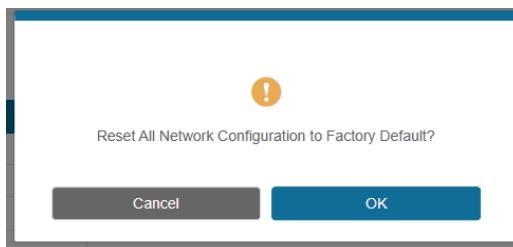
## ■ Network Page



You can do the following operations on the Network page:

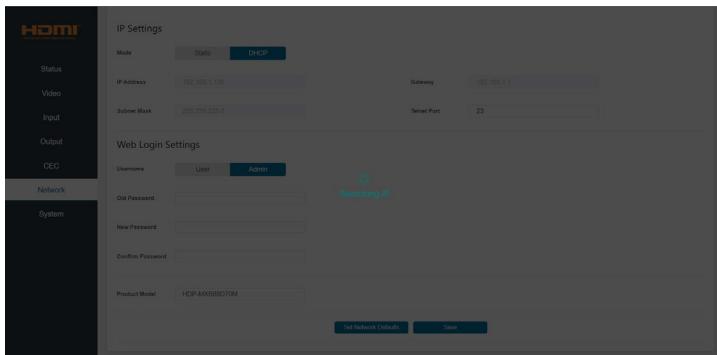
### Set the Default Network

Click "Set Network Defaults", there will be a prompt, as shown in the following figure:



Click "OK" to search the IP Address again, as shown in the following figure:

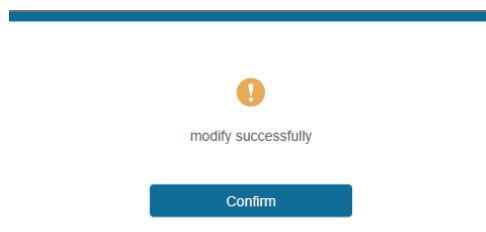
# Web GUI User Guide



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, and then click "Save". After successful modification, there will be a prompt, as shown in the following figure:



**Note:** Input rules for changing passwords:

- (1) The password can't be empty.
- (2) New Password can't be the same as Old Password.
- (3) New Password and Confirm Password must be the same.

# Web GUI User Guide

## Modify Network Setting

Modify the Mode/IP Address/Gateway/Subnet Mask/Telnet Port as required, and 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.

IP Settings

Mode  Static  DHCP

IP Address

Gateway

Subnet Mask

Telnet Port

## ■ System Page

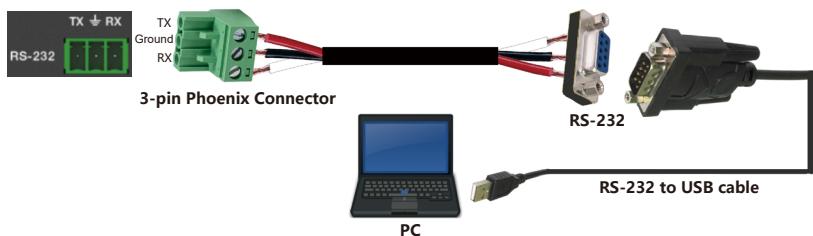
The screenshot shows the System configuration page for a 16Gbps 8x8 HDMI & Matrix device. The left sidebar has a 'HDMI' icon and links for Status, Video, Input, Output, CEC, Network, and System. The main content area is titled '16Gbps 8x8 HDMI & Matrix'. It includes sections for 'Panel Lock' (OFF), 'Beep' (ON), 'Serial Baud Rate' (set to 115200), 'Firmware Update' (with a 'Browse' button), 'Factory Reset' (with a 'Reset' button), and 'Reboot'. Top navigation includes Admin, Log out, and Power on.

You can do the following operations on the System page:

- ① **Panel Lock:** Click to lock/unlock panel buttons. "ON" indicates that panel buttons are unavailable; "OFF" indicates panel buttons are available.
  - ② **Beep:** Click to turn on/off the beep.
  - ③ **Serial Baud Rate:** Click the value to set the Serial Baud Rate.
  - ④ **Firmware Update:** Click "Browse" to select the update file, then click "Update" to complete firmware update.
  - ⑤ **Factory Reset:** You can reset the machine to factory defaults by clicking "Reset".
  - ⑥ **Reboot:** You can reboot the machine by clicking "Reboot".
- Note:** After reset/reboot, it will switch to the login page.

# RS-232 Control Command

The product also supports RS-232 control. You need a serial cable with 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, and the USB head of the serial cable is connected to a PC. The connection method is as follows:



Then open a Serial Command tool on PC to send ASCII commands to control the Matrix. The ASCII command list of the product is as below.

ASCII Command				
Serial port protocol: Baud rate: 115200 (default), Data bits: 8, Stop bits: 1, Check bit: 0, TCP/IP protocol port: 8000				
Command Code	Function Description	Example	Feedback	Default
<b>Power</b>				
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! FW version x.xx.xx	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	

# RS-232

## Control Command

Command Code	Function Description	Example	Feedback	Default
<b>System Setting</b>				
help!	List all commands	help!		
r type!	Get device model	r type!	HDP-MXB88D70M	
r status!	Get device current status	r status!	Get the unit all status: power, beep, lock, in/out connection, video/audio crosspoint, edid, scaler,hdcp, 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	
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 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 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	

# RS-232

## Control Command

Command Code	Function Description	Example	Feedback	Default
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
<b>Output Setting</b>				
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	
s hdmi y stream z!	Set hdmi 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
r hdmi y stream!	Get hdmi output y stream status, y=0-8(0=all)	r hdmi 1 stream!	Enable hdmi output 1 stream	
s cat y stream z!	Set cat output y stream on/off, y=0-8(0=all) z=0~1(0:disable,1:enable)	s cat 1 stream 1! s cat 0 stream 1!	Enable cat output 1 stream Disable cat output 1 stream Enable cat all outputs stream Disable cat all outputs stream	enable
r cat y stream!	Get cat output y stream status, y=0-8(0=all)	r cat 1 stream!	enable cat output 1 stream	
s cat y dsc mode z!	set cat output y port dsc mode status y=0-8(0=all) z=1~3 (1=Cat cable distance normal Mode, 2= Cat cable distance 35M Mode, 3= Cat cable distance 70M Mode)	s cat 1 dsc mode 2!	cat out 1 dsc mode 2	Cat cable distance 35M Mode(35M)
r cat y dsc mode!	Get dsc mode of cat out y, y=0-8(0=all)	r cat 1 dsc mode!	cat out 1 dsc mode 2	

# RS-232

## Control Command

Command Code	Function Description	Example	Feedback	Default
<b>EDID Setting</b>				
s edid in x from z!	<p>Set input x EDID from default EDID z, x=0~8(0=all),z=1~39</p> <p>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. 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      32. copy from cat output 1      33. copy from cat output 2      34. copy from cat output 3      35. copy from cat output 4      36. copy from cat output 5      37. copy from cat output 6      38. copy from cat output 7      39. copy from cat output 8</p>	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

# RS-232

## Control Command

Command Code	Function Description	Example	Feedback	Default
<b>EDID Setting</b>				
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 2 EDID: 4K2K60_444.Stereo Audio 2.0 input 3 EDID: 4K2K60_444.Stereo Audio 2.0 input 4 EDID: 4K2K60_444.Stereo Audio 2.0 input 5 EDID: 4K2K60_444.Stereo Audio 2.0 input 6 EDID: 4K2K60_444.Stereo Audio 2.0 input 7 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 ..... hdmi output 1: disconnect	
<b>CEC Setting</b>				
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	

# RS-232

## Control Command

Command Code	Function Description	Example	Feedback	Default
<b>ECE Setting</b>				
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 operation right	
s cec in x enter!	set input x menu enter by CEC, x=0~8(0=all input)	s cec in 1 enter!	input 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!	input 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 in)	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	

# RS-232

## Control Command

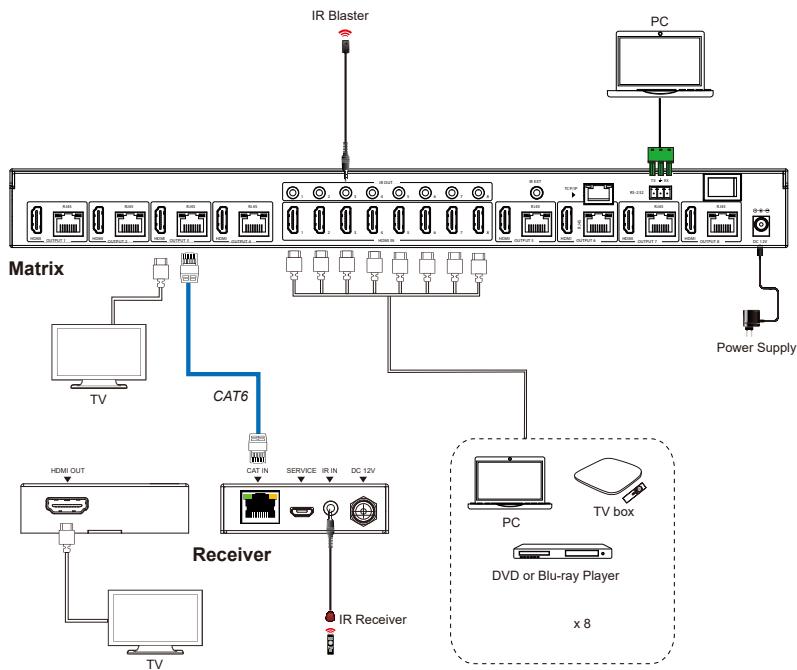
Command Code	Function Description	Example	Feedback	Default
<b>CEC Setting</b>				
s cec hdmi out y vol-!	set output y volume down by CEC, y=0~8(0=all output)	s cec hdmi out 1 vol-!	hdmi output 1 volume down	
s cec hdmi out y vol+!	set output y volume up by CEC, y=0~8(0=all output)	s cec hdmi out 1 vol+!	hdmi output 1 volume up	
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	
<b>Network Setting</b>				
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: 6C:DF:FB:0D:59:74	
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 xxxx.xxxx.xxxx.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:192.168.1.100	

# RS-232

## Control Command

Command Code	Function Description	Example	Feedback	Default
<b>Network Setting</b>				
s subnet xxx.xxx.xxx. xxx!	Set network subnet mask	s subnet 255.255.255.0!	Set subnet Mask address: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	
s net reboot!	Reboot network modules	s net 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	

# Application Example



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HIGH DEFINITION MULTIMEDIA INTERFACE

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**UHD816-EX230-K**

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