

8x8 HDMI Matrix 4K with LCD User's Guide



P/N: Matrix88HD2

Thank you for purchasing from gofanco. Our products aim to meet all your connectivity needs wherever you go. For optimum performance and safety, please read the instructions carefully and keep this User's Guide for future reference. If you need more information about our products, please visit www.gofanco.com. For technical support, email us at support@gofanco.com. For drivers or manual download, please go to www.gofanco.com/downloads.

Important Safety Notices

Please read safety instructions carefully before installation and operation.

- Please pay close attention to all warnings and hints for this device
- Do not expose this unit to rain, heavy moisture, or liquid
- Do not put any items into the device or attempt to modify its operation
- Do not repair the device or open the enclosure without professional guidance to avoid electric shocks. Doing so may void your warranty
- Keep the product in a well-ventilated location to avoid damage from overheating
- Shut off power and make sure environment is safe before installation
- Do not plug the HDMI cables and IR cables in/out when the device is in use to avoid cable damage. Make sure they are plugged into the correct ports
- Use the included 12VDC power adapter only. Make sure the specification matches if using 3rd-party DC power adapters

Introduction

The 8x8 HDMI Matrix 4K allows you to select and switch between any of the 8 HDMI source devices to display on any of the 8 HDMI outputs.

Features

- Connect up to eight HDMI source devices and independently distribute any source to any of the eight HDMI displays
- Supports up to 4K@60Hz YUV 4:4:4 8-bit, HDR, HDR10, HLG, Dolby Vision, 3D, HDCP 2.2/1.4, 18Gbps bandwidth
- 8x HDMI inputs and 8x HDMI outputs
- 8x Analog audio inputs, 8x Analog audio outputs, 8x S/PDIF audio outputs
- Supports audio embedded and extraction
- Supports PCM 2.0-5.1 / 16-24bit / 32-192KHz, and Dolby TrueHD, Atmos, DTS-HD Master, DTS-X
- Control methods: Panel buttons, IR remote, RS232, IP, and Web GUI
- Supports Telnet, UDP, HTTP, and TCP/IP via Ethernet
- EDID management: Presets and EDID learning
- 1U Rack mountable
- Firmware upgradable via RS232 for expanded capability and compatibility

Package Contents

- 8x8 HDMI Matrix 4K
- IR remote control
- IR Receiver cable
- Software CD
- Phoenix plug
- Power adapter (12VDC/3A)
- User's guide

Installation Requirements

- HDMI source devices
- HDMI displays
- Premium High Speed HDMI cables (not included)

Product Layout

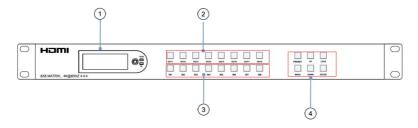


Figure 1: Front Panel Layout

- 1. **LCD screen**: Display the Matrix information
- 2. **Output selection buttons (1-8)**: Press to select an output port
- 3. **Input selection buttons (1-8)**: Press to select an input source
- 4. Function Buttons:

Preset: Press to add/select a preset configuration

Up: Press to select the previous menu item

Lock: Long press to lock/unlock the Matrix

Menu: Press to activate the LCD's the main menu interface, press again to return to previous screen. ***Note**: When entering the main menu, press a button within 30 seconds, otherwise the LCD screen will return to the previous display and turn off within 60 seconds

Down: Press to select the next menu item

Enter: Press to confirm

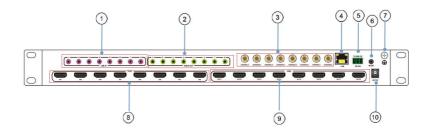


Figure 2: Rear Panel Layout

- 1. **Analog Audio In (1-8)**: Connect to the analog output of your source device
- 2. **Analog Audio Out (1-8)**: Connect to your speakers or headphones
- 3. **SPDIF Out (1-8)**: Connect to your S/PDIF audio device
- 4. **RJ45**: IP or Web GUI control
- 5. **RS232**: Connect to your control PC
- 6. **IR In**: Connect to the IR receiver cable. This is required only if the front panel IR receiver window is blocked
- 7. **Ground**: Case grounding point
- 8. **HDMI In (1-8)**: Connect to your HDMI source devices
- 9. **HDMI Out (1-8)**: Connect to your HDMI displays
- 10. **Power Jack**: Connect to the included power adapter

Hardware Installation

- 1. Power off all devices including your HDMI source(s) and HDMI display(s).
- 2. Connect your HDMI source devices to the Matrix 4K's HDMI Input connectors with HDMI cables (HDMI cables not included).
- 3. Connect your HDMI displays to the Matrix 4K's HDMI Output connectors with HDMI cables (HDMI cables not included).
- 4. Optional: Connect the included IR Receiver cable to the IR interface port. This connection is needed only if the front panel IR receiver window is blocked.
- 5. Optional: Connect an AVR amplifier or speakers to the S/PDIF output ports.
- 6. Optional: Connect the Matrix 4K's RS232 socket and your PC's serial port or a CAT cable between the Matrix 4K's RJ45 port and router or PC's ethernet port. This connection is needed only if matrix device control using a PC is required.
- 7. Plug the included power adapter into the Matrix 4K's Power Jack, then plug the power adapter into a reliable power outlet.
- 8. Power on all connected devices. The Matrix 4K is ready for use.

Application Diagram

The application diagram shows the most typical input and output devices used with the 8x8 HDMI Matrix 4K.

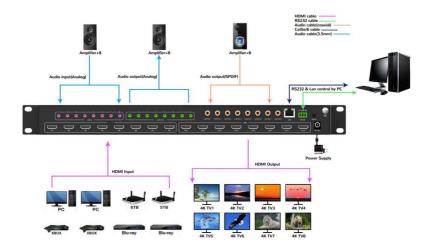


Figure 3: Application Diagram

Matrix Device Control

Input Selection and Output Selection Buttons

Use the Input selection buttons (see #3 on page 5) and Output selections (see #2 on page 5) to select and switch between any of the 8 source devices to display on any of the 8 displays.

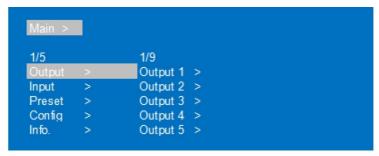
- Select an input source to display on an output port: Example: To select Input 1 source to display on Output 1 port - Press Output 1 button (see #2 on page 5), then press Input 1 button (see #3 on page 5).
- Select an input source to display on multiple output ports: Example: Select Input 2 source to display on Output ports 1, 2, and 3 Press Output 1, 2, and 3 buttons (see #2 on page 5), then press Input 2 button (see #3 on page 5)
- Select an input source to display on all output ports: Example: Select Input 4 source to display on all Outputs Long press Output 4 button (see #2 on page 5), then long press Input 4 button (see #3 on page 5)

Menu

Allows you to control various aspects of your display device and source device.

Output Signal Control

The output interface comprises of nine sub-menus Output 1-8 and All. It allows you to switch source device and/or turn off the audio of any output port.

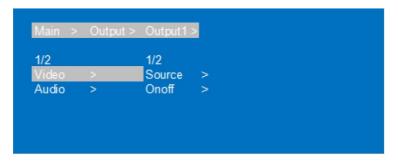


Output menu interface

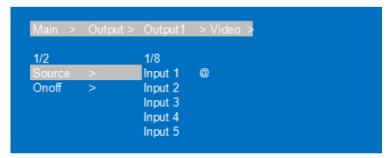
Output port menu interface

Video Switching

Example: Select Input 1 source to display on Output 1 port - Press the Menu button (see #4 on page 5) select Video, then press the Enter button (see #4 on page 5). Press the Up button (see #4 on page 5) or Down button (see #4 on page 5) to choose Source, then press the Enter button.



Press the Up button or Down button to select Input 1, then press the Enter button to complete.

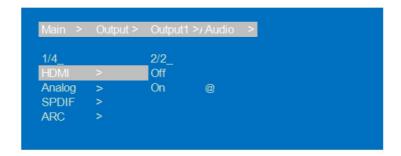


Audio On/Off

Example: Turn off audio Output 1 port - Press the Menu button (see #4 on page 5) select Output, then press Enter button (see #4 on page 5). Press the Up button (see #4 on page 5) or Down button (see #4 on page 5) to choose Output1.



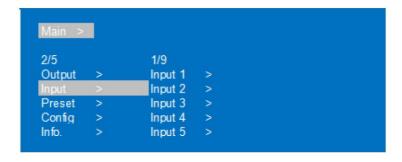
Press Enter button. Press the Up button or Down button to select Audio, then press Enter.



Press the Up button or Down button to select the mode HDMI, then press Enter. Press the Up or Down button to select Off.

Input Signal

There are nine sub-menus, Input 1-8 and All.

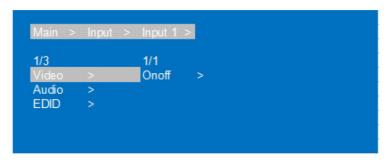


The 3rd level menu includes Video, Audio, and EDID settings.



Input Signal ON/OFF

Example: Turn off video of Input 1 - Select Input, then press Enter. Press the UP or Down button to select Input 1, then press Enter. Press the Up or Down button to select Video, then press Enter.



Select Onoff, then press Enter. Press the Up or Down button to select Off, then press Enter to complete.

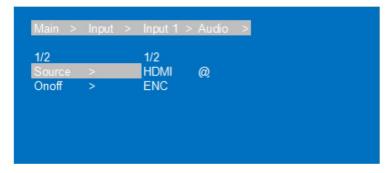
```
Main > Input > Input 1 > Video >

1/1 2/2
Onoff > Off
On @
```

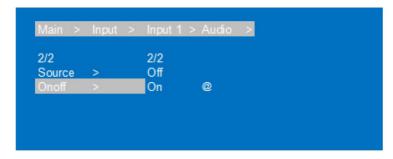
Input Audio On/Off and Select Audio Source

Example: Turn On or Off the Input 1 audio.

From the main menu select Input / Input 1 / Audio



Select Source / HDMI

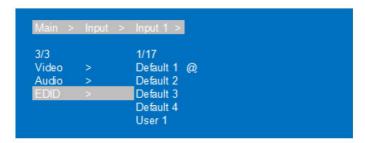


Select Onoff / On or OFF, then press Enter.

EDID

The EDID can be set to each Input. The Matrix is set to **Default 1**.

Example: Set Default 1 to Input 1 - Select EDID from the main Menu, then press Enter button.



Press Up button or Down button to select Input 1, then press Enter button.



Press Up button or Down button to select Default 1, then press Enter button.

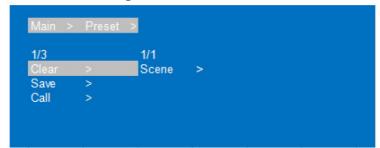
Presets

Allows you to save, select, or delete presets. Supports up to 8 different presets.

Example: To delete Preset 1 - From the main menu, select Preset, then press Enter.



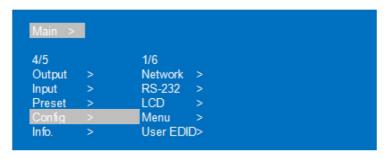
Select Clear, then press Enter.



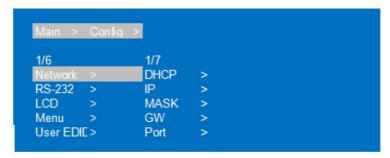
Select Scene 1, then press Enter.

System Configuration Interface

Allows you to set Baud rate, DHCP, reboot, and restore factory settings.

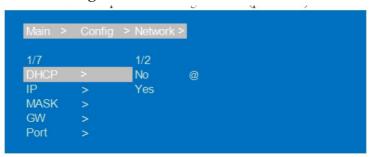


Network

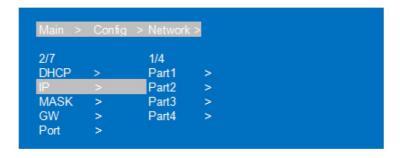


DHCP

Default setting: Off



<u>IP</u> Displays IP address, Mac address, and DHCP status.



Main >	Config	> Network >	IP >	
1/4		193/256		
		188		
Part2	>	189		
Part3	>	190		
Part4		191		
		192	@	

Main >	Config	> Network >	Part1 >
193/256			
192	@	DHCP:	Off
193		IP :	192.168.1.200
194		MASK:	255.255.255.0
195		GW :	192.168.1.1
196		MAC :	4658-4E93-5E83

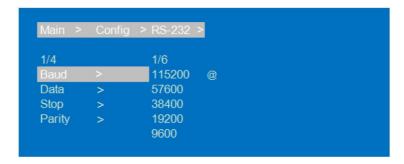
RS232

Configure RS232 settings.

From the Main menu, select Config / RS232.



Baud Rate



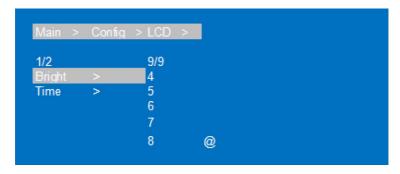
Data Bit

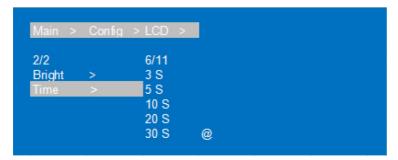


LCD Screen

Change LCD screen brightness and screen standby time. Brightness is 8 and standby time is 30 sec by default.





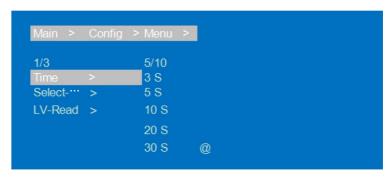


Menu Setting

Configures the menu settings.



Select time: Default 30 seconds

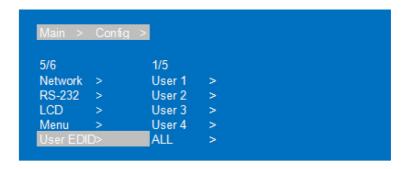


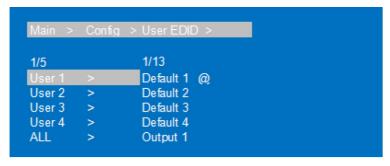
Select-run: Default Disabled

User EDID

Save default EDID, output EDID and temporary EDID to a User.

Example: Select a Default EDID for User 1 - From the main menu, select Config press Enter. Select User EDID, press Enter. Select User 1, press Enter. Select Default 1, press Enter.







System Settings

```
        Main
        > Config

        6/6
        1/3

        RS-232
        > Reboot

        LCD
        > Timing

        Menu
        > Factory

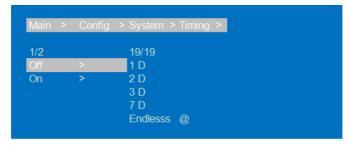
        User EDID>

        System
        >
```

Reboot: Default Setting No

Timing: Default Setting Endless

Timing: Default Setting Endless



Factory Reset: Default Setting No

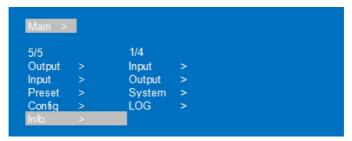


Reset Range

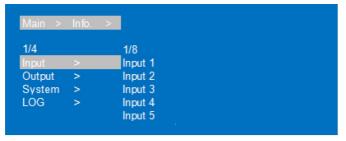


Device Information

Displays Input, Output, and System information.



Choose Input 1



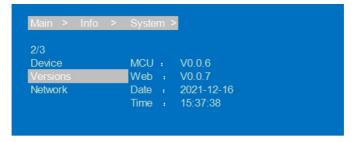
Input 1 Status: Link Unconnect



Choose NetworkChoose Input 1



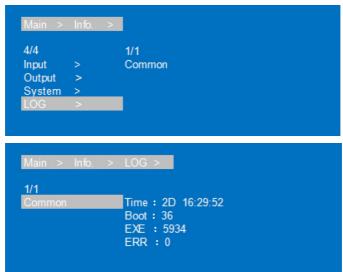
Network Version



Network Status: DHCP, IP, Mask, Gateway, Mac address



Log: Run time, Startup time, Operating time, Errors



Remote Control

Users can control the 8x8 HDMI Matrix 4K using the included IR remote. Point the remote control towards the built-in IR receiver window located on the front panel. An optional IR receiver cable is included to improve IR function in space constrained installations.

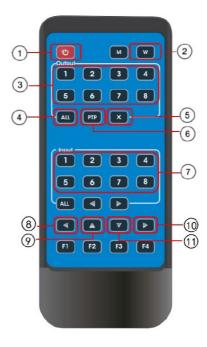


Figure 4: Remote Control

- 1. **Standby**: Press to place the Matrix in standby mode. Press again to wake up the Matrix
- 2. **Lock**: Press to lock the remote control. Press again to unlock the remote control

- 3. Output select (1-8): Selects an input source to display on an output port. Example: To select Input 1 source to display on Output 1 port Press Output 1 button (see #3), then press Input 1 button (see #7)
- 4. **All**: Selects one input device to display on all outputs. Example: To select Input 2 source to display on all outputs Press All button (see #4), then press Input 2 (see #7)
- 5. **X**: Turns off an output port. Example: To turn off display on Output 1 Press Output 1 button (see #3), then press X (see #5). To turn on the display, press Output 1 + X again
- 6. **PTP**: Press to assign all inputs and outputs to their numeric counterparts. Example: Input 1 to Output 1, Input 2 to Output 2, Input 3 to Output 3, Input 4 to Output 4, Etc....
- 7. **Input select (1-8)**: Press to select Input 1/2/3/4/5/6/7/8
- 8-11. **Left/Up/Right/Down**: Menu control buttons. Navigate the menu options

EDID Management

The 8x8 Matrix includes 4 EDID modes: Default EDID, User EDID, Output EDID, and Temp 1. The factory default is 4K60Hz 4:4:4 2Ch.

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

RS232 Control

Connect the 8x8 HDMI Matrix 4K to a PC using an RS232 cable.

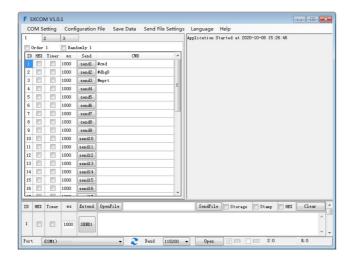
COM Port Setting

Baud Rate:	115200 bps
Parity:	None
Data Bits:	8 bit
Stop Bits:	1 bit

Software Control

Open the software in the included software CD and the control window appears as shown below.

In COM Setting, select the PC's COM port and click Connect.



RS232 Command List

- All commands start with "#".
- Do not omit the "_".
- Add a space to Command head, Parameter and target

Tues	Format	Data	Rule	
Type Head of commands	Format #cmd	Data	Knte	
Head of commands Function		100000000000000000000000000000000000000	1	
Example 1	check all instructions			
zvampre r	check all open instructions			
Type	Format	Data	Rule	
lead of commands	#video_%c	d: data		
Target 1	in%8, d	0~7: designated port 255: all ports	only parameter 2	
Target 2	out%8, d	0~7:designated port 255:all ports	all parameters	
parameter 1	source=%d	0~7: input channels		
parameter 2	onoff=%d	0: screen output off 1: screen output open		
unction	output matrix swit	ch		
Example 1	#video_d out2 sour output 3 select in	ce=1		
Example 2	#video_d out255 or all outputs off	off=0		
Type	Format	Data	Rule	
Head of commands	#audio_%c	d: data		
Target 1	in%8, d	0~7: designated port 255: all ports	only parameter 1, 2	
Target 2	out%8, d	0~7:designated port 255:all ports	parameter 3, 4, 5, 6	
parameter 1	source=%d	0:input select HDMI source audio 1:input select external Analog embed audio		
parameter 2	onoff=%d	0:input port Audio off 1:input port Audio on		
parameter 3	arc=%d	0:ARC off 1:ARC on		
parameter 4	hdmi=%d	0:output TV video off 1:output TV video on		
parameter 5	iis=%d	0:Analog audio extraction off 1:Analog audio extraction on		
parameter 6	spdif=%d 0:Digital audio extraction off 1:Digital audio extraction on			
unction	output audio switch			
Example 1	<pre>=audio_d out2 hdmi=0 iis=1 output 3 port: HDMI audio off, Analog audio extraction on</pre>			
Example 2	#audio_d in3 source=1 input 4 audio select Embed audio			
Туре	Format	Data	Rule	
lead of commands	#edid_%c	d: data		
Sarget 1	in%8, d	0 7:designated port 255:all ports		
Target 2	user%8, d	0~7:designated user 255: all user		
parameter 1	source=%d	0 3:default 4 7:user 8 15:output 16:23:input		
unction	Set the EDID copy source			
Example 1	Set the EDID copy source = #edid_d in0 source=4 set input 1's EDID copy user 1			
Example 2	set user2 's EDID	wedid_d user1 source=24 set user2 's EDID copy temp, user EDID has power-off memory(Used to change a custom EDID. The EDID of temp is empty when it is powered on. You can customize by sending an EDID.bin file through the serial		
Туре	Format	Data	Rule	
lead of commands	#preset	nothing		
Target 1	scene%d	0~7:designated scene		

RS232 Command List Continued

		0:Clear to factory Settings		
parameter 1	exe=%d	1:Save the current state to this scene 2:Call this scene to the current state		
		2:Call this scene to the current state		
Function	scene setting instructions			
Example 1	#preset scenel exe-1 save the current state to scene 2			
Туре	Format	Data	Rule	
Head of commands	#name	nothing		
Target 1	input%d	0~7:designated input	MAX 19 characters	
Target 2	output%d	0~7;designated output	MAX 19 characters	
Target 3	scene%d	0~7:designated preset scene	MAX 19 characters	
Target 4	system%d	Oscompany name 1:product name 2:device software version 3:website 4:email 5:telephone number	MAX 31 characters	
parameter 1	str=%1,31s	Visible character: input character No character means clear	MAX 19 characters	
Function	Naming custom	1	1	
Example 1	#name input1 str=ap	ple_tv		
	change input 2's na			
Example 2	#name output2 str= clear output 3's na			
Туре	Format	Data	Rule	
Head of commands	#power	nothing		
parameter 1	shut=%d	>=1000000: cancel timing shutdown 1~x:Timed shutdown time, unit:second		
parameter 2	start=%d	>=1000000:cancel timing boot 1~x:Timed boot time, unit:second		
parameter 5	help	nothing	Used to check the timing shutdown, timing boot and set auto-sleep time	
Function	set timing shutdown	set timing shutdowm and timing boot		
Example 1	#power shut=0			
	standby mode			
	#power shut=3600 start=7200			
Example 2	Use the current tim 7200 seconds (2 hou	e as a reference, Device'll shutdown after 3600 seconds (1 hors)	our) , Device'll boot after	
Туре	Format	Data	Rule	
Head of commands	#network	nothing		
parameter 1	dhep=%d	0:DHCP off 1:DHCP on		
		0~255:IP address	input value 1	
	ip=%d. %d. %d. %d	0~255:IP address	input value 2	
parameter 2		0~255:IP address	input value 3	
		0~255:IP address	input value 4	
		0~255:Subnet Mask address	input value 1	
	mask=%d, %d, %d, %d	0~255:Subnet Mask address	input value 2	
parameter 3	mask-ng, ng, ng, ng	0~255:Subnet Mask address	input value 3	
		0~255:Subnet Mask address	input value 4	
		0~255:Gateway address	input value 1	
parameter 4	gw=%d, %d, %d, %d	0~255:Gateway address	input value 2	
pur alle ter -r	5" NU. NU. NU. NU	0~255:Gateway address	input value 3	
		0~255:Gateway address	input value 4	
parameter 8	port_tcp=%d	1~65534:TCP port number		
parameter 9	port_udp=%d	1~65534:UDP port number		
parameter 10	device=%15T	Capital letter, number:web page,device name	MAX 15 characters	
Function	IP is canonical. Us	Device IP settings include DHCP switch. IP/MASK/GW/DNS settings. The device does not detect whether the IP is canonical. Users must comply with the basic rules when setting IP addresses. After turn on the DHCP, setting an IP address is invalid. The IP address is the value assigned by DHCP.		
Example 1	#network dhcp=1 open DHCP switch,th	e router auto assign IP addresses to device		

RS232 Command List Continued

Example 2		.1.168 mask=255.255.255.0 gw=192.168.1.1 dhcp=0 the static IP address to 192.168.1.168, Subnet Mask to 2	255.255.255.0, Gateway to
Туре	Format	Data	Rule
Head of commands	#account	nothing	
Target 1	login	Open to all levels of customers (0, 1, 2)	
Target 2	register%d	Account permission level: 0, 1, 2, and 3. The level increases gradually, and lower-level have no permission to view some parameters settings	
parameter 1	id=%15t	number, letter, underline:account name	
parameter 2	psd=%15t	number, letter, underline:password	
Function		one account, and the new account will overwrite the pro at least the current permission level. name is lowercase.	evious one, You can register
Example 1	#account login id=a Login account is ad	dmin psd=123456 min , password is 123456	
Example 1		id=user_jerry psd=123456 level 0, account is user_jerry, password is 123456	
Type	Format	Data	Rule
Head of commands	#lcd	nothing	
Target 1	bl_lv=%d	0:Backlight close 1~8:Backlight level	
Target 2	bl_cnt=%d	0:Always close 1~254:Set screen rest time 255:always open	
Function	LCD opreation instruction, set LCD screen rest time, backlight		
Example 1	#lcd bl_lv=8 bl_cnt=30 LCD screen rest time is 30 seconds, back level is 8		
Type	Format	Data	Rule
Head of commands	#factory%d	O:Restore factory Settings to level 0 1:Restore factory Settings to level 1 Specific contents are displayed according to the level of the menu	Restore range: 0: Some settings will be restored to factory defaults 1: All settings will be restored to factory defaults except account.
Function	Restore factory Settings		
Example 1	#factory0		
	Restore some settings to factory Settings		
Туре	Format	Data	Rule
Head of commands	#menu	nothing	
parameter 1		0~x:Menu level 1 selected lable	input value 1
	call=%16, d	O~x:Menu level 2 selected lable	input value 2
	car1-7010, u		
		O~x:Menu level n selected lable	input value n
parameter 2	cmd=%c%d	urmenu up drmenu down lrmenu left rrmenu right l'x: press times	input value 1
parameter 3	time_to_main=%d	0~255:Time required to return to the main screen when no operation is performed	
Function	menu settings		
Example 1	#menu cmd=d1		
	Menu select the nex		

Web Control

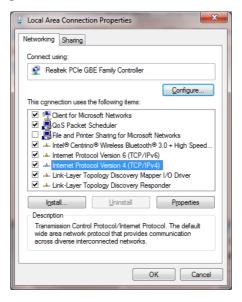
Default IP Address

The default IP address of the Matrix 4K is 192.168.1.168.

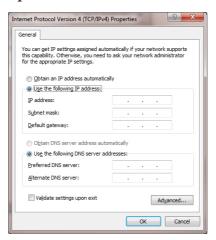
Change the IP address of your PC

If the IP address of your PC is in the range from 192.168.1.2 to 192.168.1.254, except 192.168.1.168, then there is no need to change it.

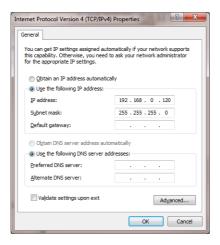
- 1. Connect the Matrix 4K and your PC to the LAN.
- 2. Configure you PC as follows:
 - 1) Click Start / Control Panel / Network and Sharing Center.
 - 2) Click Change Adapter Settings.
 - 3) Highlight the network adapter you want to use to connect to the device and click **Change settings of the connection**.
- 3. Highlight Internet Protocol Version 4 (TCP/IP/4).



4. Click **Properties**.



5. Select **Use the following IP Address**, and then enter the IP address. **Note**: You can use any IP address in the range: 192.168.1.2 to 192.168.1.254 (excluding 192.168.1.168).



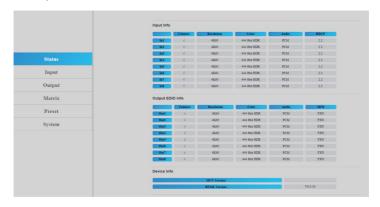
- 6. Click **OK** to save the changes.
- 7. Click **Close** to exit.

Web Browser Control

Open your web browser and enter the Matrix 4K's IP address 192.168.1.168 into the address bar, and press **Enter**. Type in user name: **admin** and password: **123456**, then click **Login**.

Status

Displays the Matrix current status.



<u>Input</u>

Rename, switch input video and audio source, switch EDID.



Output

Rename, switch output video and audio output, ARC function.



Matrix

Assign any of the Input devices to any of the outputs.



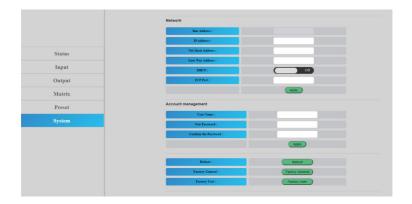
Preset

Rename, Clear, Save, or Call a saved preset.



System Setting

Change password, Reboot, Restore Factory Settings, enter network settings, and enable DHCP.

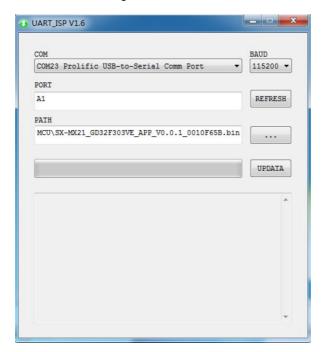


Firmware Update

In most cases, the Matrix comes with the latest available firmware version when we ship. If available, firmware updates for critical fixes will be posted to gofanco's website for download.

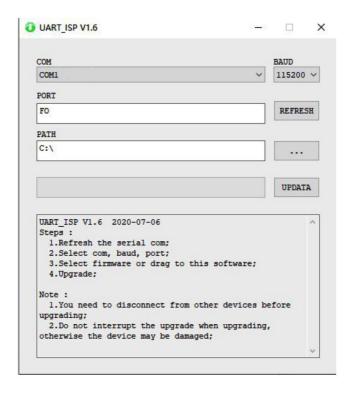
MCU Update

- 1. Connect the Matrix 4K to the PC using the RS232 port.
- 2. Open the update software in the CD.
- 3. Choose the COM port of the PC, set BAUD rate to 115200, type **A1** into Port.
- 4. Load the firmware in PATH.
- 5. Click **UPDATA**. The update process will take up to 1 minute to complete.



Web Update

- 1. Connect the Matrix 4K to the PC using the RS232 port.
- 2. Open the update software in the CD.
- 3. Choose the COM port of the PC, set BAUD rate to 115200, type **F0** into Port.
- 4. Load the firmware in PATH.
- 5. Click **UPDATA**. The update process will take up to 1 minute to complete.



Specifications

Bandwidth	18 Gbps	
Resolution	480p@60Hz, 576p@50Hz, 720p@60Hz, 1080p@24/50/60Hz, 4K@24/30/60Hz YUV4:2:0, 4K@60Hz YUV4:4:4	
Video Input Connectors	8x HDMI Type A, 19-pin, Female	
Video Output Connectors	8x HDMI Type A, 19-pin, Female	
Audio Input Connectors	8x Analog audio, 3.5mm, Female	
Audio Output Connectors	8x Analog audio, 3.5mm, Female 8x S/PDIF Coaxial, Female	
RS-232 Serial Port	DB9, Female	
Ethernet Port (IP Control)	RJ45, Female	
IR Ext Port	1x 3.5mm, Female	
Dimensions	482.4mm (L) x 220mm (W) x 44mm (H)	
Weight	2.8 kg	
Operating Temperature	32° to 140° F (0° to 40° C)	
Storage Temperature	14° to 140° F (-10° to 60° C)	
Power Consumption	28W (Max)	

Disclaimer

The product name and brand name may be registered trademarks of related manufacturers. TM and ® may be omitted on the user's guide. The pictures on the user's guide are just for reference, and there may be some slight differences with the actual products.

We reserve the right to make changes without prior notice to a product or system described herein to improve reliability, function, or design.



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