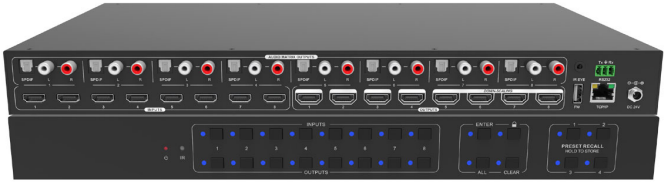
8x8 HDMI 2.0 Matrix Pro
User's Guide



P/N: Matrix88HD20-Pro

G4-0121A

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, please email us at support@gofanco.com. For drivers and manuals 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 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 in/out when the device is in use to avoid cable damage. Make sure they are plugged into the correct ports
- Use the included DC24V power adapter only. Make sure the specification matches if using 3rd-party DC power adapter

Package Contents

- 8x8 HDMI 2.0 Matrix Pro
- IR remote control and IR Receiver cable
- Power adapter (24VDC/ 2.71A)
- RS-232 cable
- Mounting accessories and Plastic cushions (4pcs)
- User's guide

Introduction

The 8x8 HDMI 2.0 Matrix Pro allows you to connect up to eight HDMI source devices and independently distribute any source to any of the eight HDMI displays.

Features

- Supports up to 4K@60Hz YUV 4:4:4
- HDMI 2.0 and HDCP 2.3 compliant
- Supports audio matrix and audio extraction
- Equipped with 8 SPDIF Toslink and 8 analog (L+R) audio outputs
- Supports 4K to 1080p downscaling on the last 4 outputs (5-8)
- HDMI outputs provide 2.5W to power Active Optical Cables (AOC)
- Features comprehensive EDID management and advanced HDCP handling
- Controllable via front panel buttons, IR, RS232 and TCP/IP

Installation Requirements

- HDMI source devices (computer, DVD player, XBOX, PS3, etc)
- HDMI display devices (SDTV/Monitor, HDTV/ Monitor, projector, etc.)

Product Layout

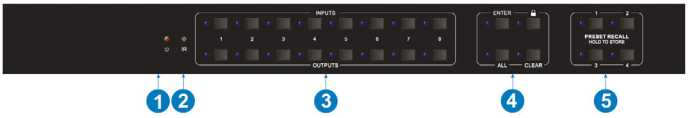


Figure 1: Front Panel Layout

1. **Power LED**: Green when the Matrix is powered on. Red when the Matrix is in standby mode
2. **IR Sensor**: Receives IR signals from the included remote control
3. **Select Buttons (x16)**:

   Input Select Button (x8): Each button includes 1 LED, one for each source input

   Output Select Button (x8): Each button includes 1 LED, one for each display output
4. **Control Buttons (x4)**:

   Enter: Press to confirm the operation

   Lock: Press for 3 seconds to lock/unlock all from buttons

   All: Selects one input source to display on all outputs. Example: Source device on input 1 to display on all displays: Press Input Select 1 + All + Enter

   Clear: Press this button to clear your selection
5. **Memory Save/ Memory Recall**: Stores the Matrix' current switch status to memory

   Memory Save: Press and hold button 1-4 to save the current configuration into memory

   Memory Recall. Press button 1-4 to recall the configuration saved to memory

Figure 2: Rear Panel Layout

1. **HDMI In (1-8)**: Connects to your HDMI sources
2. **HDMI Out (1-8)**: Connects to your HDMI displays. HDMI Out 5-8 supports auto downscaling feature
3. **Audio Matrix Outputs**:

   SPDIF (x8): Digital audio outputs for de-embedded HDMI audio, 8 in total

   RCA/ L+R (x8): Analog audio outputs for de-embedded HDMI audio, 8 pairs in total
4. IR Input: Connects to the included IR Receiver cable. Receives IR signals from the included remote contoller. This connection is optional see page 6, step 5 for more information.
5. **RS232**: Connects to your control PC using the included RS232 cable
6. **Firmware Update**: Type-A USB port for firmware update
7. **RJ45**: Connects to your control PC's Ethernet port for TCP/IP control
8. **Power Jack**: Connects to the included power adapter

Hardware Installation

1. Power off all devices including your HDMI sources and HDMI displays.
2. Connect your HDMI source devices to the HDMI IN (1-8) connectors with HDMI cables (HDMI cables not included).
3. Connect your HDMI displays to the HDMI OUT (1-8) connectors with HDMI cables (HDMI cables not included).
4. Optional: Connect your PC to the Matrix Pro's RJ45 port using a CAT cable this connection is needed only if you require device control via Web GUI. See TCP/IP Control on page 12 for more information.
5. Optional: Plug the included IR Receiver cable into the Matrix's IR Input connector, this connection is needed only if the front panel IR sensor is blocked and not responding to commands from the included Remote Controller.

6 Optional: Plug the included RS232 cable into the Matrix's RS232 connector then connect the other end to an RS232 serial port of your computer, this connection is needed only if you require RS232 device control via a computer system. See RS232 Control on page 22 for more information.

6. Plug the included power adapter into the power jack then plug the power adapter into a reliable power source.
7. Power on all connected devices.
8. The HDMI 8x8 Matrix is ready for use.

Connection Diagram

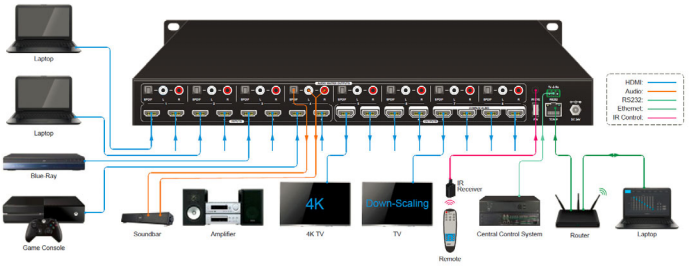


Figure 3: Connection Diagram

Device Control

Front Panel Control Buttons

Input Select/ Output Select

The front panel features eight input and eight output selection buttons for switching sources and displays. Please see the device switching examples below.

1. **To configure 1 input to 1 output**
   Example: Source device on Input 1 to display on Output 3
   - Press Inputs 1 + Outputs 3 + Enter button
2. **To configure 1 input to multiple outputs**
   Example: Source device on Input 1 to display on Outputs 3, 6, and 7
   - Press Inputs 1 + Outputs 3, Outputs 6, Outputs 7+ Enter button
3. **To configure 1 input to All outputs**
   Example: Source device on Input 2 to display on All Outputs
   - Press Inputs 2 + All + Enter button

Note: The selected buttons LED indicators will blink three times then turn off when switching is successful. If switching fails all LEDs will turn off immediately.

Input Device / Output Device Recognition

Press any Output Select button and the corresponding Input Select LED will light up.

Lock

Hold down the lock button for 3 seconds to disable all the front panel buttons. Hold down the button again for 3 seconds to unlock the buttons.

Memory Save/ Memory Recall

Stores the Matrix' current status into memory. Allows for one button access to your favorite source to display setup.

Memory Save: Press and hold button 1-4 to save the current configuration into memory.

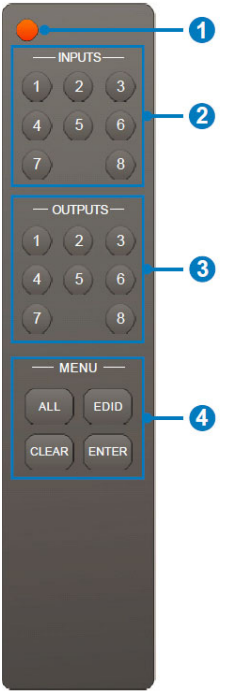
Memory Recall. Press button 1-4 to recall the configuration saved to memory.

Clear

Press this button to cancel the current operation.

IR Remote Control

- Press the **Standby (1)** button to enter or exit Standby mode
- To switch an input to one or more outputs, first press the number corresponding to the desired **INPUTS (2)**, then press one or more **OUTPUTS (3)** or the **ALL (4)** button, then press the **Enter (4)** button to execute the command, or press **Clear (4)** to cancel
- To set the EDID for one or more source devices to the EDID capabilities of a specific output, first press the **EDID (4)** button, then press the desired **INPUTS (2)** button, then press the **OUTPUTS (3)** button corresponding to the desired display, finally press the **Enter (4)** button to execute the operation, or press **Clear (4)** to cancel.



Examples

Send the source device on HDMI In 3 to the display on HDMI Out 2

INPUTS: Press button 3

OUTPUTS: Press button 2

Press **Enter** to execute the change

Send the source device on HDMI In 1 to the displays on HDMI Out 1 & 4

INPUTS: Press button 1

OUTPUTS: Press both buttons 1 & 4

Press the **Enter** button to execute the change

Send the source device on HDMI In 4 to all displays

INPUTS: Press button 4

OUTPUTS: Press the **All** button

Press the **Enter** button to execute the change

TCP/IP Control

The Matrix Pro can be controlled by web GUI via TCP/IP port. The Matrix Pro's default IP settings are:

IP address: 192.168.0.178

Subnet mask: 255.255.255.0

Change the IP address of your PC

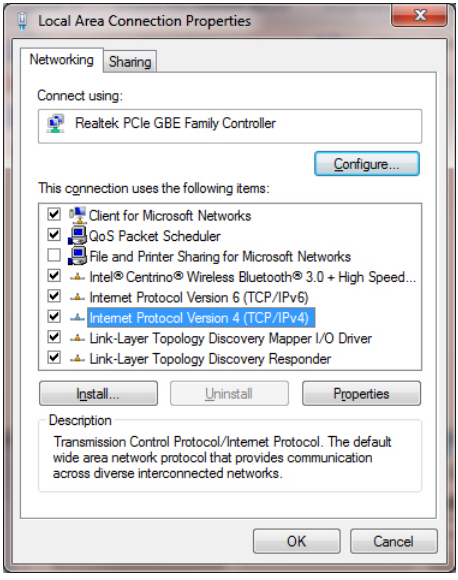
1. Configure your PC as follows:

   1. Click Start / Control Panel / Network and Sharing Center.

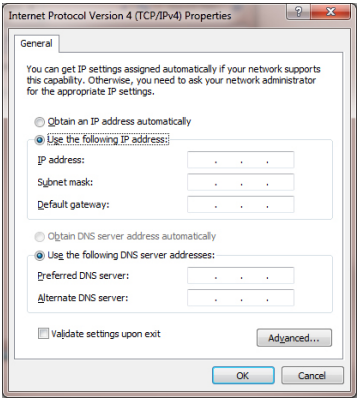
   2. Click Change Adapter Settings.

   3. Highlight the network adapter you want to use to connect to the device and click **Change settings of the connection**.

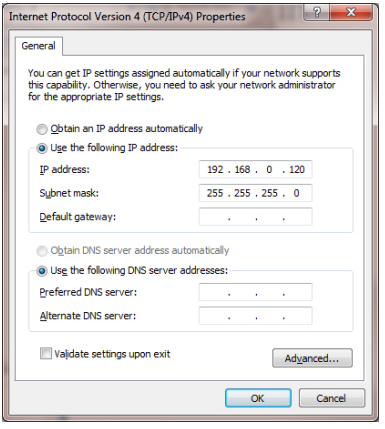
2. Highlight **Internet Protocol Version 4 (TCP/IP/4)**.



3. Click **Properties**.



4. Select **Use the following IP Address**, and then enter the IP address. **Note**: You can use any IP address in the range: 192.168.0.2 to 192.168.0.254 (excluding 192.168.0.168).



5. Click **OK** to save the changes.
6. Click **Close** to exit.

Web GUI Control

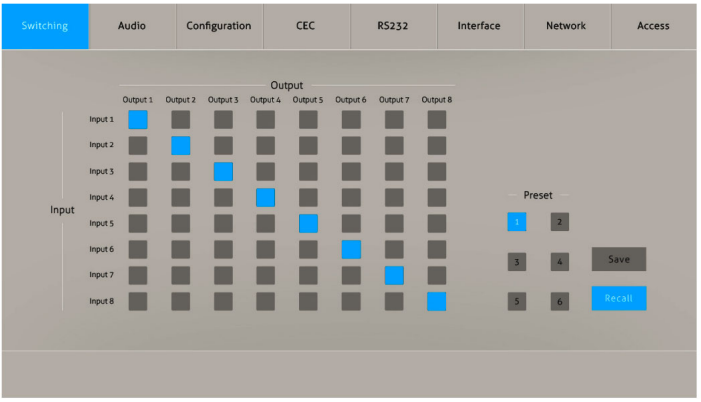
1. Connect your PC to the Matrix Pro's RJ45 port.
2. Open the GUI by typing in 192.168.0.178 into your browser and the login interface, as shown below, will open.

Username: admin

Password: admin

4. Type in the user name and password and click Login to enter the GUI.

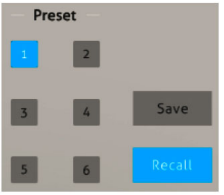
Switching Tab



Use the 8x8 button grid on the page to set which inputs are directed to which outputs. For example, clicking the button on the Input 1 row and Output 1 column, directs input 1 to output 1.

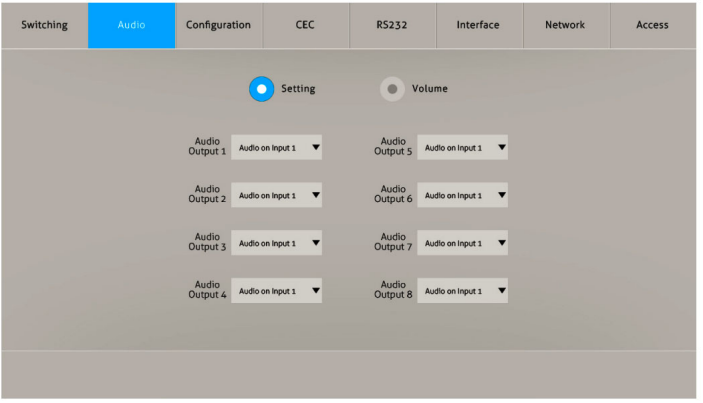
Use the 6 numbered buttons under scene area to save and load layout presets.

- To save a given layout, first click one of the numbered buttons, then click the **Save** button.
- To load a previously saved layout, first click one of the numbered buttons, then click the **Recall** button.



Audio Tab

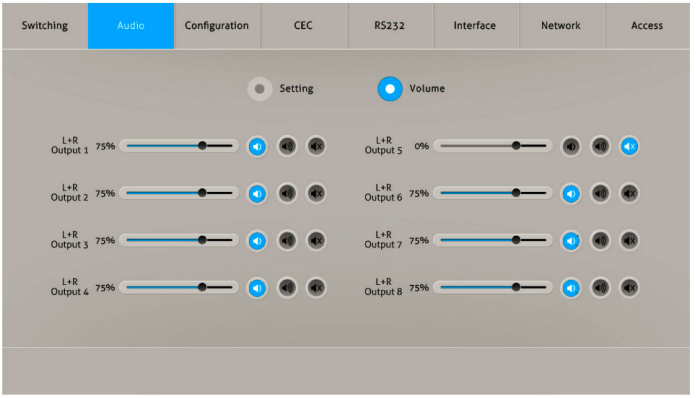
Audio Setting



•SPDIF & Analog audio outputs can be chosen from 16 sources

Audio Output Ports	Audio Sources	
	Input Breakout	Output Breakout
SPDIF 1 & Analog 1	Audio on Input 1	Audio on Output 1
SPDIF 2 & Analog 2	Audio on Input 2	Audio on Output 2
SPDIF 3 & Analog 3	Audio on Input 3	Audio on Output 3
SPDIF 4 & Analog 4	Audio on Input 4	Audio on Output 4
SPDIF 5 & Analog 5	Audio on Input 5	Audio on Output 5
SPDIF 6 & Analog 6	Audio on Input 6	Audio on Output 6
SPDIF 7 & Analog 7	Audio on Input 7	Audio on Output 7
SPDIF 8 & Analog 8	Audio on Input 8	Audio on Output 8

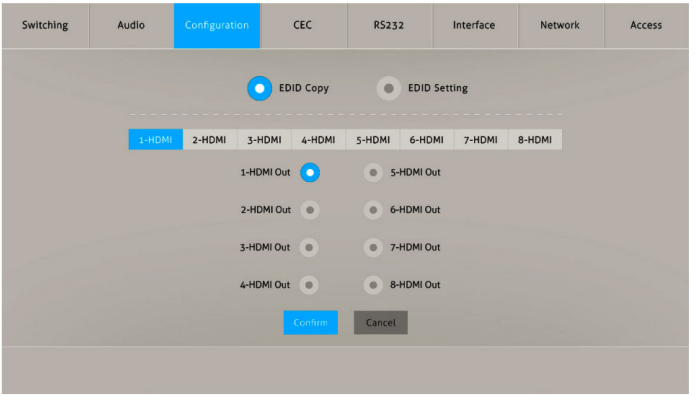
Audio Volume



- Eight pairs analog L/R audio to control their outputs volume.

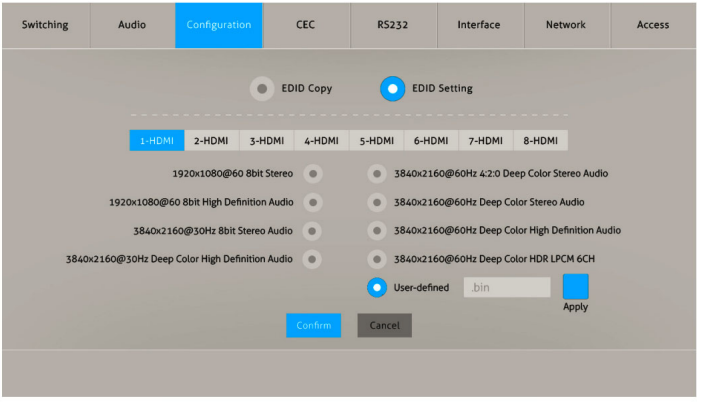
Configuration Tab

EDID Copy



- Copy the EDID of the selected output device to one or more input source device.

EDID Setting



- Select the compatible built-in EDID for the selected input source.
- Upload user-defined EDID by the below steps:

1) Prepare the EDID file (.bin) on the control PC.
2) Select the **User-defined**.
3) Click the box .bin, and then select the EDID file (.bin).
4) Click **Apply** to upload the user-defined EDID, and then click **Confirm** to save setting.

CEC Tab

CEC enabled source devices and display devices can be controlled using this interface.

Input Device Control

- Select one input source device to be controlled, and then press function buttons.

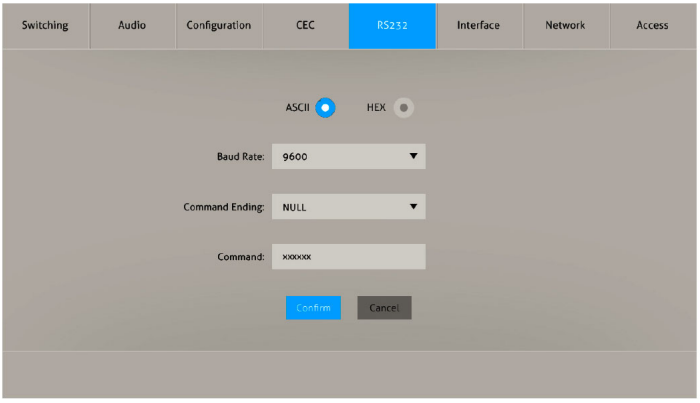
Note: *It can not control two or more input source devices simultaneously.*

Output Device Control

- Select one output device to be controlled, and then press function buttons.

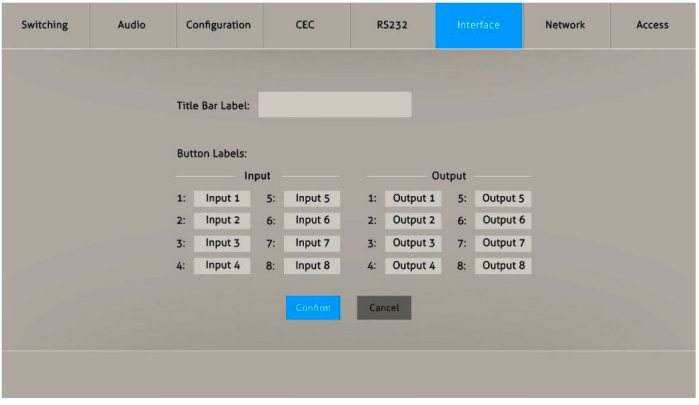
Note: *It can not control two or more output devices simultaneously.*

RS232 Tab



- ASCII or HEX command format can be selected.
- Baud Rate: Supports 2400, 4800, 9600, 19200, 38400, 57600 or 115200.
- Command Ending: NULL, CR, LF or CR+LF can be chosen.
- Command: Type the command in this box to control the third-party device which is connected to the RS232 port of the matrix.

Interface Tab

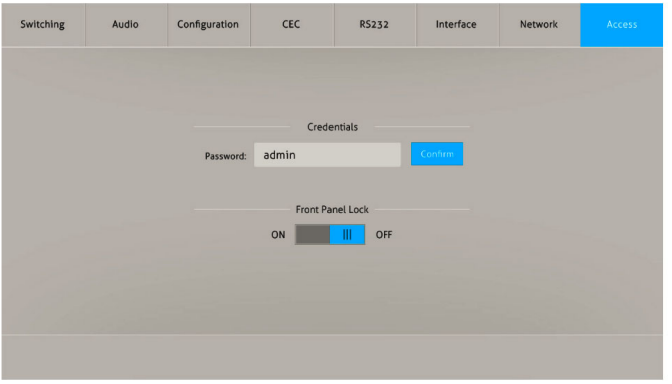


- Modify the title bar label.
- Modify the button labels.

Network Tab

- Static IP or Dynamic Host Configuration Protocol (DHCP).
- Modify the static IP Address, Subnet Mask, and Gateway.

Access Tab



- Modify the login password.
- Lock or unlock the front panel buttons.

RS232 Control

Connect the control PC's RS232 serial port to the Matrix Pro's RS232 port using the included RS232 cable.

RS232 Control Software

The 8x8 Matrix Pro can be controlled from a Windows PC using an RS232 connection with a 3rd party RS232 control software such as **CommWatch** shown below. Please use the same configuration settings for the RS232 control software of your choosing.

- Download CommWatch or the serial command software of your choice
- Installation: Copy the control software files and paste them to the hard driver of your PC
- Uninstallation: Delete all control software files from the PC

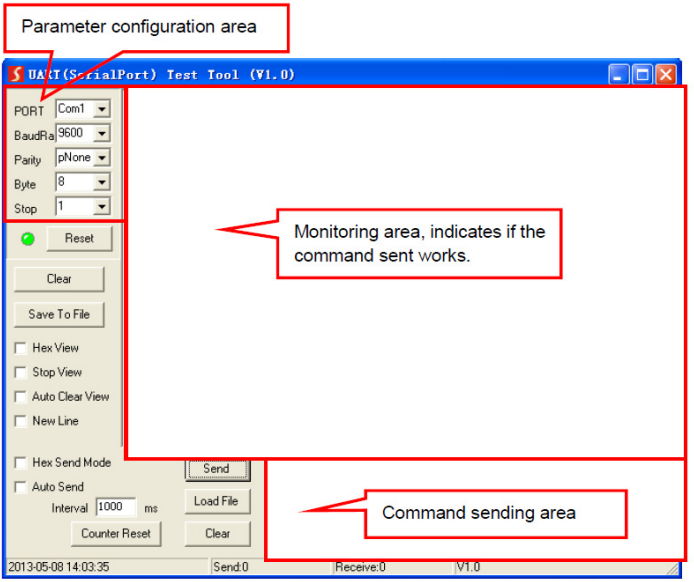
Basic Settings

1. Connect all input and output devices as needed, then connect the PC to the Matrix Pro.
2. Double click the software icon to run the control software. The CommWatch icon is shown below.

The examples shown on this page and the following page are from CommWatch serial command software.

Control Software Interface

Set the COM port, Baud rate, data bit, stop bit, and parity. Enter command into the Command Sending Area.



RS232 Commands

- Default settings: Baud rate: 9600, Data bit: 8, Stop bit: 1, Parity bit: none
- Commands are case sensitive
- Command inside "[ ]" are for easy recognition only and not added to the real command. Other symbols including, ".", ",", "/", "%", "^", are parts of the command
- Feedback listed in the column "Feedback Example" are for reference only, and may vary according to the operation

System Commands

Command	Function	Feedback Example
PowerON.	Power on	Power ON! Front Panel Unlock!
PowerOFF.	Power off	Power OFF!
/*Name.	Query the name of matrix	Matrix88HD20-Pro
/*Type.	Query the model of matrix	gofanco
/^Version.	Query the version of firmware	V1.0.0 CPLD:V1.0.0
RST.	Reset to factory default.	Factory Default!

Control Management

Command	Function	Feedback Example
DS[xx]ON.	Able output devices down-scaling function. [xx]=00~04, xx=01~04 is the corresponding number of output 5,6,7 or 8 port, if the xx=00, it means all output 5~8 ports.	HDMI OUT 05 Down Scale ON! HDMI OUT 06 Down Scale ON! HDMI OUT 07 Down Scale ON! HDMI OUT 08 Down Scale ON!
DS[xx]OFF.	Disable output devices down-scaling function. [xx]=00~04, xx=01~04 is the corresponding number of output 5,6,7 or 8 port, if the xx=00, it means output 5~8 ports.	HDMI OUT 05 Down Scale OFF! HDMI OUT 06 Down Scale OFF! HDMI OUT 07 Down Scale OFF! HDMI OUT 08 Down Scale OFF!
OUT[xx]:[YY].	Output port select input port. [xx]=00~08, xx=01~08 is the number of output port, if the xx=00, it means all output ports. [YY]=01~08, YY=01~08 is the number of input port.	Output 01 Switch To In 01! Analog Out 01 Switch To Video Out 01! Analog Out 02 Switch To Video Out 01! Output 02 Switch To In 01! Output 03 Switch To In 01! Output 04 Switch To In 01! Output 05 Switch To In 01! Output 06 Switch To In 01! Output 07 Switch To In 01! Output 08 Switch To In 01!
@OUT[xx].	Able HDMI 5V of output port. [xx]=00~08, xx=01~08 is the number of output port, if the xx=00, it means all output ports.	Turn ON Output 01! Turn ON Output 02! Turn ON Output 03! Turn ON Output 04! Turn ON Output 05! Turn ON Output 06! Turn ON Output 07! Turn ON Output 08!
$OUT[xx].	Disable HDMI 5V of output port. [xx]=00~08, xx=01~08 is the number of output port, if the xx=00, it means all output ports.	Turn OFF Output 01! Turn OFF Output 02! Turn OFF Output 03! Turn OFF Output 04! Turn OFF Output 05! Turn OFF Output 06! Turn OFF Output 07! Turn OFF Output 08!

Query Commands

Command	Function	Feedback Example
GetGuiIP.	Query GUI IP	GUI_IP:192.168.0.178!
SetGuiIP:xxx.xxx.xxx.xxx.	Set GUI IP	SetGuiIP:192.168.0.178!
Baudratexxxx.	Set the baud rate of local serial port. xxxx=115200, 57600, 38400, 19200,or 9600	Baudrate9600. Set Local RS232 Baudrate Is 9600!
STA.	Query Status	GUI Or RS232 Query Status: gofanco Matrix88HD20-Pro V1.0.0 Power ON! Front Panel UnLock! Local RS232 Baudrate Is 115200! GUI_IP:192.168.0.150! … …
STA_POUT.	Query 5V Status of output port.	Turn ON Output 01! Turn ON Output 02! Turn ON Output 03! Turn ON Output 04! Turn ON Output 05! Turn ON Output 06! Turn ON Output 07! Turn ON Output 08!
STA_IN.	Query 5V Status of input port.	IN 1 2 3 4 5 6 7 8 LINK Y Y Y N Y Y Y Y
STA_OUT.	Query HPD Status of output.	OUT 1 2 3 4 5 6 7 8 LINK Y N Y Y Y Y Y Y
STA_VIDEO.	Query the input source of output port.	Output 01 Switch To In 01! Output 02 Switch To In 02! Output 03 Switch To In 04! Output 04 Switch To In 01! Output 05 Switch To In 03!

Query Commands Continued

Command	Function	Feedback Example
		Output 06 Switch To In 06! Output 07 Switch To In 04! Output 08 Switch To In 07!
STA_HDCP.	Query current using HDCP model of all output ports. 01-08 represents output port 1-8.	OUT 01 HDCP PASSIVE! OUT 02 HDCP PASSIVE! OUT 03 HDCP MAT DISPLAY! OUT 04 HDCP BYPASS! OUT 05 HDCP PASSIVE! OUT 06 HDCP PASSIVE! OUT 07 HDCP PASSIVE! OUT 08 HDCP PASSIVE!
STA_AUDIO.	Query audio switch and volume status of analog audio.	Audio Out 01 Switch To Video Out 05! Analog Out 01 Volume UnMute! Analog Out 01 Volume 50! Audio Out 02 Switch To Video Out 05! Analog Out 02 Volume Mute! Analog Out 02 Volume 32! … Analog Out 08 Volume Mute! Analog Out 08 Volume 75!
PresetSta[xx].	Save the scene	Preset 09 Save Success! Preset 09 Sta: Out 01 In 01! Out 02 In 04! Out 03 In 05! Out 04 In 04! Out 05 In 06! Out 06 In 03! Out 07 In 06! Out 08 In 08!
PresetRecall[xx].	Scene recall	Preset 09 Recall: Output 01 Switch To In 02! Output 02 Switch To In 02! Output 03 Switch To In 02! Output 04 Switch To In 02!

Lock/Unlock Commands

Command	Function	Feedback Example
Lock.	Lock the front panel buttons.	Front Panel Locked!
Unlock.	Unlock the front panel buttons.	Front Panel UnLock!

Audio Commands

Command	Function	Feedback Example
AUDIO[xx]:[YY].	SPDIF OUT and ANALOG OUT(They are same input audio source at one group) select which input audio source. [xx]=00~08 xx=01~08 is the number of the output port, if the xx=00, it means all output ports. [yy]=01~16 yy=01~08, it means de-embedded audio from HDMI1-8 input, if the yy=09~16, it means de-embedded audio from HDMI1-8 output.	Audio Out 01 Switch To Video Out 05! Audio Out 02 Switch To Video Out 05! Audio Out 03 Switch To Video Out 05! Audio Out 04 Switch To Video Out 05! Audio Out 05 Switch To Video Out 05! Audio Out 06 Switch To Video Out 05! Audio Out 07 Switch To Video Out 05! Audio Out 08 Switch To Video Out 05!
AVOLUME[xx]:[YY].	[xx]=00~08 xx=01~08 is the number of the Analog output port, if the xx=00, it means all Analog output ports. [YY]="V+" means volume up, [YY]="V-" means volume down, [YY]="MU" means Mute, [YY]="UM" means UnMute, [YY]=00-100 means setting volume	1. Analog Out 01 Volume 55! 2. Analog Out 02 Volume 32! 3. Analog Out 01 Volume Mute! 4. Analog Out 01 Volume UnMute! 5. Analog Out 01 Volume 50!

HDCP Compliance

Command	Function	Feedback Example
HDCP[xx]ON.	Force able and output HDCP 1.4. [xx]=00~08, xx=01~08 is the number of output port, if the xx =00, it means all output ports.	OUT 01 HDCP ON! OUT 02 HDCP ON! OUT 03 HDCP ON! OUT 04 HDCP ON! OUT 05 HDCP ON! OUT 06 HDCP ON! OUT 07 HDCP ON! OUT 08 HDCP ON!
HDCP[xx]OFF.	Force disable the output HDCP. [xx]=00~08, xx=01~08 is the number of output port, if the xx=00, it means all output ports.	OUT 01 HDCP OFF! OUT 02 HDCP OFF! OUT 03 HDCP OFF! OUT 04 HDCP OFF! OUT 05 HDCP OFF! OUT 06 HDCP OFF! OUT 07 HDCP OFF! OUT 08 HDCP OFF!
HDCP[xx]MAT.	Output HDCP follows the display. [xx] =00~08, xx=01~08 is the number of output port, if the xx =00, it means all output ports.	OUT 01 HDCP MAT Display! OUT 02 HDCP MAT Display! OUT 03 HDCP MAT Display! OUT 04 HDCP MAT Display! OUT 05 HDCP MAT Display! OUT 06 HDCP MAT Display! OUT 07 HDCP MAT Display! OUT 08 HDCP MAT Display!
HDCP[xx]PAS.	Output HDCP follows the value and status of input source device. [xx] =00~08, xx=01~08 is the number of output port, if the xx =00, it means all output ports.	OUT 01 HDCP PASSIVE! OUT 02 HDCP PASSIVE! OUT 03 HDCP PASSIVE! OUT 04 HDCP PASSIVE! OUT 05 HDCP PASSIVE! OUT 06 HDCP PASSIVE! OUT 07 HDCP PASSIVE! OUT 08 HDCP PASSIVE!
HDCP[xx]BYP.	Output HDCP follows input HDCP. Input has HDCP, output is HDCP1.4. Input doesn't have HDCP, output is without HDCP. [xx] =00~08, xx=01~08 is the number of output port, if the xx =00, it means all output ports.	OUT 01 HDCP BYPASSS! OUT 02 HDCP BYPASSS! OUT 03 HDCP BYPASSS! OUT 04 HDCP BYPASSS! OUT 05 HDCP BYPASSS! OUT 06 HDCP BYPASSS! OUT 07 HDCP BYPASSS! OUT 08 HDCP BYPASSS!

EDID Management

Command	Function	Feedback Example
EDIDMInit.	Restore the factory default EDID data for each input.	All Input EDID Set Default! System Initialization..... gofanco Matrix88HD20-Pro V1.0.0 Power ON! Front Panel UnLock!
EDIDUpgrade[xx].	Upgrade EDID via Serial Port • [xx]=00~08 xx=01~08 is the number of the port(able EDID user-defined for corresponding HDMI input), if the xx=00, it means all ports(able EDID user-defined for all HDMI inputs). **Note:** EDID user-defined can be used once, if switch to another EDID or exit, it will not be saved. • [xx]=U. xx=U means user-defined for built-in EDID(It can be saved in machine for using at any time). ***Note:*** *It can user-defined only one built-in EDID, after finishing it, machine still use previous built-in EDID.* When received commands, machine will remind EDID file (.bin) to send within 10 seconds. ***Note:*** *In order to guarantee the data to be normal received, need to disconnect all HDBaset before sending the command(s)*	File size: 256 Baud rate:115200bps Quired time: About 0 second Please wait... Send Completed！User Define EDID Upgrade OK By RS232 Or GUI!
EDID/[xx]/[yy].	Input ports xx use built-in EDID yy [xx]=00~08 xx=01~08 is the number of the input port, if the xx=00, it means all input ports.	Input All EDID Upgrade OK By 09 Internal EDID!

EDID Management Continued

Command	Function	Feedback Example
	[yy]=01~09 yy=01~08, it means built-in EDID that can not be user-defined, if the yy=09, it means user-defined EDID.	
EDIDGOUT[XX].	Read and print EDID of HDMI output, [XX]=01~08 is the number of the output port.	EDIDOUT04: ……
EDIDM[xx]B[yy].	Input port [yy] follows the EDID from output port [xx]. [xx]=01~08 xx=01~08 is the number of the output port. [yy]=00~08 yy=01~08 is the number of input port, if the yy=00, it means all input ports.	Input 06 EDID Upgrade OK By 01 EXT EDID!
/+[X]/[yy]:xxx.	Send serial data to local. [X]= 1--2400；2--4800；3--9600；4--19200；5--38400；6--57600；7--115200. [yy] means the output port that sent serial data, yy=01 means local output.	xxx.
EDIDSTA[xx].	Query EDID status of Input port. [xx]=00~08, xx=01~08 is the number of input port, if the xx=00, it means all input ports. ***Note:*** • *If built-in EDID09 is not user-defined, when querying it, the input port will use EDID6 Internal EDID instead. For example, send "EDID/03/09.", "EDIDSTA03.", and the result is "Input 03 EDID From 06 Internal EDID!".* • *If built-in EDID09 is user-defined, when querying it, the input port will use the user-defined EDID. For example, send "EDID/03/09.", "EDIDSTA03.", and the result is "Input 03 EDID From User Define EDID!".* • *If directly user-define the port EDID, when querying it, the input port will use the user-defined EDID. For example, send "EDIDSTA03.", and the result is "Input 3 EDID From User Define EDID!"*	Input 01 EDID From 01 Internal EDID! Input 02 EDID From 02 Internal EDID! Input 03 EDID From 03 Internal EDID! Input 04 EDID From 06 Internal EDID! Input 05 EDID From 06 Internal EDID! Input 06 EDID From 06 Internal EDID! Input 07 EDID From 06 Internal EDID! Input 08 EDID From User Define EDID!

CEC Control

Compatible with CEC supported source devices and display devices through HDMI connection.

CEC[I/O][AA][BB][CC][DD].

- The "**[I]**" represents the input port. The "**[O]**" represents the output port.
- The "**[AA]**" represents the port number. The HDMI input ports are 01~08. The HDMI output ports are 01~08.
- The "**[AA]**" is "**FF**" for sending command to all input or output ports.
- The "**[BB]**" represents the device type (e.g. TV: 40/20/80; Blu-ray DVD: 04/08).
- The "[CC]" represents the CEC function type (e.g. "44": Remote control).
- The "[DD]" represents the specific command from the table below.

Source Device Commands

Command	Description	Command Example and Response
CECI[AA][BB][CC]00.	Confirm operation (Enter).	CECI02044400
		CEC Input 02 Send Success!
CECI[AA][BB][CC]01.	UP direction.	CECI01044401.
		CEC Input 01 Send Success!
CECI[AA][BB][CC]02.	DOWN direction.	CECI01044402.
		CEC Input 01 Send Success!
CECI[AA][BB][CC]03.	LEFT direction.	CECI03044403.
		CEC Input 03 Send Success!
CECI[AA][BB][CC]04.	RIGHT direction.	CECI03044404.
		CEC Input 03 Send Success!
CECI[AA][BB][CC]09.	Back to submenu.	CECI03044409.
		CEC Input 03 Send Success!
CECI[AA][BB][CC]0A.	Enter main menu.	CECI0304440A.
		CEC Input 03 Send Success!
CECI[AA][BB][CC]0D.	Exit menu.	CECI0204440D.
		CEC Input 02 Send Success!
CECI[AA][BB][CC]6D.	Power on.	CECI0204446D.
		CEC Input 02 Send Success!
CECI[AA][BB][CC]6C.	Power off.	CECI0204446C.
		CEC Input 02 Send Success!

Display Device Commands

Command	Description	Command Example and Response
CECO[AA][BB][CC]41.	Volume up.	CECO05404441. CEC Output 05 Send Success!
CECO[AA][BB][CC]42.	Volume down.	CECO05404442. CEC Output 05 Send Success!
CECO[AA][BB][CC]43.	Mute	CECO05404443. CEC Output 05 Send Success!
CECO[AA][BB]04.	Power on.	CECO038004. CEC Output 03 Send Success!
CECO[AA][BB]36.	Power off.	CECO038036. CEC Output 03 Send Success!

Video Resolution Downscaling

The Matrix Pro supports resolution downscaling, various 4K inputs can be dowscaled to 1080p to support 1080p monitors, as shown in the table below.

	Input			Output	
#	Resolution	Refresh	Color Space	Downscale	1080p Specs
1	3840x2160	60	4:4:4	Support	1080p@60Hz 4:4:4
2	3840x2160	30	4:4:4	Support	1080p@30Hz 4:4:4
3	3840x2160	24	4:4:4	Support	1080p@24Hz 4:4:4
4	3840x2160	60	4:2:0	Support	1080p@60Hz 4:4:4
5	3840x2160	30	4:2:0	Support	1080p@30Hz 4:4:4
6	3840x2160	24	4:2:0	Support	1080p@24Hz 4:4:4
7	3840x2160	60	4:2:2	Not Support	N/A
8	3840x2160	30	4:2:2	Not Support	N/A
9	3840x2160	24	4:2:2	Not Support	N/A

Note: Only the last 4 HDMI Outputs (5,6,7,8) support video resolution downscaling.

Specifications

Video	
Video Input	(8) HDMI
Input Connector	(8) Type-A female HDMI
HDMI Input Resolution	Up to 4K@60Hz 4:4:4, HDR
Video Output	(8) HDMI
Output Connector	(8) Type-A female HDMI
HDMI Output Resolution	Up to 4K@60Hz 4:4:4, HDR10 and Dolby Vision
HDMI Output	Supports up to 5V500mA for AoC cable
HDMI Version	Up to 2.0
HDCP Version	Up to 2.3
HDMI Audio Signal	LPCM 7.1 audio, Dolby Atmos®, Dolby® TrueHD, Dolby Digital® Plus, DTS:X™, and DTS-HD® Master Audio™ pass-through.
Digital Audio Output	
Output	(8) Digital SPDIF audio
Output Connector	(8) Toslink connector
Digital SPDIF Audio Format	Supports PCM, Dolby Digital, DTS, DTS-HD
Frequency Response	20Hz – 20KHz, ±1dB
Max Output Level	±0.05dBFS
THD+N	< 0.05%, 20 Hz – 20 kHz bandwidth, 1 kHz sine at 0dBFS level (or max level)
SNR	> 90dB, 20Hz-20KHz bandwidth
Crosstalk Isolation	< -70 dB, 10 kHz sine at 0 dBFS level (or max level before clipping)
Noise	-90dB
Analog Audio Output	
Output	(8) Analog L/R Audio
Output Connector	(8) L&R (RCA)
Digital SPDIF Audio Format	PCM 2CH
Frequency Response	20 Hz to 20 kHz, ±1dB
Max Output Level	2.0Vrms ± 0.5dB. 2 V = 16 dB headroom above -10dBV (316 mV) nominal consumer line level signal
THD+N	< 0.05%, 20 Hz – 20 kHz bandwidth, 1 kHz sine at 0dBFS level (or max level)
SNR	> 80dB, 20Hz-20 kHz bandwidth
Crosstalk Isolation	< -80 dB, 10 kHz sine at 0dBFS level (or max level before clipping)
L-R level deviation	< 0.05 dB, 1 kHz sine at 0dBFS level (or max level before clipping)
Output load capability	1k ohm and higher (supports 10x paralleled 10k ohm loads)
Noise	-80dB

Control	
Control port	(1) FIRWARE, (1) IR EYE, (1) RS232, (1) TCP/IP,
Control Connector	(1) USB-A, (1) 3.5mm jack, (1) 3-pin terminal block, (1) RJ45
General	
Transmission Distance	4K/60Hz/444 5m,4K/60Hz/420 10m,1080P 15m
Bandwidth	18Gbps
Operation Temperature	-5℃ ~ +55℃
Storage Temperature	-25℃ ~ +70℃
Relative Humidity	10% ~ 90%
External Power Supply	Input: AC 100V~240V, 50/60Hz; Output : 24V DC 2.71A
Power Consumption	24W
Dimension (W*H*D)	436.4mm*44mm*236mm
Net Weight	3kg

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