



1080p HDMI 8x8 Matrix User's Guide



P/N: Matrix88

G4-0092A



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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

- 1080p HDMI 8x8 Matrix
- IR remote control
- Power adapter
- RS-232 cable
- Mounting accessories
- Plastic cushions (4x)
- User's guide

Introduction

The 1080p HDMI 8x8 Matrix allows you to switch between any of the 8 source devices to up to any of the 8 display devices with support for up to 1080p resolution.

Features

- Supports HDMI resolution up to 1080p@60Hz
- Compliant with HDMI 1.3a and HDCP 1.4 and backward compatible with previous versions
- Smart EDID management to match the connected displays
- Switching via front panel buttons, GUI, IR remote, or RS232 control
- Sturdy metal housing with surface-mount mechanism
- Features firmware update option for future compatibility expansion

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. **Signal Switching (x8):**
A: Each group includes 8 LEDs, one for each source input
B: Each group includes 1 Switching Button. Press the button repeatedly to cycle through the 8 source inputs
4. **Micro USB:** For firmware update



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
3. **RJ45:** Connect to your control PC using CAT cable
4. **RS232:** Connects to your control PC using the included RS232 cable
5. **Power Jack:** Connects to the included power adapter

Hardware Installation

1. Power off all devices including your HDMI source and HDMI display.
2. Connect your HDMI source devices to the HDMI IN (1-8) connectors with HDMI cables (HDMI cables not included).
3. 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 device control via a computer system.
4. Connect your HDMI displays to the HDMI OUT (1-8) connectors with HDMI cables (HDMI cables not included).
5. Plug the included power adapter into the power jack then plug the power adapter into a reliable power source.
6. Power on all connected devices.
7. The HDMI 8x8 Matrix is ready for use.

Connection Diagram

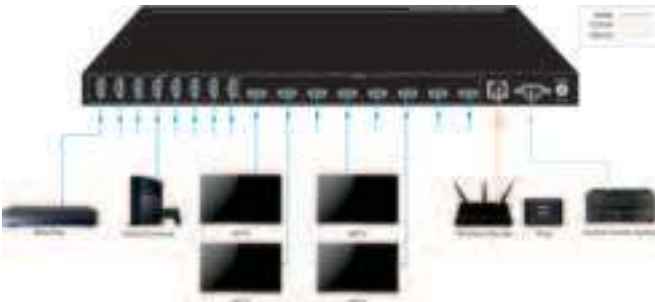


Figure 3: Connection Diagram

Device Switching

Front Panel Control

Repeatedly press the **Input Select Button** to cycle through the various inputs.

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 **Switch (5)** button to execute the command, or press **Clear (6)** to cancel
- To set the EDID for one or more source devices to the EDID capabilities of a specific output, first press the **EDID (7)** button, then press the desired **INPUTS (2)** button, then press the **OUTPUTS (3)** button corresponding to the desired display, finally press the **EDID (7)** button to execute the operation



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 **Switch** 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 **Switch** button to execute the change

Send the source device on HDMI In 4 to all of the displays

INPUTS: Press button 4

OUTPUTS: Press the **All** button

Press the **Switch** button to execute the change

GUI Control

The 8x8 Matrix comes with a built-in GUI for convenient TCP/IP control. Open the GUI by typing in 192.168.0.178 in the browser and the login interface, as shown below, will open. Type in the username: **admin** and password: **admin**, then click **Login** to enter the GUI.



Video Tab



Use the full 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 9 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.



EDID Tab



- Type 1-8 on the Input 1-8 textbox to copy EDID from output 1-8.
- Type 9-14 on the Input 1-8 textbox to select the compatible built-in EDID.

RS232 Control

The 1080p HDMI 8x8 Matrix 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.



RS232 Settings

- Baud rate: 9600, Data bit: 8, Stop bit: 1, Parity: None

RS232 Commands

System Commands

Command	Description	Command Example and Response
PowerON	Power on the switcher	Power ON!
PowerOFF	Power off the switcher	Power OFF!
!Name	Report switcher name	CE-M308
!Type	Report switcher model	HDMI Matrix
!Version	Report software version and video driver version	V1.0.0 CPLD V1.0.0 VideoDriverVersion V1.0.0
RST	Reset to factory default	Factory Default!
Lock	Lock front panel buttons	Front Panel Locked!
Unlock	Unlock front panel buttons	Front Panel Unlocks!
GetGuiIP	Report GUI IP address	GUI IP DHCP OFF! GUI IP 192.168.0.178!
SetGuiIP DHCP OFF F.xxx.xxx.xxx.xxx	Set GUI IP and turn off DHCP	SetGuiIP 192.168.0.178! GUI IP DHCP OFF!

System Commands Continued

Command	Description	Command Example and Response
		GUI_IP 192.168.0.178#
SetGuiIP_DHCPON	Turn on DHCP mode and auto-assign GUI IP	GUI IP DHCP ON#
Baudrate115200	Set the baud rate of switcher to 115200	Set Local RS232 Baudrate to 115200#
Baudrate57600	Set the baud rate of switcher to 57600	Set Local RS232 Baudrate to 57600#
Baudrate38400	Set the baud rate of switcher to 38400	Set Local RS232 Baudrate to 38400#
Baudrate19200	Set the baud rate of switcher to 19200	Set Local RS232 Baudrate to 19200#
Baudrate9600	Set the baud rate of switcher to 9600 (Factory default).	Set Local RS232 Baudrate to 9600#
Baudrate4800	Set the baud rate of switcher to 4800	Set Local RS232 Baudrate to 4800#
Baudrate2400	Set the baud rate of switcher to 2400	Set Local RS232 Baudrate to 2400#
STA	Report system status	GUI Or RS232 Query Status: Matrix Switcher CE-MX98 V1.0.0 Power ON! Front Panel UnLock! Local RS232 Baudrate to 9600# GUI_IP 192.168.0.178# GUI IP DHCP OFF! Output 01 Switch To In 04! Output 02 Switch To In 02! Output 03 Switch To In 03! Output 04 Switch To In 03! Output 05 Switch To In 00!

Signal Switching

Command	Description	Command Example and Response
OUT(x)(y)	Switch input (y) to output (x) (y)=01-08 (x)=00-08 (x)=00, all outputs:	OUT01 04 Output 01 Switch To In 04!
@OUT(x)	Turn-on output (x) (x)=00-08 (x)=00, all outputs:	@OUT00 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(x)	Turn-off output (x) (x)=00-08 (x)=00, all outputs:	\$OUT00 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!
STA_OUT	Report the on-off status (SV) of 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!
STA_IN	Report the connection status (SV) of input ports	IN 12345678 LNKNNNNYYNN
STA_OUT	Report the connection status (RPD) of output ports	OUT 12345678 LNK YNNNNYY
STA_VIDEO	Report the input source of outputs	Output 01 Switch To In 01! Output 02 Switch To In 02!

Signal Switching Continued

Command	Description	Command Example and Response
		Output 03 Switch To In 03? Output 04 Switch To In 04? Output 05 Switch To In 05? Output 06 Switch To In 06? Output 07 Switch To In 07? Output 08 Switch To In 08?

Preset Setting

Command	Description	Command Example and Response
PresetIn(x)	Report the saved preset (x) (x)=01-08	PresetIn01 Preset 01 Src Out 01 In 01? Out 02 In 01? Out 03 In 01? Out 04 In 01? Out 05 In 01? Out 06 In 01? Out 07 In 01? Out 08 In 01?
PresetSave(x)	Store the current switching status to preset (x) (x)=01-08	PresetSave09 Preset 09 Save Success? Preset 09 Src Out 01 In 01? Out 02 In 04? Out 03 In 09? Out 04 In 04? Out 05 In 06? Out 06 In 03? Out 07 In 06? Out 08 In 08
PresetRecall(x)	Recall preset (x) (x)=01-08	PresetRecall01 Preset 01 Recall Output 01 Switch To In 01? Output 03 Switch To In 03?

Preset Setting Continued

Command	Description	Command Example and Response
		Output 03 Switch To In 03! Output 04 Switch To In 04! Output 05 Switch To In 05! Output 06 Switch To In 06! Output 07 Switch To In 07! Output 08 Switch To In 08!

EDID Management

Command	Description	Command Example and Response																						
EDIDMRes	Reset factory default EDID to all input ports.	All Input EDID Set Default!																						
EDIDUUpgrade(x)	Upgrade the EDID data of the input port (x). (x)=00-08 (x)=00, all inputs. (x)=*U Upgrade the user-defined EDID. When the command applied, system prompts to upload the EDID file (.bin). Operation will be cancelled in 10 seconds.	EDIDUpgrade01. EDIDUpgradeU! Please Send The EDID File! ... User Define EDID Upgrade OK By RS232 Or GUI																						
EDID(x)(y)	Input (x) invoke the EDID (y). (x)=00-08 (x)=00, all inputs. (y)=01-11	EDID-03-01. Input 03 EDID Upgrade OK By DT Internal EDID!																						
	<table border="1"> <tbody> <tr><td>01</td><td>1280x720-60_Stereo</td></tr> <tr><td>02</td><td>1280x720-60_HighDefinitionAudio</td></tr> <tr><td>03</td><td>1920x1080-e0_DVI</td></tr> <tr><td>04</td><td>1920x1080-60_Sbt_Stereo</td></tr> <tr><td>05</td><td>1920x1080-60_Sbt_HighDefinitionAudio</td></tr> <tr><td>06</td><td>1920x1080-60_DeepColor_Stereo</td></tr> <tr><td>07</td><td>1920x1080-60_DeepColor_HighDefinitionAudio</td></tr> <tr><td>08</td><td>1920x1080-60_3D_Stereo</td></tr> <tr><td>09</td><td>1920x1080-60_3D_HighDefinitionAudio</td></tr> <tr><td>10</td><td>1920x1200-60_Sbt_Stereo</td></tr> <tr><td>11</td><td>User-defined EDID</td></tr> </tbody> </table>	01	1280x720-60_Stereo	02	1280x720-60_HighDefinitionAudio	03	1920x1080-e0_DVI	04	1920x1080-60_Sbt_Stereo	05	1920x1080-60_Sbt_HighDefinitionAudio	06	1920x1080-60_DeepColor_Stereo	07	1920x1080-60_DeepColor_HighDefinitionAudio	08	1920x1080-60_3D_Stereo	09	1920x1080-60_3D_HighDefinitionAudio	10	1920x1200-60_Sbt_Stereo	11	User-defined EDID	
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EDIDGOUT(x)	Report the EDID of output (x). (x)=01-08	EDIDGOUT04																						

EDID Management Continued

Command	Description	Command Example and Response
EDIDM[xx][R][yy]	Copy the EDID data of output [xx] to input [yy]. [xx]=01-08 [yy]=00-08 [yy]=00, all inputs	EDIDM04B01 Input 01 EDID Upgrade OK By 04 Exit EDID!
EDIDSTA[xx]	Report the EDID of input [xx]. [xx]=00-08 [xx]=00, all inputs.	EDIDSTA00 Input 01 EDID From 01 Internal EDID! Input 02 EDID From 01 Internal EDID! Input 03 EDID From 01 Internal EDID! Input 04 EDID From 01 Internal EDID! Input 05 EDID From 01 Internal EDID! Input 06 EDID From 01 Internal EDID! Input 07 EDID From 01 Internal EDID! Input 08 EDID From 01 Internal EDID!

HDCP Management

Command	Description	Command Example and Response
HDCP[xx]ON	Turn on HDCP for output [xx]. [xx]=00-08 [xx]=00, all outputs	HDCP00ON 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	Turn off HDCP for output [xx]. [xx]=00-08	HDCP00OFF

HDCEP Management Continued

Command	Description	Command Example and Response
	[x]=00, all outputs.	OUT 01 HDCEP OFF! OUT 02 HDCEP OFF! OUT 03 HDCEP OFF! OUT 04 HDCEP OFF! OUT 05 HDCEP OFF! OUT 06 HDCEP OFF! OUT 07 HDCEP OFF! OUT 08 HDCEP OFF!
HDCEP(x)BY!	Bypass mode (Factory default). Input source automatically follows the HDCEP of output [x] [x]=00-08. [x]=00, all outputs.	HDCEP(x)BY! OUT 01 HDCEP BYPASS! OUT 02 HDCEP BYPASS! OUT 03 HDCEP BYPASS! OUT 04 HDCEP BYPASS! OUT 05 HDCEP BYPASS! OUT 06 HDCEP BYPASS! OUT 07 HDCEP BYPASS! OUT 08 HDCEP BYPASS!
STA_HDCEP	Report HDCEP status of all output ports.	OUT 01 HDCEP BYPASS! OUT 02 HDCEP BYPASS! OUT 03 HDCEP BYPASS! OUT 04 HDCEP BYPASS! OUT 05 HDCEP BYPASS! OUT 06 HDCEP BYPASS! OUT 07 HDCEP BYPASS! OUT 08 HDCEP BYPASS!

CEC Control

Command	Description	Command Example and Response																																						
CEC[V0][AA][BB] [CC][DD]	<p>Send CEC command to control the input source device or display device</p> <p>[V0] Represent input or output port</p> <p>[AA]=01-03 Represents input or output port number. When [AA]=FF it represents all input or output ports</p> <p>[BB] Represents the device type. For example, TV is '40', '20' or '80', Blue-ray DVD is '04' or '08' and so on</p> <p>[CC] Represents CEC function type (e.g. '44' Remote control)</p> <p>[DD] Represents the specific command. For example, the below table lists some common commands:</p> <table border="1" data-bbox="377 556 622 1010"> <thead> <tr> <th colspan="2">Control Input Source device</th> </tr> <tr> <th>Command</th> <th>Description</th> </tr> </thead> <tbody> <tr><td>00</td><td>Confirm</td></tr> <tr><td>01</td><td>Up</td></tr> <tr><td>02</td><td>Down</td></tr> <tr><td>03</td><td>Left</td></tr> <tr><td>04</td><td>Right</td></tr> <tr><td>08</td><td>Back</td></tr> <tr><td>0A</td><td>Main menu</td></tr> <tr><td>0D</td><td>Exit menu</td></tr> <tr><td>8D</td><td>Power on</td></tr> <tr><td>9C</td><td>Power off</td></tr> <tr> <th colspan="2">Control Output Display device</th> </tr> <tr> <th>Command</th> <th>Description</th> </tr> <tr><td>41</td><td>Volume up</td></tr> <tr><td>42</td><td>Volume down</td></tr> <tr><td>43</td><td>Mute</td></tr> <tr><td>74</td><td>Power on</td></tr> <tr><td>76</td><td>Power off</td></tr> </tbody> </table>	Control Input Source device		Command	Description	00	Confirm	01	Up	02	Down	03	Left	04	Right	08	Back	0A	Main menu	0D	Exit menu	8D	Power on	9C	Power off	Control Output Display device		Command	Description	41	Volume up	42	Volume down	43	Mute	74	Power on	76	Power off	<p>CEC0004440A (Main menu)</p> <p>CEC0008004 (Power on TV)</p> <p>CEC0008006 (Power off TV)</p>
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		<p>CEC Input 00 Send Success!</p> <p>CEC Output 20 Send Success!</p> <p>CEC Output 00 Send Success!</p>																																						

Specifications

Video Input	
Input	(8) HDMI
Input Connector	(8) female type A HDMI
Video Output	
Output	(8) HDMI
Output Connector	(8) female type A HDMI
Control	
Control	(1) FIRMWARE, (1) TCP/IP, (1) RS232
Control Connector	(1) Micro-USB, (1) RJ45, (1) Female DB9
Video General	
Video Resolution	Up to 1080p@60Hz 4:4:4 8bit
HDMI Version	1.3a
HDCP Version	1.4
HDMI Input Cable	≥ 15 meters
HDMI Output Cable	≥ 15 meters
Bandwidth	5.8Gbps
General	
Control Options	Front Panel, IR Remote, GUL RS232
Power Supply	Input: 100V~240V AC; Output: 24V DC 1.25A
Power Consumption	13.5 watts (Max)
Operation Temperature	-5~ +55°C
Storage Temperature	-25 ~ +70°C
Relative Humidity	10%~90%
Dimension (W*H*D)	410mm x28mm x 160mm
Net Weight	1.6KG

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