

**WOXCON**

# **User Manual**

**NPG-MX44-H2**

**HDMI V2.0 4x4 Matrix Switcher with**

**4K to 1080p Down-scaling**

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***Version: NPG-MX44-H2\_2020V1.2***

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## Introduction

Thank you for purchasing this HDMI V2.0 Matrix. It is a 4 HDMI inputs and 4 HDMI outputs matrix switcher; It supports resolution up to 4K@60Hz 4:4:4, HDR10, Dolby Vision.

It can be controlled via front panel buttons, IR remote and RS232 commands.

## Features

- Supports resolutions up to 4K@60Hz 4:4:4, HDR10, Dolby Vision, including 1080p 3D.
- Fully compliant with HDMI V2.0 and HDCP 2.2 specifications.
- Supports 4K to 1080p down-scaling for each independent output to compatibility with the legacy 1080p displays.
- Smart EDID management.
- Supports front panel buttons, IR remote and RS232 control.

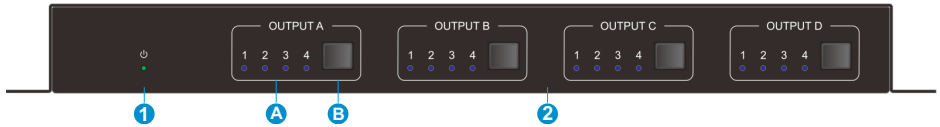
## Package List

Please make sure all the items listed below are in the package. If anything is missing or damaged, please contact your distributor for a replacement.

- 1x NPG-MX44-H2
- 4x Round Plastic Feet
- 1x RS232 Cable (3-pin to DB9)
- 1x IR Receiver
- 1x IR Remote
- 1x Power Adaptor (12VDC, 2A)
- 1x User Manual

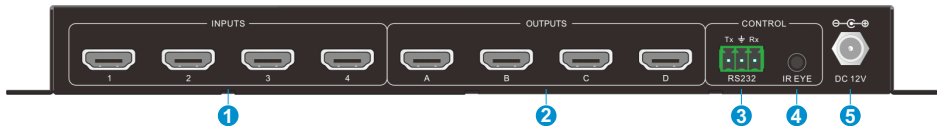
## Panel Description

### Front Panel



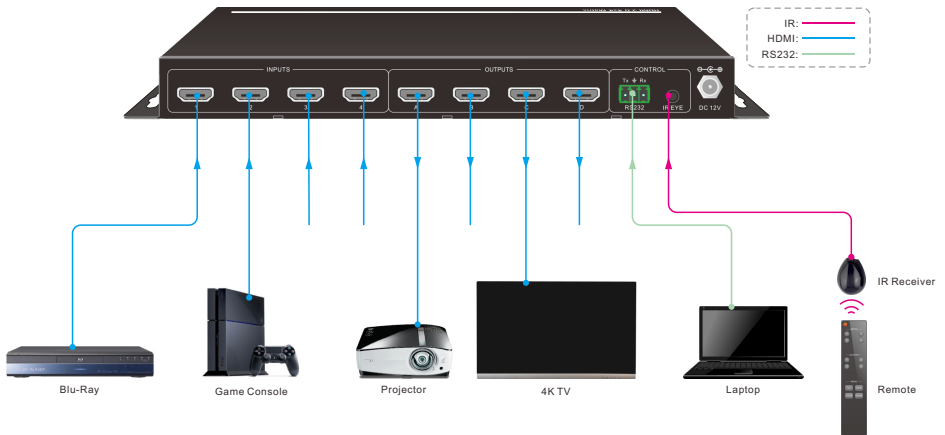
1. **Power LED:** Illuminates green when switcher is powered on.
2. **Signal Switching Zone:**
  - **A:** Total four output zones, and each zone is including four blue indicators for four input sources, numbered from "1" to "4". One of LED illuminates green to indicate which source is selected for the output channel.
  - **B:** Total four output buttons. Press the button repeatedly to cycle through the sources from inputs 1 to inputs 4.

### Rear Panel



1. **INPUTS (1~4):** Four HDMI ports to connect HDMI source devices.
2. **OUTPUTS (A~D):** Four HDMI ports to connect HDMI display devices.
3. **RS232:** Connects to control device (e.g. PC) to control the matrix by sending RS232 commands.
4. **IR EYE:** Connects to IR receiver to receive IR signals from IR remote to control the matrix.
5. **DC 12V:** DC connector for the power adapter connection.

## System Diagram

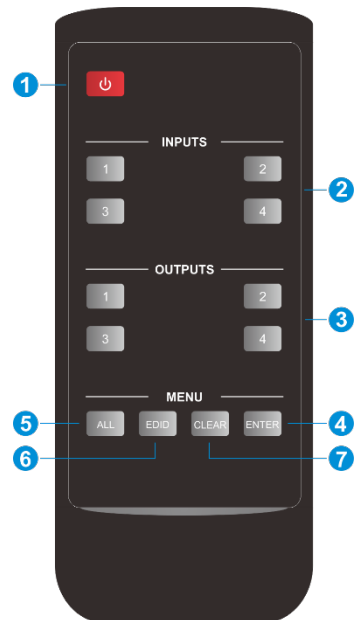


## IR Remote Control

- Press the **STANDBY (1)** button to enter or exit Standby mode.
- To switch the selected input for one or more of the outputs, first press the number corresponding to the desired **INPUT (2)**, then press one or more **OUTPUTS (3)** or the **ALL (5)** button, then press the **ENTER (4)** button to execute the change.

### Examples:

- ✓ To send input 3 to output 2, first press the **INPUTS 3** button, then press the **OUTPUTS 2** button, and finally press the **ENTER** button to execute the change.
- ✓ To send input 1 to outputs 1 and 4, first press the **INPUTS 1** button, then press both the **OUTPUTS 1** and **4** buttons, and finally press the **ENTER** button to execute the change.



- ✓ To send input 4 to all outputs, first press the **INPUTS 4** button, then press the **ALL** button, and finally press the **ENTER** button to execute the change.
- To set the EDID for one or more source devices to the EDID capabilities of a specific output, press the **EDID (6)** button, then press the desired **INPUTS (2)** or the **ALL (5)** button, then press the **OUTPUTS (3)** button corresponding to the desired display, finally press the **ENTER (4)** button to execute the operation.

## RS232 Control

Connect the RS232 port to control device (e.g. PC) with RS232 cable. The matrix switcher can be controlled by sending RS232 commands.

### RS232 Commands

The command lists are used to control the switcher. The RS232 control software (e.g. docklight) needs to be installed on the control PC to send RS232 commands.

After installing the RS232 control software, please set the parameters of COM number, bound rate, data bit, stop bit and the parity bit correctly, and then you are able to send command in command sending area.

Baud rate: 9600

Data bit: 8

Stop bit: 1

Parity bit: none

### System Command

Command	Description	Command Example and Response
<b>/*Type;</b>	Report system model.	NPG-MX44-H2
<b>/%Lock;</b>	Lock front panel buttons.	System Locked!
<b>/%Unlock;</b>	Unlock front panel buttons.	System UnLock!
<b>/^Version;</b>	Report software version.	V1.0.0
<b>Undo.</b>	Cancel the current operation and return to previous switching status.	Undo Ok!
<b>PWON.</b>	Power on the system.	PWON
<b>STANDBY.</b>	Turn the system to standby mode.	STANDBY
<b>%9961.</b>	Report the system locking status.	System UnLock! System Locked!
<b>%9962.</b>	Report the system power status.	PWON
<b>%0911.</b>	Reset to factory default.	Factory Default
<b>/%S/BAUD:[x].</b>	Set the RS232 baud rate. The baud rate can be showed when power on the unit. [x]=1~7. [x]=1: 115200, [x]=2: 57600, [x]=3: 38400, [x]=4: 19200, [x]=5: 9600, [x]=6: 4800, [x]=7: 2400	<b>/%S/BAUD:5.</b>
		<b>/%S/BAUD:5.</b>

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Command	Description	Command Example and Response
SetSystemReboot.	System reboot.	SetSystemReboot.

Signal Switching

Command	Description	Command Example and Response
[x]All.	Switch input [x] AV to all outputs. [x]=1~4.	4All. 04 To All.
All#.	Switch all input signal to the corresponding output channel.	All Through.
All\$.	Switch off all outputs.	All Closed.
[x]#.	Switch input [x] to output [x]. [x]=1~4.	2#. 02 Through.
[x]\$.	Turn off output [x]. [x]=1~4.	2\$. 02 Closed.
[x]@.	Turn on output [x]. [x]=1~4.	2@. 02 Open.
All@.	Turn on all outputs.	All Open.
[x]V[y1],[y2],[y3],[y4].	Switch input [x] to outputs [y]. [x]=1~4, [y]=1~4.	1V1. 2V1,2,3. 3V1,2,3,4. AV:01->01 AV:02->01,02,03 AV:03->01,02,03,04
Status[x].	Report switching status of output [x]. [x]=1~4.	Status2. AV:02->02
Status.	Report all switching status.	AV:01->01 AV:02->02 AV:03->03 AV:04->04
%9971.	Report link status of input channel.	In 01 02 03 04 Connect Y Y Y Y
%9972.	Report link status of output channel.	Out 01 02 03 04 Connect Y Y Y Y
%9975.	Report switching status of all inputs and outputs.	Out 01 02 03 04 In 01 02 03 04



### Preset Setting

Command	Description	Command Example and Response
Save[y].	Store the current switching status to present [y]. [y]=0~9.	Save3.
		Save To F3
Recall[y].	Recall present [y]. [y]=0~9.	Recall9.
		Recall From F9
Clear[y].	Clear the present [y]. [y]=0~9.	Clear9.
		Clear F9

### Audio Setting

Command	Description	Command Example and Response
DigitAudioON[x].	Turn on the HDMI digital audio of output [x]. [x]=1~4. When [x]=5, it means to turn on all outputs.	DigitAudioON2
		DigitAudio ON with Output 2
DigitAudioOFF[x].	Turn off the HDMI digital audio of output [x]. [x]=1~4. When [x]=5, it means to turn off all outputs.	DigitAudioOFF2.
		DigitAudio OFF with Output 2
%9977.	Report HDMI digital audio status of outputs.	Out 01 02 03 04 Audio Y Y Y Y

### EDID Management

Command	Description	Command Example and Response
EDIDG[x].	Report the EDID data from output [x]. [x]=1~4.	EDIDG4.
		Output 04 EDID Data: 00 FF FF FF FF FF FF 00 ...
EDIDMInit.	Reset factory default EDID to all input ports.	EDIDMInit.
EDIDM[x]B[y].	Set the EDID data of input [y] to [x]. [x]=1~13, [y]=1~5. [x]=1: Learns EDID from HDMI output 1. [x]=2: Learns EDID from HDMI output 2. [x]=3: Learns EDID from HDMI output 3. [x]=4: Learns EDID from HDMI output 4. [x]=5: 1920x1080@60Hz 8bit Stereo Audio [x]=6: 1920x1080@60Hz 8bit High Definition Audio [x]=7: 3840x2160@30Hz 8bit Stereo Audio	EDIDM1B4.
		EDIDM1B4.

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Command	Description	Command Example and Response
	[x]=8: 3840x2160@30Hz Deep Color Stereo Audio [x]=9: 3840x2160@60Hz 4:2:0 Deep Color Stereo Audio [x]=10: 3840x2160@60Hz Deep Color Stereo Audio (Default) [x]=11: 3840x2160@60Hz Deep Color High Definition Audio [x]=12: 3840x2160@60Hz Deep Color HDR LPCM 6CH [x]=13: User-defined EDID [y]=1: HDMI input 1 [y]=2: HDMI input 2 [y]=3: HDMI input 3 [y]=4: HDMI input 4 [y]=5: All HDMI inputs	
<b>EDIDUpgrade[x].</b>	Upgrade the user-defined EDID data. [x]=1. When the command applied, system prompts to upload the EDID file (.bin). Operation will be cancelled in 10 seconds	EDIDUpgrade1.  Please send the EDID file within 10s!
<b>GetInPortEDID[x].</b>	Report the EDID of input [x]. [x]=1~4.	GetInPortEDID4.  Input 04 EDID Data: 00 FF FF FF FF FF FF 00 ...

HDCP Compliance

Command	Description	Command Example and Response
<b>/%O/[x]:[z].</b>	HDCP management of output [x]. [x]=1~4: HDMI output 1~4. [z]=0~1 is for HDCP mode. [z]=0: HDCP Bypass. The outputs automatically follow the HDCP content of HDMI input. [z]=1: HDCP 1.4. Whatever HDCP content in HDMI input, the HDCP content of output is HDCP 1.4.	/%O/ALL:1.  /%O/ALL:1.
<b>%9973.</b>	Report the HDCP on/off status of HDMI inputs.	In 01 02 03 04 HDCP Y Y Y Y
<b>%9974.</b>	Report the HDCP on/off status of HDMI outputs.	Out 01 02 03 04 HDCP Y Y Y Y
<b>%9978.</b>	Reports the HDCP mode of HDMI inputs.	In 01 02 03 04 HDCPMODE 1 1 1 1

## Video Resolution Down-scaling

The matrix supports video resolution downscaling, the 4K (4096x2160/3840x2160) input can be automatically degraded to 1080p output for compatibility with 1080p display, shown in the below chart.

#	Input			Output	
	Resolution	Refresh	Color Space	Downscale	1080p Specs
1	4K	60Hz	4:4:4	Support	1080p@60Hz 4:4:4
2	4K	50Hz	4:4:4	Support	1080p@50Hz 4:4:4
3	4K	30Hz	4:4:4	Support	1080p@30Hz 4:4:4
4	4K	25Hz	4:4:4	Support	1080p@25Hz 4:4:4
5	4K	24Hz	4:4:4	Support	1080p@24Hz 4:4:4
6	4K	23Hz	4:4:4	Support	1080p@23Hz 4:4:4
7	4K	60Hz	4:2:0	Support	1080p@60Hz 4:4:4
8	4K	50Hz	4:2:0	Support	1080p@50Hz 4:4:4
9	4K	30Hz	4:2:0	Support	1080p@30Hz 4:4:4
10	4K	25Hz	4:2:0	Support	1080p@25Hz 4:4:4
11	4K	24Hz	4:2:0	Support	1080p@24Hz 4:4:4
12	4K	23Hz	4:2:0	Support	1080p@23Hz 4:4:4
13	4K	60Hz	RGB	Support	1080p@60Hz RGB
14	4K	50Hz	RGB	Support	1080p@50Hz RGB
15	4K	30Hz	RGB	Support	1080p@30Hz RGB
16	4K	25Hz	RGB	Support	1080p@25Hz RGB
17	4K	24Hz	RGB	Support	1080p@24Hz RGB
18	4K	23Hz	RGB	Support	1080p@23Hz RGB

## Specification

<b>Video Input</b>	
Input	(4) HDMI
Input Connector	(4) female type A HDMI
HDMI Version	2.0
HDCP Version	2.2
<b>Video Output</b>	
Output	(4) HDMI
Output Connector	(4) female type A HDMI
HDMI Version	2.0
HDCP Version	2.2
<b>Control</b>	
Control Port	(1) RS232, (1) IR EYE
Control Connector	(1) 3-pin terminal block, (1) 3.5mm jack
<b>General</b>	
Maximum Video Resolution	Up to 4K@60Hz 4:4:4, HDR10, Dolby Vision, including 1080p 3D.
Maximum Bandwidth	18Gbps
HDMI Audio	Supports PCM, Dolby Digital and DTS.
Control Options	Front Panel, IR Remote, RS232
Input Power	12V DC 2A
AC Adapter Input Power	100 to 240 V AC, 50/60 Hz
Maximum Power Consumption	12 watts
Operation Temperature	-5 to +55°C (+23° to +131°F)
Storage Temperature	-25 to +70°C (-13° to +158°F)
Relative Humidity	10% to 90%, Non-condensing
Dimension (W*H*D)	244mm x25.5mm x 100mm, 269mm x25.5mm x 100mm (with Mounting Ears)
Net Weight	640g