User Manual

WOXCON

NPG-MX44E-H2 KIT

4x4 HDMI 2.0 Matrix with 3 Receivers

Version: NPG-MX44E-H2 KIT_2020V1.0

Preface

Read this user manual carefully before using the product. Pictures shown in this manual are for reference only. Different models and specifications are subject to real product.

This manual is only for operation instruction, please contact the local distributor for maintenance assistance. The functions described in this version were updated till December, 2020. In the constant effort to improve the product, we reserve the right to make functions or parameters changes without notice or obligation. Please refer to the dealers for the latest details.

FCC Statement

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference

Any changes or modifications not expressly approved by the manufacture would void the user's authority to operate the equipment.

SAFETY PRECAUTIONS

To ensure the best from the product, please read all instructions carefully before using the device. Save this manual for further reference.

- Unpack the equipment carefully and save the original box and packing material for possible future shipment
- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not put any heavy items on the extension cable in case of extrusion.
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with fine ventilation to avoid damage caused by overheat.
- Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.
- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical wastes.

Table of Contents

1. Introduction

The NPG-MX44E-H2 is a professional 4x4 HDMI V2.0 Matrix Switcher with audio breakout. It includes 4 HDMI inputs, 1 HDMI outputs and 3 CATx extension outputs with a HDMI loop out. HDMI signal is extended up to 70m over single CATx cable. All the HDMI outputs support down-scaling function. It also features SPDIF and analog audio outputs for audio breakout.

The matrix switcher features comprehensive EDID management and advanced HDCP handing to ensure maximum functionality with a wide range of video sources.

The matrix switcher not only supports bi-directional IR, RS232 control but also TCP/IP control with Web GUI.

1.1 Features

- 4x4 HDMI V2.0 Matrix Switcher.
- Supports 4K@60 4:4:4, HDR, HDCP2.2.
- 4K/ 1080p HDMI signal extension up to 70m.
- Audio out can be de-embedded from any outputs.
- HDMI outputs support 4K to 1080p down-scaling.
- Controllable by front panel, IR, RS232 and TCP/IP.
- CATx outputs support 12V PoC power for receivers.
- Supports bi-directional IR pass-through.

1.2 Package List

1.2.1 Switcher

- 1x NPG-MX44E-H2
- 2x Mounting ears with 4 screws
- 4x Plastic cushions
- 5x IR receiver
- 5x IR emitter
- 1x IR remote
- 1x RS232 cable (3-pin to DB9)
- 1x Power adaptor (DC 24V 2.71A)
- 1x User manual

1.2.2 Receiver

- 3x NPG-EX60R-H2
- 3x Velcro Strip

Note: *Please contact your distributor immediately if any damage or defect in the components is found.*

2. Specification

Video	
Video Input	(4) HDMI
Input Connector	(4) Type-A female HDMI
HDMI Input Resolution	Up to 4K@60Hz 4:4:4, HDR
Video Output	(3) CATx, (2) HDMI
Output Connector	(3) RJ45, (2) Type-A female HDMI
HDMI Output Resolution	Up to 4K@60Hz 4:4:4, HDR10
CATx Output distance	Up to 70m
HDCP Version	Up to 2.2
HDMI Audio Signal	LPCM 7.1 audio, Dolby Atmos®, Dolby® TrueHD, Dolby Digital® Plus, DTS:X™, and DTS-HD® Master Audio™ pass-through.
Audio Output	
Output	(1) Digital SPDIF audio, (1) Analog stereo audio
Output Connector	(1) Toslink connector, (1) 3.5mm Jack
Digital SPDIF Audio Format	Supports PCM, Dolby Digital, DTS, DTS-HD
Analog Stereo Audio Format	Supports PCM
Frequency Response	20Hz – 20KHz, ±3dB
Max Output Level	±0.05dBFS
THD+N	< 0.1%, 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
Control	
Control port	(1) IR EYE, (1) RS232, (1) TCP/IP,
Control Connector	(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	26W
Dimension (W*H*D)	380mm*28.5mm*167mm

Net Weight	1.6kg

Receiver	
Input	(1) CATx IN
Input Connector	(1) RJ45
Output	(1) DISPLAY
Output Connector	(1) 19-pin type-A female HDMI
Control	(1) IR IN, (1) IR OUT
Control Connector	(2) 3.5mm mini jacks
General	
Video Resolution	Up to 4K@60Hz 4:4:4, HDR 10
HDMI Audio Format	Supports LPCM 2ch, LPCM 5.1ch, LPCM 7.1ch, Dolby Digital 2ch, Dolby Digital 5.1ch, DTS 2ch, DTS 5.1ch, DTS 96/24 5.1ch.
Transmission Distance	4K/1080p ≤ 70 meters (230ft) *Note that the CATx cable length should not be less than 15 meters for best video output..*
HDMI Version	HDMI V2.0
HDCP Version	HDCP 2.2 compliant. (The HDCP of output follows the HDCP version of display device.)
EDID	EDID management
Power Supply	Input: 100VAC~240VAC, 50/60Hz; Output: 12VDC 1A
Power Consumption	4W (Max)
Operation Temperature	-5~55℃
Storage Temperature	-25~70℃
Relative Humidity	10%-90%
Dimensions (W*H*D)	80mm x 16.8mm x 80mm
Net Weight	70g

Video Resolution Down-scaling:

The matrix supports video resolution downscaling on HDMI outputs. 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

3. Panel Description

3.1 Matrix Front Panel

No.	Name	Description
①	**Power Indicator**	• Illuminates green when device powered on; • Turns red in standby mode.
②	**Lock Button & Indicator**	• Long press more than 3 seconds to lock/ unlock the front panel buttons. • Indicator illuminates red when front panel is locked.
③	**Output Select Button & Input Indicator**	• Total 4 output selector buttons, press the buttons to toggle input signal. • The indicator will turn green if the corresponding input is selected.

3.2 Matrix Rear Panel

No.	Name	Description
①	**INPUTS**	4 HDMI inputs, connects with HDMI sources.
②	**IR IN**	3 IR inputs and 1 IR all-in, work with the receivers to support IR pass-through. 1 IR EYE input, connects with external IR receiver for using the IR remote to control the Matrix Switcher.
③	**IR OUT**	4 IR outputs and 1 IR all-out, work with the receivers to support IR pass-through.
④	**OUTPUTS**	3 CATx outputs, connects with the receivers. The No.3 output has a HDMI loop out. 1 HDMI outputs, connects with HDMI displays.
⑤	**AUDIO OUTPUTS**	OPTICAL & STEREO audio output ports for audio de-embedded from HDMI output. Two audio output ports are de-embedded from the same video output.
⑥	**TCP/IP & RS232**	TCP/IP: RJ45 port to connect the control device (e.g. PC) to control the matrix by GUI. RS232: 3-pin terminal block to connect the RS232 control device (e.g. PC) or a device to be controlled by RS232 commands.
⑦	**DC 24V**	Connect with 24VDC power adaptor.

3.3 Receiver Front and Rear Panel

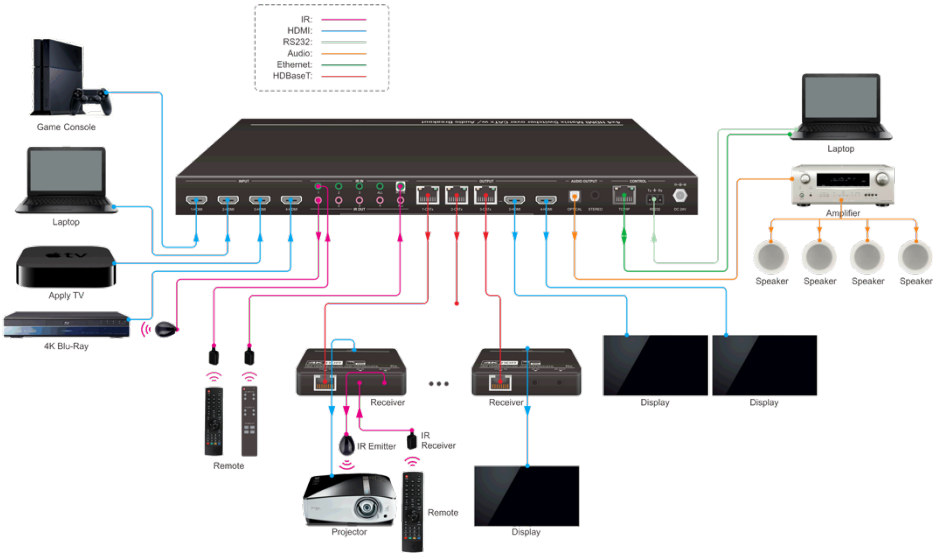
No.	Name	Description
①	**DISPLAY**	Type-A female HDMI port to connect HDMI display device.
②	**CATx IN:**	RJ45 port to connect the CATx OUT port of transmitter by CATx cable. It supports 12V PoC and the receiver can be powered from the transmitter. The orange LED illuminates when there is a valid HDMI signal input. The green LED illuminates when power is applied.
③	**IR IN**	3.5mm mini jack to connect IR receiver for IR pass-through.
④	**IR OUT**	3.5mm mini jack to connect IR emitter for IR pass-through.

4. System Connection

4.1 Usage Precaution

- Make sure all components and accessories included before installation.
- System should be installed in a clean environment with proper temperature and humidity.
- All of the power switches, plugs, sockets, and power cords should be insulated and safe.
- All devices should be connected before power on.

4.2 System Diagram



5. Panel Button Control

5.1 I/O Connection Switching

The front panel features eight output selection buttons, each one has 4 input indicators. Press the button to toggle from input 1 to input 4. If the HDMI input is selected, the corresponding indicator will turn green.

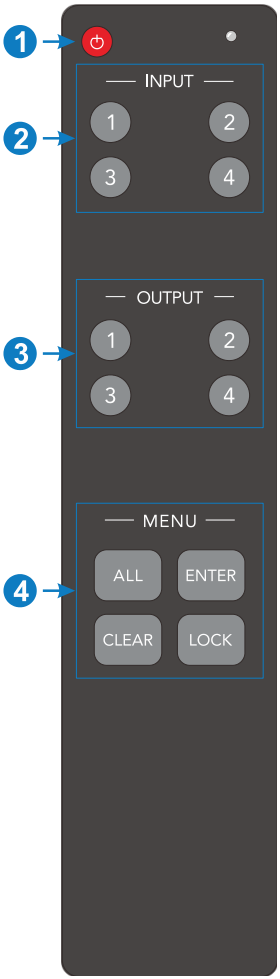
5.2 LOCK Function

Long press the **LOCK** button for three seconds, all buttons on the front panel disable to work. At the same time, the LOCK indicator will turn red.

Long press the **LOCK** button for three seconds again, the front panel button will unlock.

6. IR Remote Control

The Matrix Switcher features one **IR EYE** port on rear panel to receive IR signal from IR remote to enable IR control.



① Standby button:
Press it to enter/ exit standby mode.

② INPUTS:
Input channel selection buttons, same with the corresponding front panel buttons

③ OUTPUTS:
Output channel selection buttons, same with the corresponding front panel buttons.

④ Menu buttons:

- **ALL**: Select all inputs/outputs.

To convert an input to all outputs:
Example: Input 1 to all Outputs:
→ Press INPUTS 1 + ALL + ENTER

- **EDID management button:**

1) One input port follows the EDID data from one output port.

Example: Input 2 learns EDID data from output 4:
→ Press EDID + INPUTS 2 + OUTPUTS 4+ ENTER

2) All input ports learn EDID data from one output port.

Example: All input ports learn EDID data from output 3:
→ Press EDID + ALL + OUTPUTS 3 + ENTER

- **CLEAR:** Withdraw button.
- **ENTER:** Confirm operation.

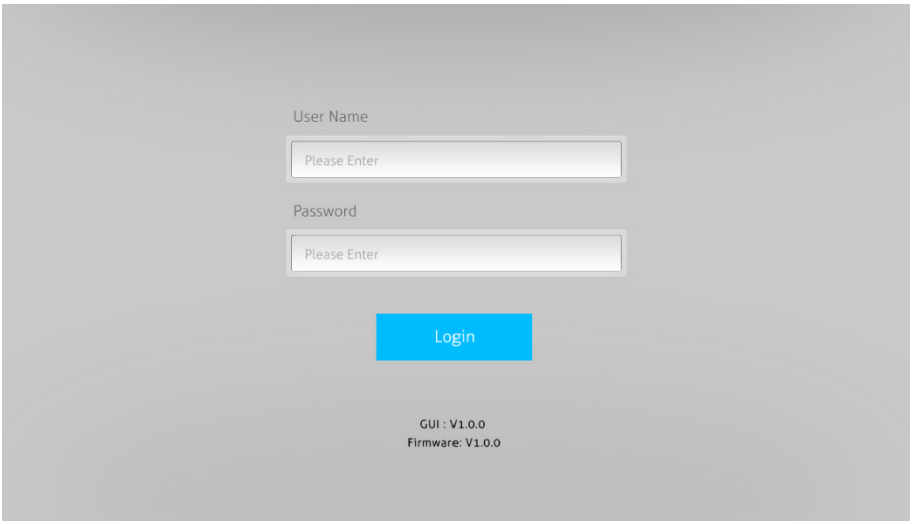
7. GUI Control

The matrix switcher can be controlled by web GUI via TCP/IP port. The default IP settings are:

IP Address: 192.168.0.178

Subnet Mask: 255.255.255.0

Type ***192.168.0.178*** in the internet browser, it will enter the below log-in webpage:



Username: admin

Password: admin

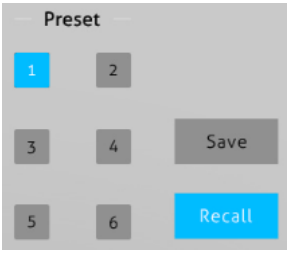
Type the user name and password, and then click **Login** to enter the section for video switching.

7.1 Switching Tab

Use the 4x4 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.

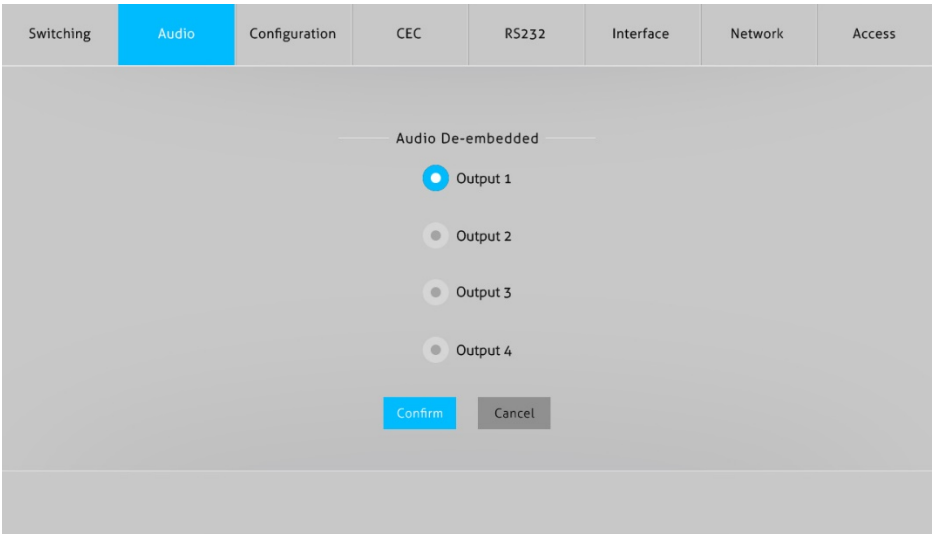
Use the 6 numbered buttons under scene area to save and load layout presets.

- 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.



7.2 Audio Tab

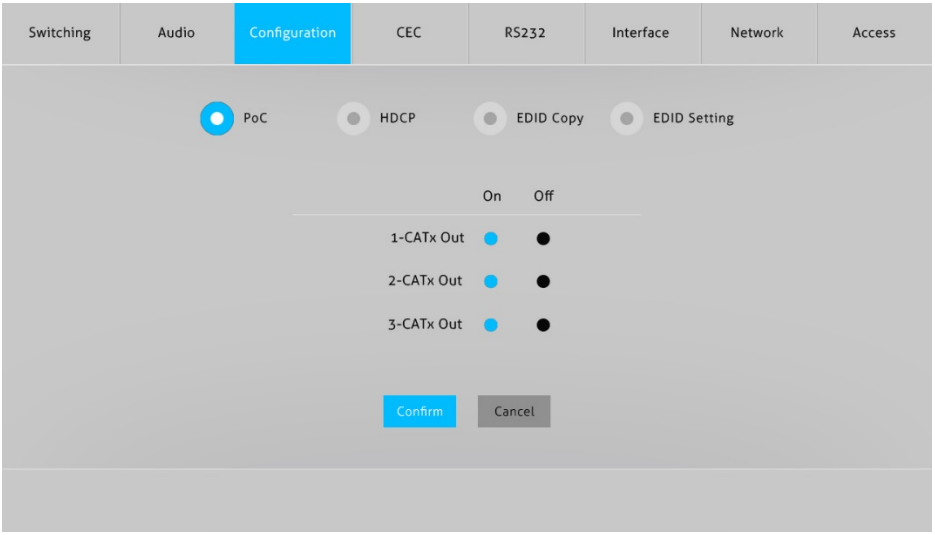
Audio De-embedded



- OPTICAL & STEREO audio output ports can be de-embedded from 4x HDMI output.

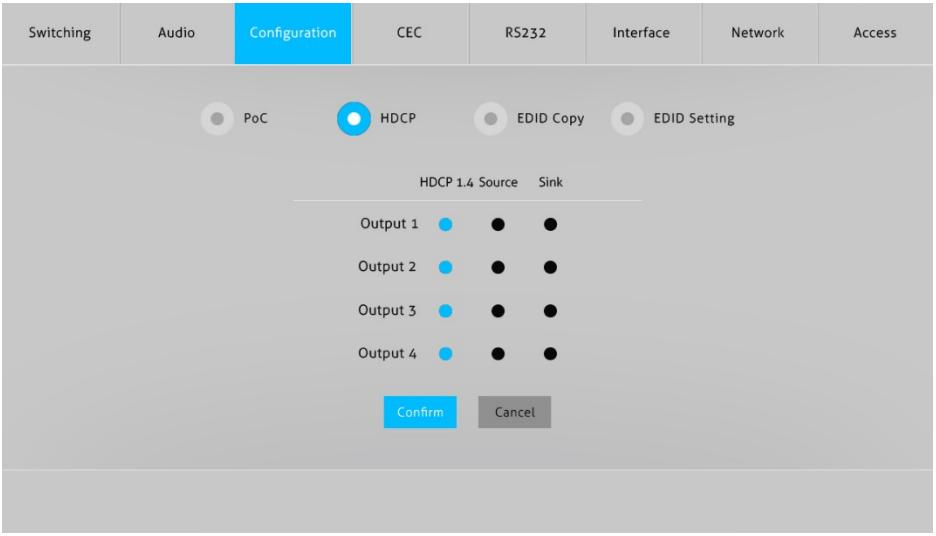
7.3 Configuration Tab

1) PoC



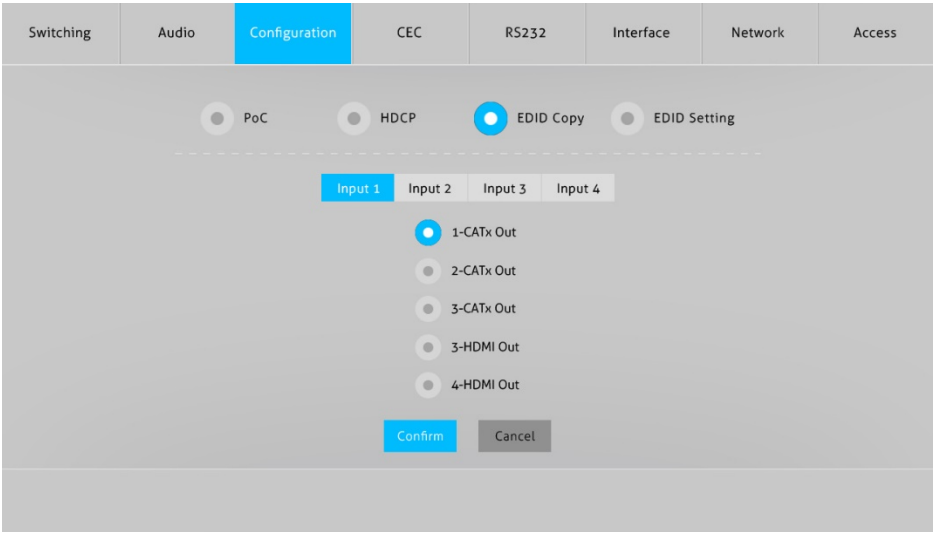
- Turn on or off PoC for 1-CATx ~ 3-CATx output port.

2) HDCP



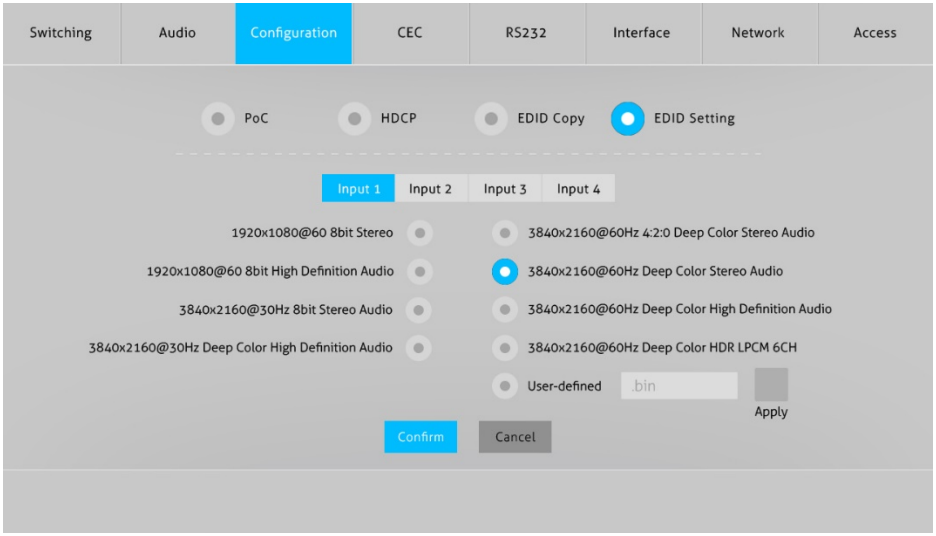
- HDCP setting for 4 outputs.

3) EDID Copy



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

4) 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) according the tooltip.
4) Click **Apply** to upload the user-defined EDID, and then click **Confirm** to save setting.

7.4 CEC Tab

If the input source devices, HDMI output display devices support CEC, they can be controlled via the following CEC interface.

1) Input Source Device Control

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

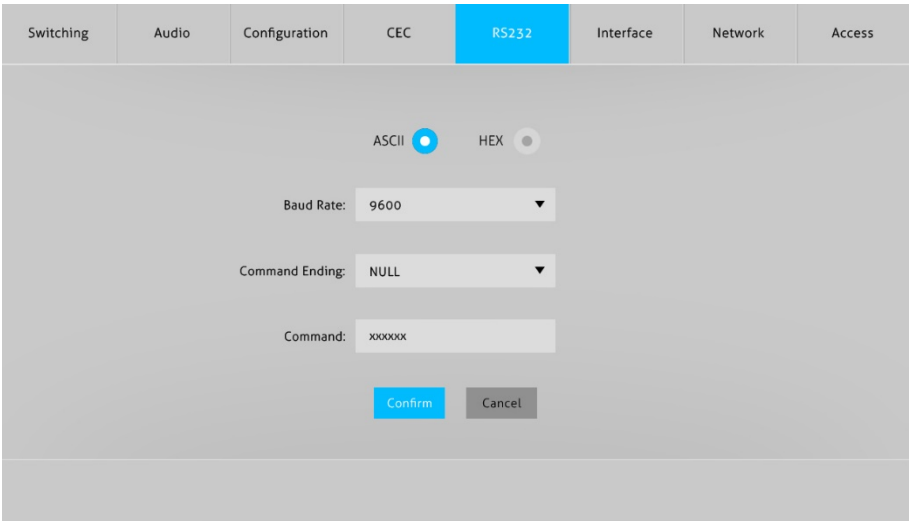
Note: *It can not control two or more input source devices simultaneously.*

2) Output Display Device Control

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

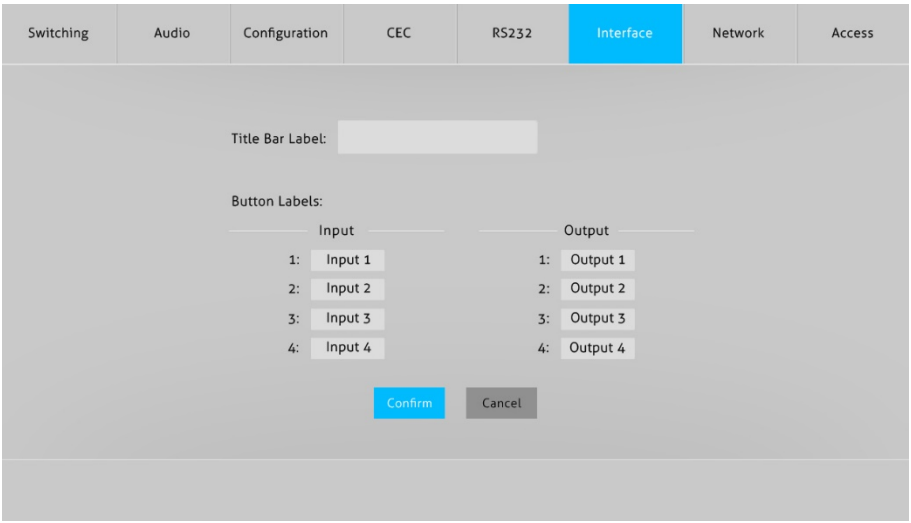
Note: *It can not control two or more output devices simultaneously.*

7.5 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 switcher.

7.6 Interface Tab

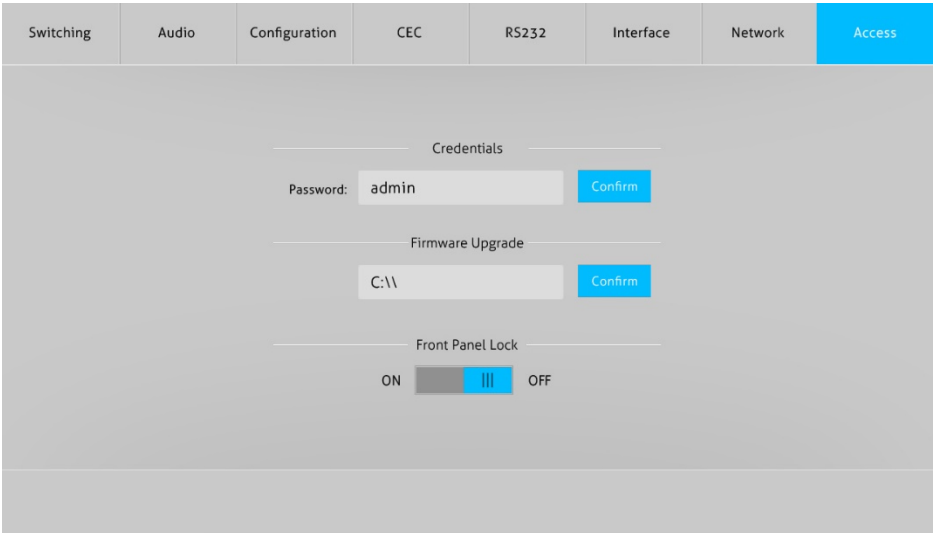


- Modify the title bar label.
- Modify the button labels.

7.7 Network Tab

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

7.8 Access Tab

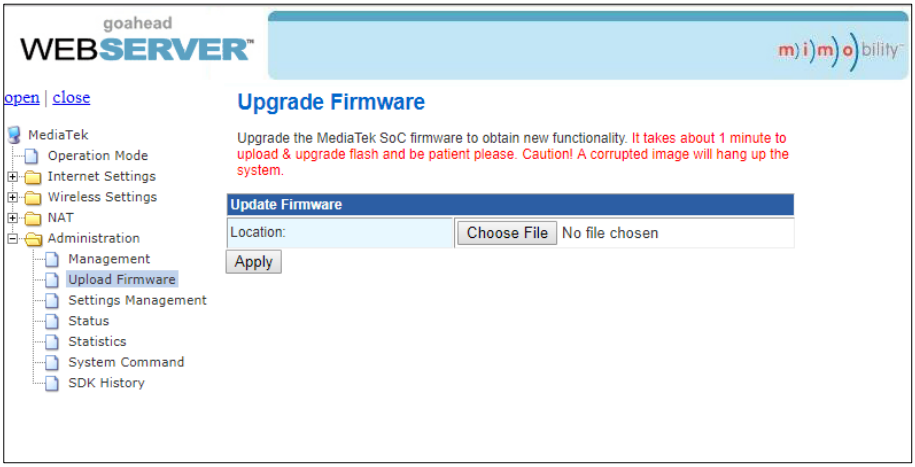


- Modify the login password.
- Upgrade the MCU firmware.
- Lock or unlock the front panel buttons.

7.9 GUI Upgrade

Please visit at http://192.168.0.178:100 for GUI online upgrade.

Type the username and password (the same as the GUI log-in setting, modified password will be available only after rebooting) to login the configuration interface. After that, click **Administration** in the source menu to get to **Upload Firmware** as shown below:



Select the desired update file and press **Apply**, it will start upgrading then.

8. RS232 Control

8.1 RS232 Control Software

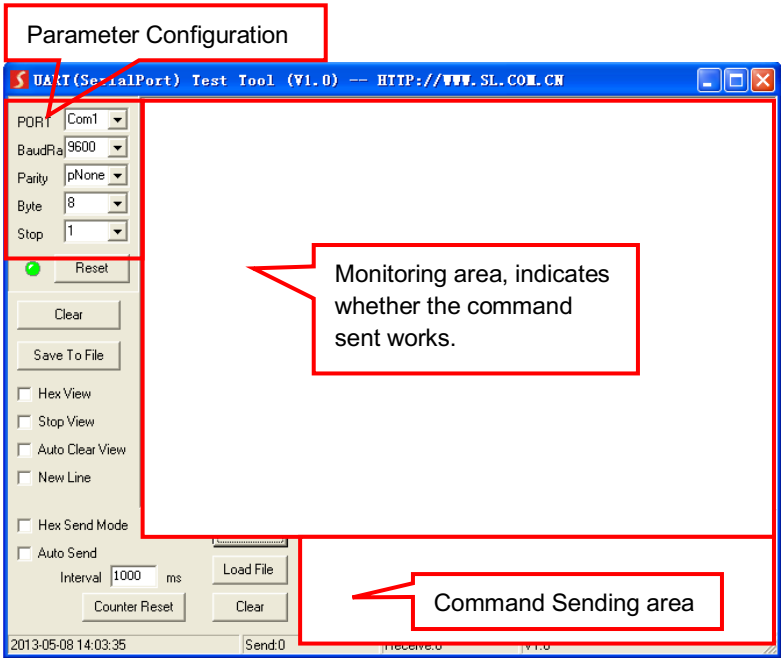
- **Installation** Copy the control software file to the computer connected with NPG-MX44E-H2.
- **Uninstallation** Delete all the control software files in corresponding file path.

8.2 Basic Settings

Firstly, connect NPG-MX44E-H2 with necessary input devices and output devices. Then, connect it with a PC installed RS232 control software. Double-click the software icon to run this software.

Here we take the software **CommWatch.exe** as example. The icon is showed as below:

The interface of the control software is showed as below:



Set the parameters (baud rate, data bit, stop bit and parity bit) correctly to ensure

reliable RS232 control.

8.3 RS232 Communication Commands

- Case-sensitive.
- “[“, “]” in the commands are for easy recognition only and not necessary in real operations. Other symbols including “.”, “,”, “/”, “%”, “;”, “^”. are parts of the commands.
- Feedbacks listed in the column “Feedback Example” are only for reference, feedbacks may vary according to different operations.

Baud rate: 9600 Data bit: 8 Stop bit: 1 Parity bit: none

8.3.1 System Commands

Command	Function	Feedback Example
PowerON.	Power on	Power ON!
PowerOFF.	Power off	Power OFF!
/*Name.	Query the name of matrix	NPG-MX44E-H2
/*Type.	Query the model of matrix	HDMI 2.0 4x4 Matrix Switcher
/^Version.	Query the version of firmware	V1.0.0 CPLD:V1.0.0
RST.	Reset to factory default.	Factory Default!

8.3.2 Control Management

Command	Function	Feedback Example
OUT[xx]:[YY].	Switch input source to output port. [xx]=00~04, xx=01~04 is the number of output port, if the xx=00, it means all output ports. [YY]=01~04, YY=01~04 is the number of input port.	Output 01 Switch To In 01! Audio Out 01 Switch To Video Out 01!
@OUT[xx].	Enable HDMI 5V of output port.	Turn ON Output 04! Turn ON Output 05!

Command	Function	Feedback Example
	[xx]=00, 04~05. xx=04 4th output port, 05 is the HDMI loop out of third output. xx=00, means all output ports.	
$OUT[xx].	Disable HDMI 5V of output port. [xx]=00, 04~05. xx=04 4th output port, 05 is the HDMI loop out of third output. xx=00, means all output ports.	Turn OFF Output 04! Turn OFF Output 05!
IRFVON.	Enable IR switch to follow video switch.	IR Follow Video ON!
IRFVOFF.	Disable IR switch to follow video switch.	IR Follow Video OFF!
IR[xx]:[YY].	Switch the remote IR IN to local IR OUT. [xx]=01~04, is the number of IR output port. [YY]=00~03. 01~03 is the number of IR input port of receiver, YY=00, means all IR input ports.	Local 01 IR Out Switch To Remote 01 IR IN!
IRRCM[xx]ON.	Enable IR of CATx receiver to control the MCU. [xx]=00~03. 01~03 is the number of IR input port of receiver, YY=00, means all IR input ports.	IR Remote 03 Control MCU ON!
IRRCM[xx]OFF.	Disable IR of CATx receiver to control the MCU. [xx]=00~03. 01~03 is the number of IR input port of receiver, YY=00, means all IR input ports.	IR Remote 03 Control MCU OFF!
PCAT[xx]:ON.	Enable PoC output on CATx to power the receiver. [xx]=00~03. xx=01~03 is the number of CATx output port, xx=00, means all CATx output ports.	CAT 03 Power ON!
PCAT[xx]:OFF.	Disable PoC output on CATx to power the receiver.	CAT 03 Power OFF!

Command	Function	Feedback Example
	[xx]=00~03. xx=01~03 is the number of CATx output port,. xx=00, means all CATx output ports.	

8.3.3 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: HDMI 2.0 4x4 Matrix Switcher NPG-MX44E-H2 V1.0.0 Power ON! …
STA_POUT.	Query 5V Status of output port.	Turn ON Output 04! Turn ON Output 05!
STA_IN.	Query 5V Status of input port.	IN 1 2 3 4 LINK N N N N TMDS N N N N
STA_OUT.	Query HPD Status of output.	OUT 1 2 3 4 5 LINK 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!

Command	Function	Feedback Example
STA_HDCP.	Query current using HDCP model of all output ports. 01-04 represents output port 1-4. 05 represents HDMI loopout of third output.	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!
STA_IR.	Query the IR status.	IR Follow Video OFF! Local 03 IR Out Switch To Remote 01 IR IN! Local 02 IR Out Switch To Remote 02 IR IN! Local 01 IR Out Switch To Remote 03 IR IN!
STA_IRRCM.	Query the status of receiver's IR control the MCU.	IR Remote 01 Control MCU ON! IR Remote 02 Control MCU ON! IR Remote 03 Control MCU ON!
STA_TEMP.	Query the temperature of PCBA board.	The Board Temperature is 26 Celcius degree!
STA_PCAT.	Query the PoC output on CATx out.	CAT 01 Power OFF! CAT 02 Power OFF! CAT 03 Power OFF!
PresetSta[xx].	Query the scene. xx = 01-09, represents 9 scene.	Preset 09 Sta: Out 01 In 01! Out 02 In 04! Out 03 In 05! Out 04 In 04!
PresetSave[xx].	Save the scene. xx = 01-09, represents 9 scene.	Preset 01 Save Success! Preset 01 Sta: Out 01 In 01! Out 02 In 01! Out 03 In 01! Out 04 In 01!

Command	Function	Feedback Example
PresetRecall[xx].	Scene recall	Preset 02 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!

8.3.4 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!

8.3.5 Audio Commands

Command	Function	Feedback Example
AUDIO[00]:[YY].	SPDIF OUT and ANALOG OUT(They are same input audio source at one group) select which input audio source. [yy]=01~04, means de-embedded audio from 1-4 output.	Audio Out Switch To Video Out 04!

8.3.6 HDCP Compliance

Command	Function	Feedback Example
HDCP[xx]ON.	Force able and output HDCP 1.4. [xx]=00~05, xx=01~04 is the number of output port, 05 represents HDMI loopout of third output. if the xx =00, it means all output ports.	OUT 01 HDCP ON!
HDCP[xx]OFF.	Force disable the output HDCP. [xx]=00~05,	OUT 01 HDCP OFF!

Command	Function	Feedback Example
	xx=01~04 is the number of output port, 05 represents HDMI loopout of third output. if the xx=00, it means all output ports.	
HDCP[xx]MAT.	Output HDCP follows the display. [xx] =00~05, xx=01~04 is the number of output port, 05 represents HDMI loopout of third output. if the xx =00, it means all output ports.	OUT 01 HDCP MAT Display!
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] =00~05, xx=01~04 is the number of output port, 05 represents HDMI loopout of 6th output. if the xx =00, it means all output ports.	OUT 01 HDCP BYPASSS!

8.3.7 EDID Management

Command	Function	Feedback Example
EDIDMInit.	Restore the factory default EDID data for each input.	All Input EDID Set Default!
EDIDUpgrade[xx].	Upgrade EDID via Serial Port ● [xx]=00~04 xx=01~04 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).	File size: 256 Baud rate:115200bps Quired time: About 0 second Please wait... Send Completed！User Define EDID Upgrade OK By RS232 Or GUI!

Command	Function	Feedback Example
	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 CATx output before sending the command(s)*	
EDID/[xx]/[yy].	Input ports xx use built-in EDID yy [xx]=00~04 xx=01~04 is the number of the input port, if the xx=00, it means all input ports. [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.	Input 03 EDID Upgrade OK By 01 Internal EDID!
EDIDGOUT[XX].	Read and print EDID of HDMI output, [XX]= 01~05, 01~04 is the number of the output port, 05 represents HDMI loopout of third output.	EDIDOUT04: ……
EDIDM[xx]B[yy].	Input port [yy] follows the EDID from output port [xx]. [xx]=01~05 xx=01~04 is the number of the output port, 05 represents HDMI loopout of third output.. [yy]=00~04 yy=01~04 is the number of input port, if the yy=00, it means all input ports.	Input 03 EDID Upgrade OK By 01 EXT EDID!
/+[x]:[YYY].	Send serial data to local.	YYY.

Command	Function	Feedback Example
	[X]= 1--2400；2--4800；3--9600；4--19200；5--38400；6--57600；7--115200. [YYY] means the data you want to send.	
EDIDSTA[xx].	Query EDID status of Input port. [xx]=00~04, xx=01~04 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!

8.3.8 CEC Control

If the input sources devices and HDMI output devices supports CEC, they can be controlled by sending the following CEC commands.

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 01~04. The HDMI output ports are 04~05. 05 means the HDMI loop out of third output.
- 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.

✓ Control the input source:

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!

✓ Control the output display device:

Command	Description	Command Example and Response
CECO[AA][BB][CC]41.	Volume up.	CECO04404441. CEC Output 04 Send Success!
CECO[AA][BB][CC]42.	Volume down.	CECO04404442. CEC Output 04 Send Success!
CECO[AA][BB][CC]43.	Mute	CECO04404443. CEC Output 04 Send Success!
CECO[AA][BB]04.	Power on.	CECO048004. CEC Output 04 Send Success!
CECO[AA][BB]36.	Power off.	CECO048036. CEC Output 04 Send Success!

9. Firmware Upgrade

Please follow the steps as below to upgrade firmware by the **RS232** port on the rear panel:

1) Prepare the latest upgrade file and rename it as “08010000.APP” on PC.

2) Power off the switcher, and connect the **RS232** port of switcher to the PC with a suitable cable, make sure the RS232 port works normally (Baud Rate: 115200).

3) Use the firmware upgrade software, choose the latest upgrade file.

4) Click the upgrade/start button to upgrade.

5) After firmware upgrade successfully, the switcher should be restarted via unplug and plug the power adapter.

10. Troubleshooting and Maintenance

Problems	Potential Causes	Solutions
Color losing or no video signal output	The connecting cables may not be connected correctly or it may be broken.	Check whether the cables are connected correctly and in working condition.
	Fail or loose connection.	Make sure the connection is good
No output image when switching	No signal at the input / output end.	Check with oscilloscope or multimeter if there is any signal at the input/ output end.
	Fail or loose connection.	Make sure the connection is good.
	The display doesn't support the input resolution.	Switch for another input source or enable the display to learn the EDID data of the input.
Cannot control the device via front panel buttons	Front panel buttons are locked.	Send command /%Unlock; or select unlock in GUI interface to unlock.
Cannot control the device via IR remote	The battery has run off.	Change for new battery.
	The IR remote is broken.	Send it to authorized dealer for repairing.
	Beyond the effective range of the IR signal or not pointing at the IR receiver.	Adjust the distance and angle and point right at the IR receiver.
	The IR receiver connected to IR EYE port is not with carrier.	Change for an IR receiver with carrier.
Power Indicator remains off when powered on	Fail or loose power connection.	Check whether the cables are connected correctly.
There is a blank screen on the display when switching	The display does not support the resolution of the video source.	Switch again.
		Manage the EDID data manually to make the resolution of the video source automatically compliant with the output resolution.

Note: *If your problem persists after following the above troubleshooting steps, seek further help from authorized dealer or our technical support.*

11. Customer Service

The return of a product to our Customer Service implies the full agreement of the terms and conditions hereinafter. There terms and conditions may be changed without prior notice.

1) Warranty

The limited warranty period of the product is fixed 3 (three) years.

2) Scope

These terms and conditions of Customer Service apply to the customer service provided for the products or any other items sold by authorized distributor only.

3) Warranty Exclusions:

- Warranty expiration.
- Factory applied serial number has been altered or removed from the product.
- Damage, deterioration or malfunction caused by:
  - ✓ Normal wear and tear.
  - ✓ Use of supplies or parts not meeting our specifications.
  - ✓ No certificate or invoice as the proof of warranty.
  - ✓ The product model showed on the warranty card does not match with the model of the product for repairing or had been altered.
  - ✓ Damage caused by force majeure.
  - ✓ Servicing not authorized by distributor.
  - ✓ Any other causes which does not relate to a product defect.
- Shipping fees, installation or labor charges for installation or setup of the product.

4) Documentation:

Customer Service will accept defective product(s) in the scope of warranty coverage at the sole condition that the defeat has been clearly defined, and upon reception of the documents or copy of invoice, indicating the date of purchase, the type of product, the serial number, and the name of distributor.

Remarks: For further assistance or solutions, please contact your local distributors