SX-MX444-HD4K2K HDMI Matrix

Operating Instruction

Thank you for purchasing this product. For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

SURGE PROTECTION DEVICE RECOMMENDED

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

Table of Contents

Introduction:

The SX-MX444-HD4K2K 4×4 Matrix with IR matrix for HDMI routes four Hi-Def sources to any four HDTV displays, supporting 1080p Full HD up to 4K plus all 3D formats, along with multichannel digital audio formats such as Dolby® True HD and DTS-HD® Master Audio™. Each source can be routed to any display using the front-panel push buttons, IR remote control,and RS-232 interface.

Features:

- Supports resolutions up to 1080p@60HZ,48-bit deep color, 4k@30HZ
- Allows any source to be displayed on multiple displays at the same time
- Allows any HDMI display to view any HDMI source at any time
- Dolby TrueHD and DTS-HD master audio pass through HDMI output
- Advanced EDID management for rapid integration of sources and displays
- Multiple switching mode, push-in button, IR remote control,and RS-232 control
- Easy installation with rack-mounting ears
- Full 3D pass- through.
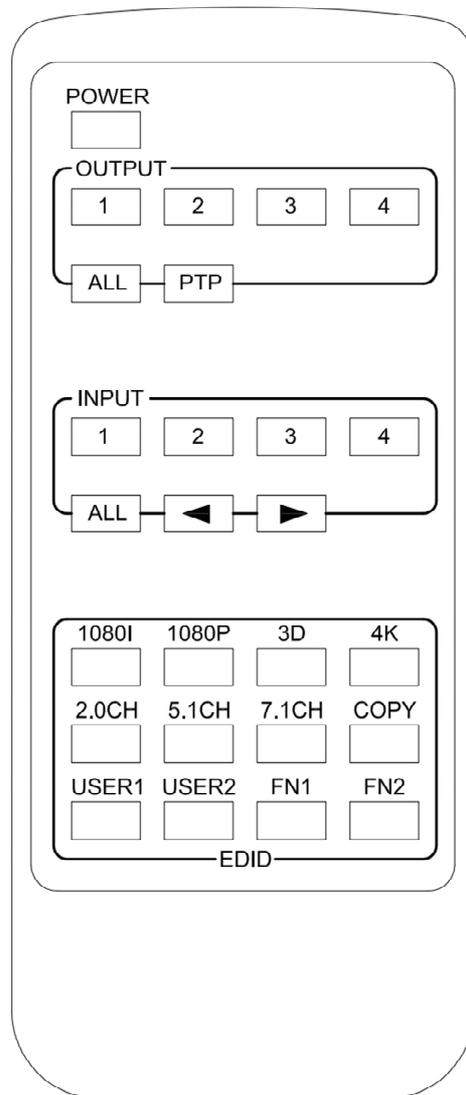- HDCP compliant

Panel Descriptions

Front Panel
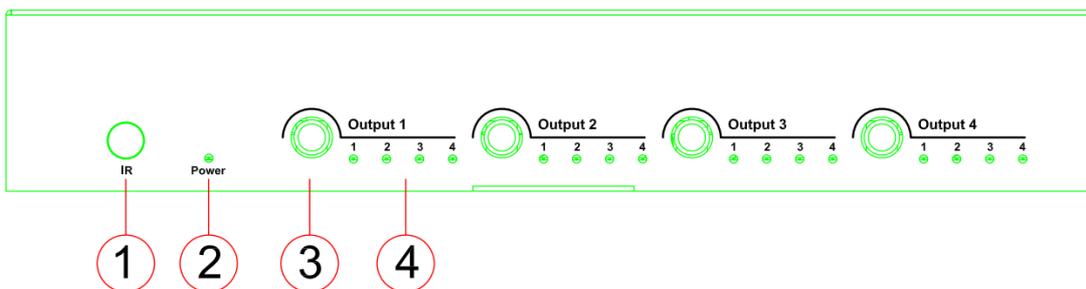
1. IR receiver window----Receive the IR from the remote control of SX-MX444-4K2K.

2. Power LED indicator---Indicate the status of the power for the matrix.

3. HDMI output selection button 1 to 4---Press to select the output from 1 to 4.

4. Input LED indicator---Indicate the status of the input for the matrix.

Back Panel
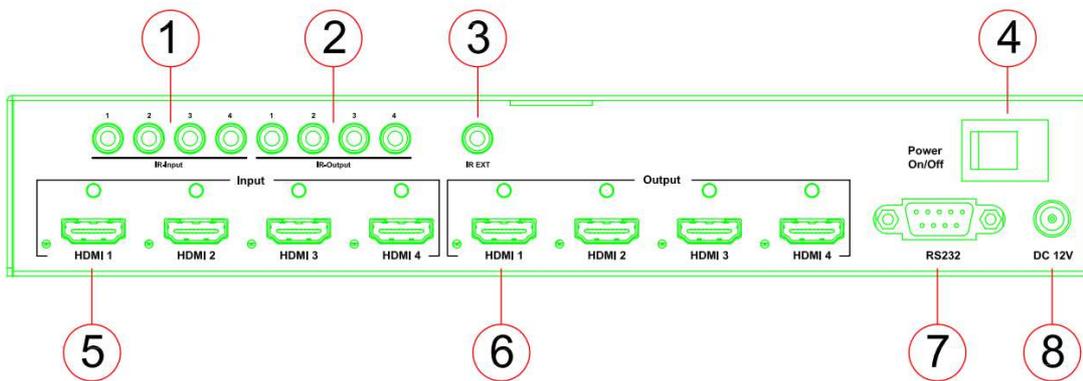
1. IR inputs 1 to 4 ---- 3.5mm stereo phone-jack

2. IR outputs 1 to4 ---- 3.5mm stereo phone-jack

3. IR extension receiver input ---- 3.5mm stereo phone-jack

4. Power switcher---- Press to power on/off the matrix

5. HDMI inputs 1 to 4----Connect HDMI sources

6. HDMI outputs 1 to 4----Output for displays, AVR etc.

7. RS232 female port----Connect to the PC using RS232 cable

8. Power port---Use included DC adaptor to power the matrix switcher.

Remote Control Description

```
            ┌──────────────────────┐
            │  ┌────────────────┐   │
            │  │ POWER          │   │
            │  │ ┌──┐           │   │
            │  │ └──┘           │   │
            │  ┌─OUTPUT───────┐ │   │
            │  │ ┌─┐ ┌─┐ ┌─┐ ┌─┐│ │   │
            │  │ │1│ │2│ │3│ │4││ │   │
            │  │ └─┘ └─┘ └─┘ └─┘│ │   │
            │  │ ┌───┐ ┌───┐    │ │   │
            │  │ │ALL│─│PTP│    │ │   │
            │  └─┴───┴─┴───┴────┘ │   │
            │                     │   │
            │  ┌─INPUT────────┐   │   │
            │  │ ┌─┐ ┌─┐ ┌─┐ ┌─┐│   │   │
            │  │ │1│ │2│ │3│ │4││   │   │
            │  │ └─┘ └─┘ └─┘ └─┘│   │   │
            │  │ ┌───┐ ┌─┐ ┌─┐  │   │   │
            │  │ │ALL│─│◄│─│►│  │   │   │
            │  └─┴───┴─┴─┴─┴─┴──┘   │   │
            └──────────────────────┘
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1080I	1080P	3D	4K
□	□	□	□
2.0CH	5.1CH	7.1CH	COPY
□	□	□	□
USER1	USER2	FN1	FN2
□	□	□	□

— EDID —

Output and Input select

A.   OUTPUT-X select INPUT-Y:

1. Press OUTPUT-X (X means 1 to 4 of outputs)→Press INPUT-Y (Y means 1 to 4 of inputs)

2. Press OUTPUT-X (X means 1 to 4 of outputs)→ press the left and right arrow buttons to select the input.

B. All outputs select INPUT-Y: Press ALL button in zone OUTPUT→Press INPUT-Y button (Y means 1 to 4 of inputs), then INPUT-Y switched to ALL OUTPUTS

C. Mirror all inputs and outputs (Ex. Input 1 to output 1, input 2 to output 2, etc): Press PTP button in Zone OUTPUT

EDID Set Up

A. Fixed EDID to INPUT-Y/ALL

  Press 1080I/1080P/3D/4K→Press 2.0CH/5.1CH/7.1CH→INPUT-Y/ALL button in Zone INPUT

B. Copy EDID of OUTPUT-X to INPUT-Y/ALL

  Press COPY button→Press OUTPUT-X button→Press INPUT-Y/ALL button

C. User defined EDID to INPUT-Y/ALL

  Press USER1/USER2 button→Press INPUT-Y/ALL

NOTE: Pressing button sequence should be finished in 5 seconds, otherwise, operation discarded.

Application Diagram
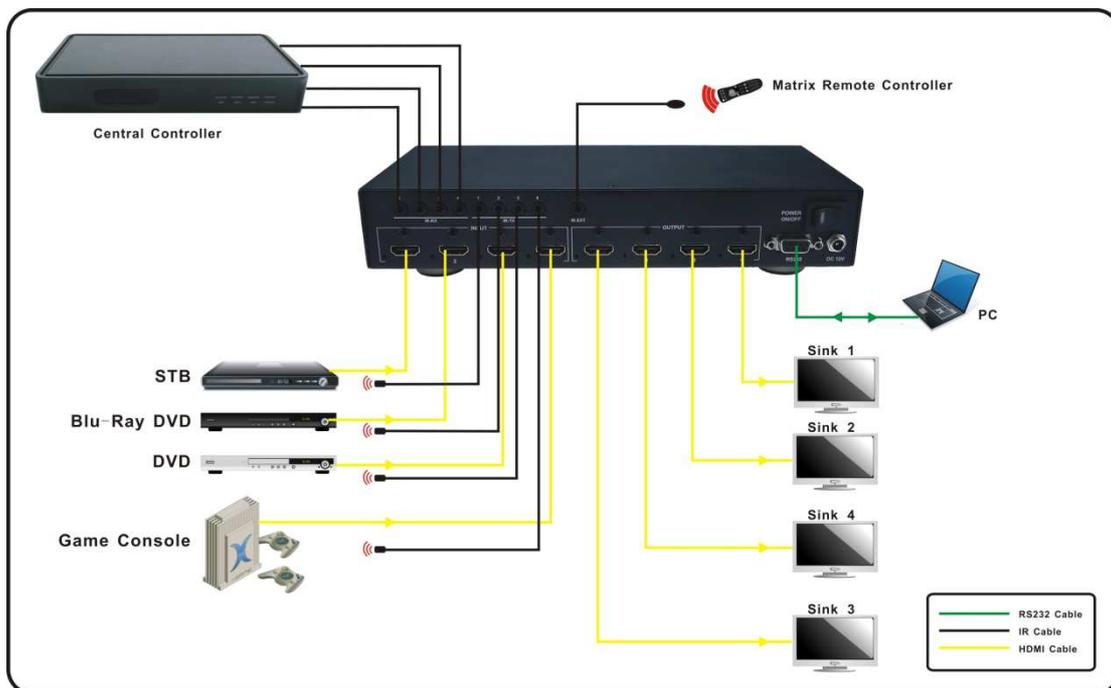
Specifications:

Bandwidth:	2.97Gbps per color
Video Input Connectors:	4x HDMI Type A, 19-pin, female, locking
Video Output Connectors:	4x HDMI Type A, 19-pin, female, locking
RS-232 serial port:	DB-9, female
IR Input ports:	5x 3.5mm stereo jack
IR Output ports:	4x 3.5mm stereo jack
Rack-Mountable:	Rack ears included
Dimensions (W x H x D):	256mm x 114mm x 43mm , without feet
Shipping Weight:	1.0kg
Operating Temperature:	32°F to 104°F (0°C to 40°C)
Storage Temperature :	-4°F to 140°F (-20°C to 60°C)
Power Supply:	12V/2A DC

Package Contents:

1. 1x SX-MX444-HD4K2K
2. 1x 12V DC power supply
3. 1x Remote control
4. 4x IR Transmitter,
5. 5x IR Receiver.
6. 1x mounting kit.
7. 1x CD for control software & user manual.

RS-232 Pin Assignment

Matrix			Remote Control Console	
PIN	Assignment		PIN	Assignment
1	NC		1	NC
2	Tx		2	Rx
3	Rx		3	Tx
4	NC		4	NC
5	GND		5	GND
6	NC		6	NC
7	NC		7	NC
8	NC		8	NC
9	NC		9	NC

Baud Rate: 57600 bps

Data Bit: 8-bit

Parity: None

Stop Bit: 1-bit

Flow Control: None

DIP for EDID Setting

[DIP]=0000: HDMI 1080p@60Hz, Audio 2CH PCM

[DIP]=0001: HDMI 1080p@60Hz, Audio 5.1CH PCM/DTS/DOLBY

[DIP]=0010: HDMI 1080p@60Hz, Audio 7.1CH PCM/DTS/DOLBY/HD

[DIP]=0011: HDMI 1080i@60Hz, Audio 2CH PCM

[DIP]=0100: HDMI 1080i@60Hz, Audio 5.1CH PCM/DTS/DOLBY

[DIP]=0101: HDMI 1080i@60Hz, Audio 7.1CH PCM/DTS/DOLBY/HD

[DIP]=0110: HDMI 1080p@60Hz/3D, Audio 2CH PCM

[DIP]=0111: HDMI 1080p@60Hz/3D, Audio 5.1CH PCM/DTS/DOLBY

[DIP]=1000: HDMI 1080p@60Hz/3D, Audio 7.1CH PCM/DTS/DOLBY/HD

[DIP]=1001: HDMI 4K2K, Audio 2CH PCM

[DIP]=1010: HDMI 4K2K, Audio 5.1CH PCM/DTS/DOLBY

[DIP]=1011: HDMI 4K2K, Audio 7.1CH PCM/DTS/DOLBY/HD

[DIP]=1100: DVI 1280x1024@60Hz, Audio None

[DIP]=1101: DVI 1920x1080@60Hz, Audio None

[DIP]=1110: DVI 1920x1200@60Hz, Audio None

GUI Control

PC System: Microsoft Windows Operation System

Installation

4x4 HDMI Matrix controller is a green software. You just need to copy "4x4 HDMI Matrix Controller vx.x.exe" to the PC which is used to control the Matrix by RS232 COM or TCP to complete installation.
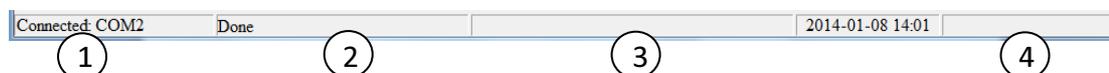
Preparation

1. Connect PC and Matrix by RS232 cable
2. Power up Matrix (It will take about 5 seconds to be ready with "Di" beep sound)
3. Double click "4x4 HDMI Matrix Controller vx.x.exe" icon to run it
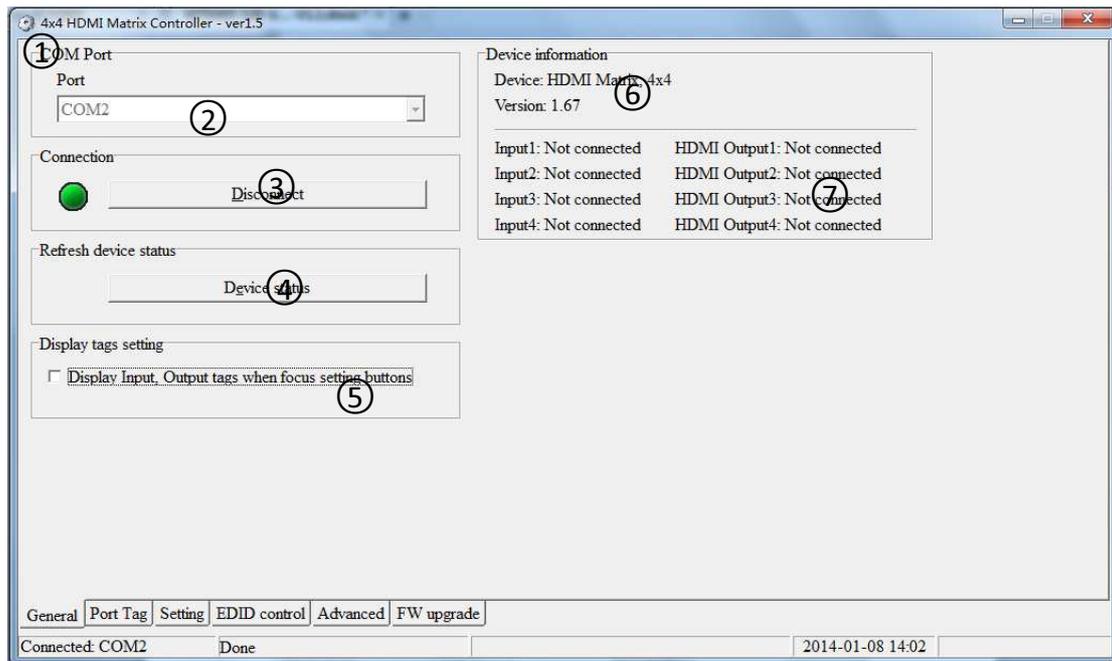
How to control Matrix

Common information
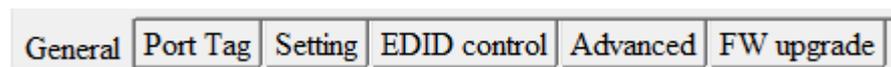
Click to select tab page

① COM port connect status

② Control command process status

③ Prompt message display area

④ Date and Time display

"General" page

① RS232 COM mode

② List detected COM ports

③ Click to connect or disconnect PC and Matrix (Connection will be established automatically before control commands sending)

④ Click to refresh device status: include device information displayed in ⑤ area and Input/output port connection status in ⑥ area.

NOTE: Tab pages cannot be changed during control command is processing.

⑤ To enable or disable Input/output tags displaying when setting buttons on "Setting" page focused

⑥ Device information display area

⑦ Input/output port connection status

"Port Tag" page
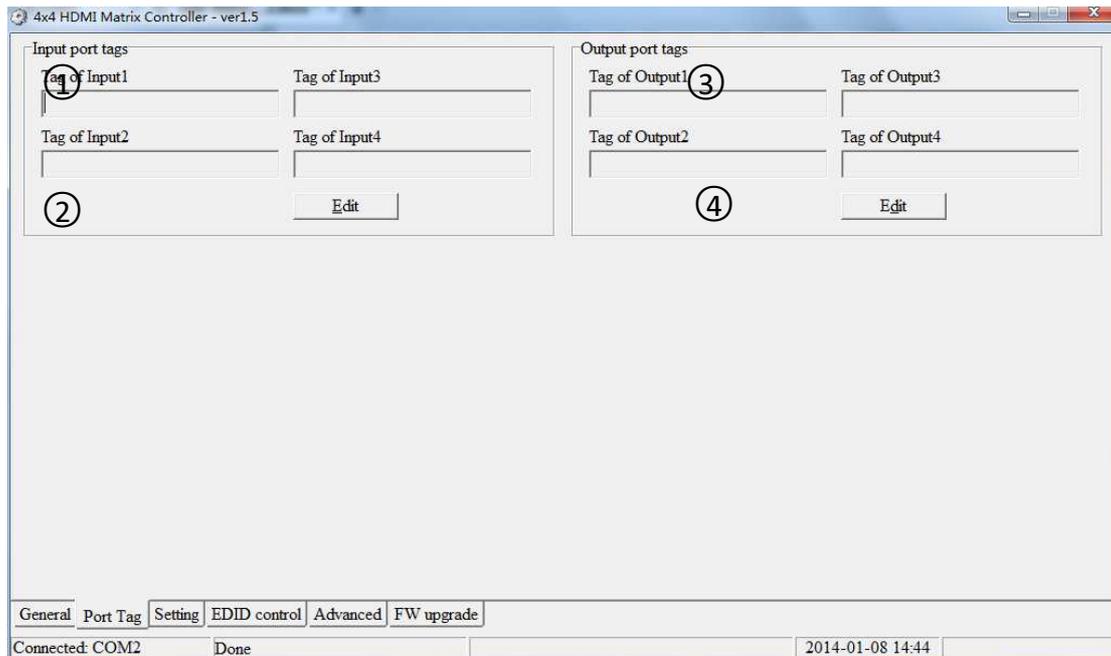
① Input port tags

② Click to edit Input port tags

③ Output port tags

④ Click to edit Output port tags

NOTE: Edit boxes are read only, click "Edit" button to pop up window to edit the tags.

One set of Input/output port tags can be set for Matrix device when COM control mode selected.

Edit Input port tags

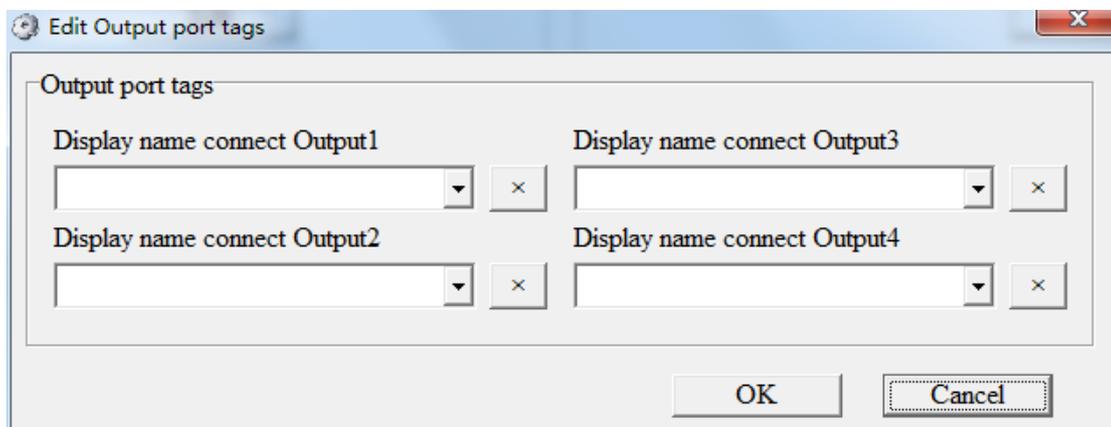After action of ②, edit form will pop-up as below:

Define tags for respective Input port, then devices connect the Input ports can be easily remembered.

Click buttons with "×" caption to delete tag which is no use any more, if tag is still used by any other Input port, delete action will be discarded.
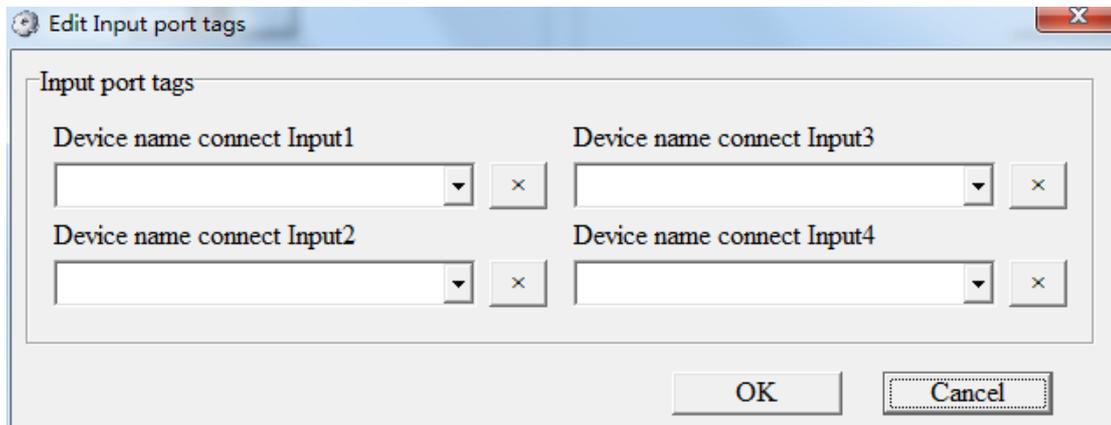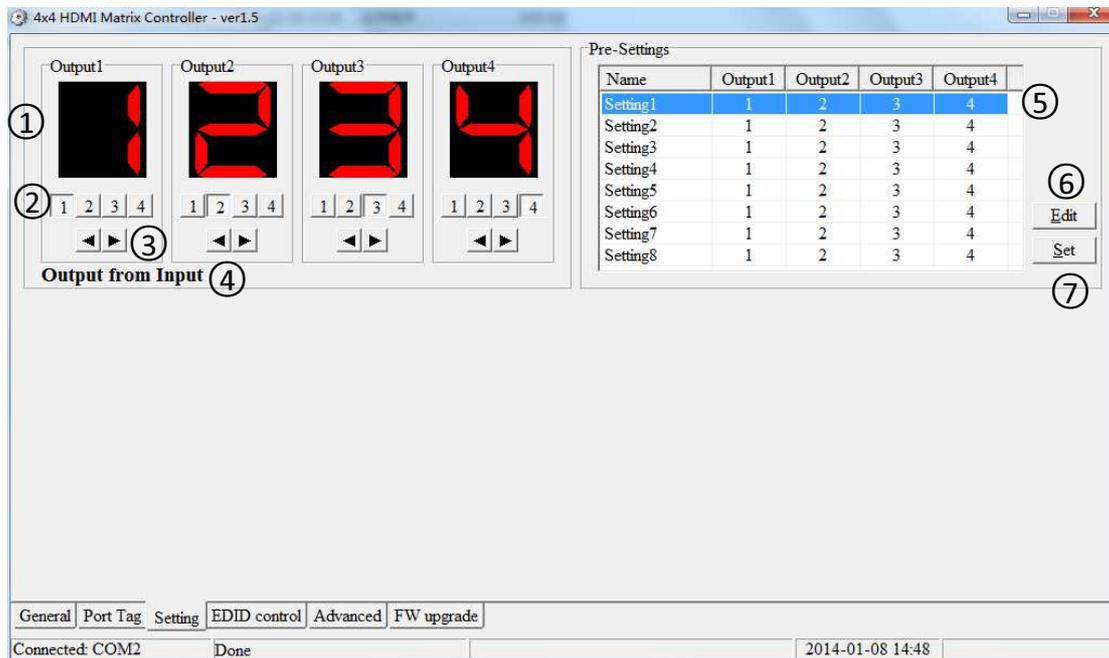

Edit Output port tags

After action of ④, edit form will pop-up as below:

Define tags for respective Output port, then displays connect the Output ports can be easily remembered.

Click buttons with "×" caption to delete tag which is no use any more, if tag is still used by any other Output port, delete action will be discarded.

"Setting" page

① LED which displays Input number for respective Output port

② Click to select Input port for respective Output port

③ Click to select previous or next Input port for respective Output port

④ Display Output from Input with tag information when mouse moves over ② buttons

⑤ Pre-Setting items: Default is Port to Port

⑥ Click to edit selected pre-setting item

⑦ Set selected pre-setting item to Matrix

NOTE: When Change to this "Setting" page, software will try to refresh source selection status of Output port.
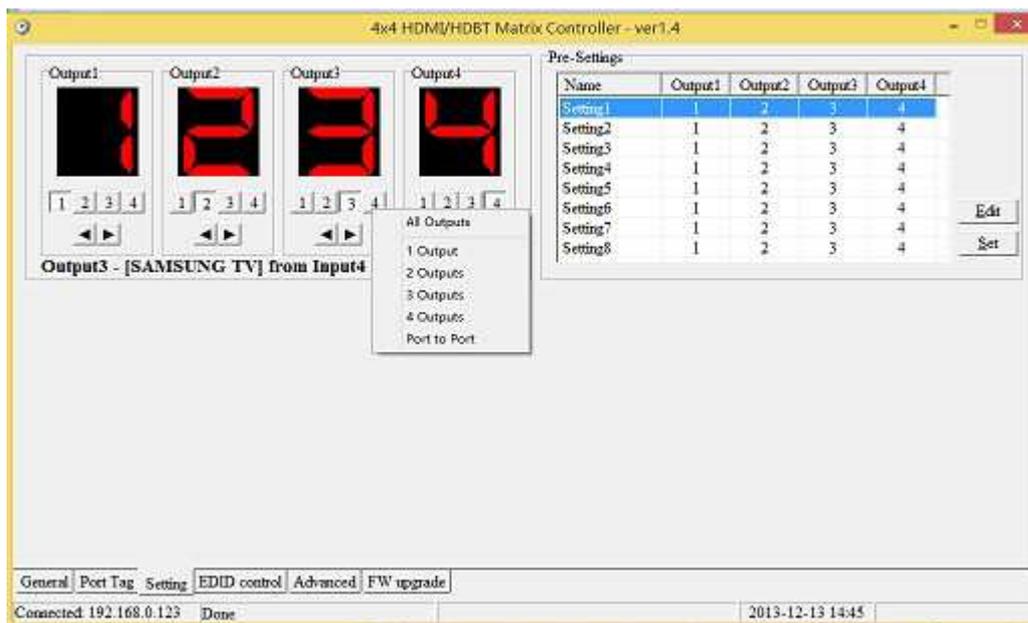
Pop-up tag messages

When "Display Input, Output tags when focus setting buttons" checkbox on "General" page is checked and Input/output port tag has been defined, tag messages will pop up like as:
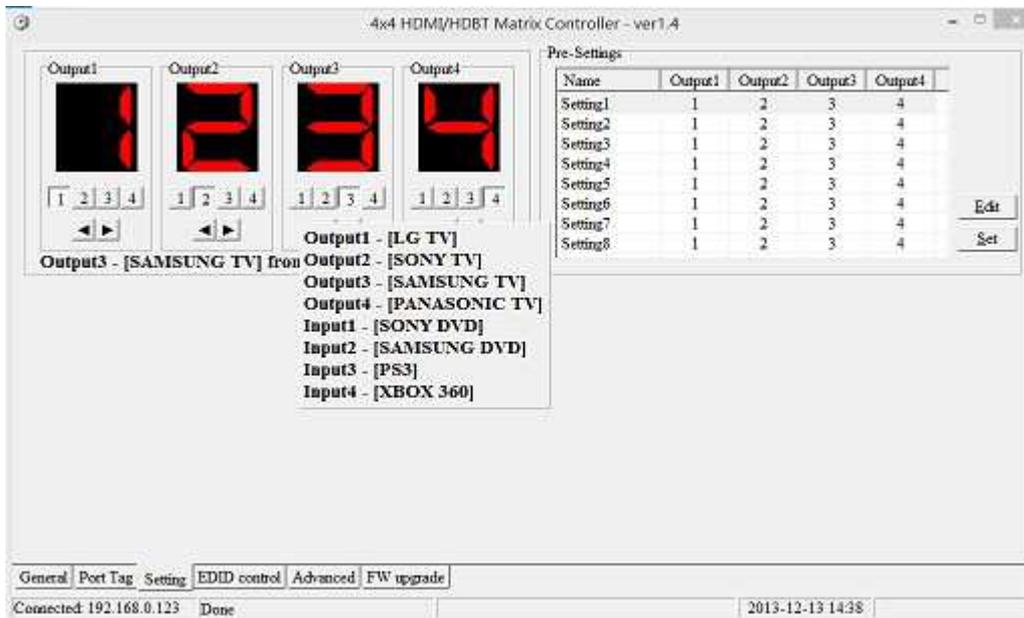
Pop-up Menu

When mouse moves over ② setting buttons, and click mouse right button, menu will pop up like as:

All Outputs: All Outputs from same Input

"1 Output" to "4 Outputs": Set current Output (where mouse right clicked) and the next x-1 (x range is from 1 to 4, set total x Outputs at the same time) Output(s) from same Input

Port to Port: Output1 from Input1, Output2 from Input2, Output3 from Input3, etc.
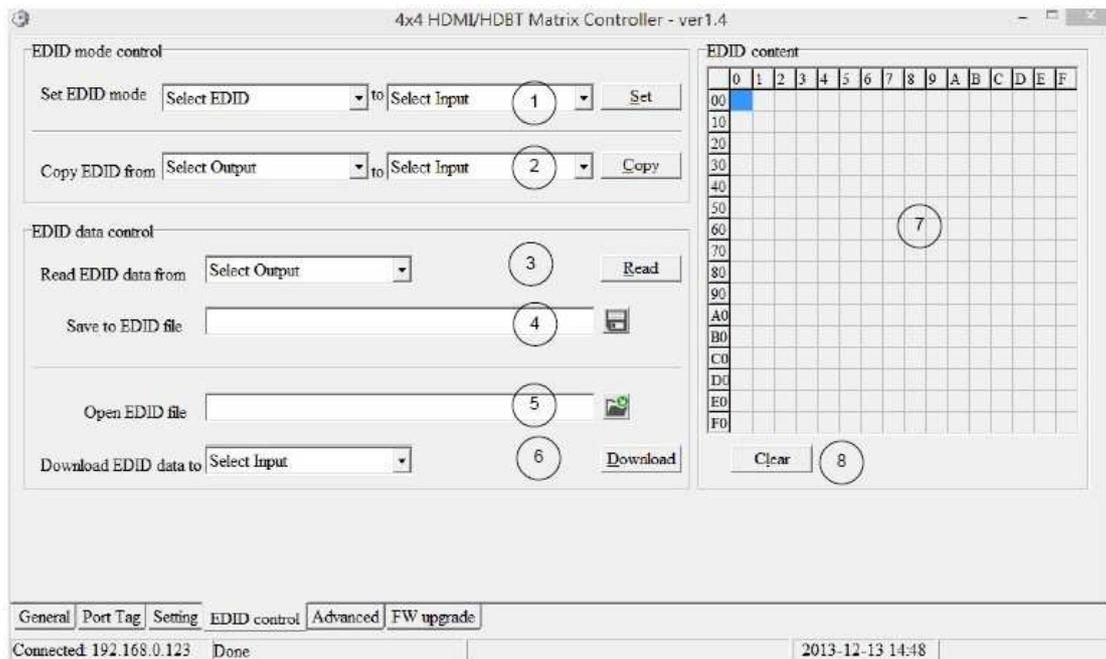
Edit selected pre-setting item

After action of ⑥, edit form will pop-up as below:

① Pre-Setting name

② Set all Output ports from same Input

③ Select Input for respective Output

"EDID control" page

① Set EDID mode for selected Input port or All Input ports, click "Set" button to complete action.

NOTE: When set User1/User2 EDID mode, should Download EDID content to User1 Memory/User2 Memory first. User1/User2 default EDID content is 1080p, Stereo Audio 2.0.

② Copy EDID from Output port to selected Input port or All Input ports, click "Copy" button to complete action.

③ Read EDID content from Output port and display in grid, click "Read" button to complete action.

④ Save EDID content which displayed in grid to binary file (file extension is ".bin")

⑤ Open EDID binary file and display in grid

⑥ Download EDID content which displayed in grid to selected Input port or All Input ports, click "Download" button to complete action. When User1 Memory/User2 Memory selected, download EDID content to respective memory then User1/User2 EDID mode can be set.

⑦ EDID content displaying grid
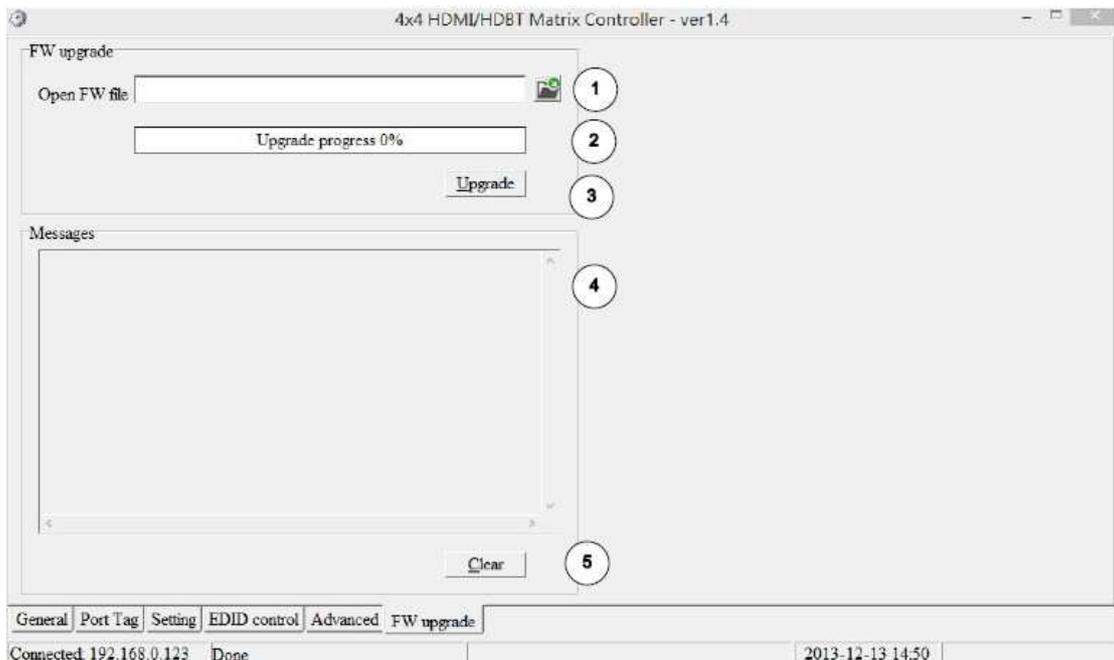
NOTE: EDID content displayed in grid is read only.

⑧ Click to clear EDID content displayed in grid

"IR Configuration" page
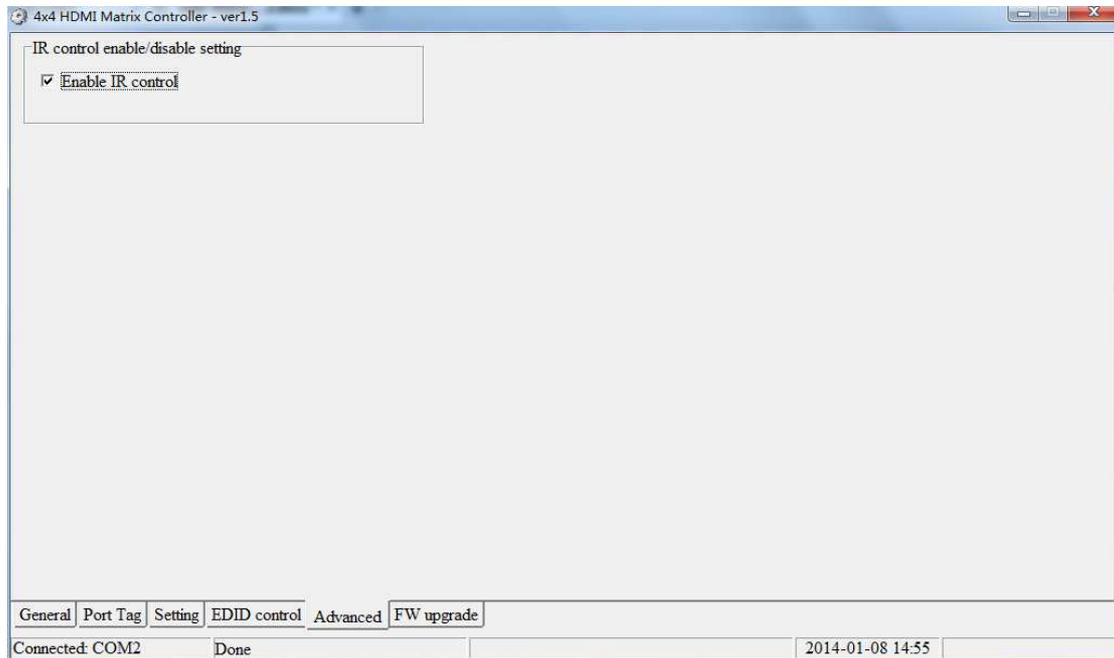
To enable or disable IR control function. When box checked, IR control function enabled, otherwise, IR control function disabled. This setting is not memorized. IR control function is always enabled after power up.

"FW upgrade" page

① Click to open firmware file (file extension is ".fw").

② Firmware upgrade progress

③ Click the button to upgrade firmware.

NOTE: If failure occurs during upgrading firmware process, the following steps SHOULD be done sequentially to establish next upgrading procedure:

1.   Power down the Matrix
2.   Close the 4x4 HDMI Matrix Controller
3.   Re-power up the Matrix, then wait for 10 seconds to ensure the Matrix is ready
4.   Run 4x4 HDMI Matrix Controller, open firmware file and upgrade again

④ Firmware upgrading messages display

⑤ Click to clear the messages displayed in the memo box.

RS-232 Commands

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        HDMI Matrix-4x4 Help Info

        FW Version: 1.67

============ System Information Command

?   Print Help Information

HELP   Print Help Information

STATUS   Print System Status And Port Status

============ System Control Command

PON   Power On, System Run On Normal State

POFF   Power Off, System Run On Power Save State

IR ON/OFF   Set System IR Control On Or Off

KEY ON/OFF   Set System KEY Control On Or Off

APM ON/OFF   Set Advanced Process Mode On Or Off

BEEP ON/OFF Set Onboard Beep On Or Off

RESET   Reset System To Default Setting

          (Should Type "Yes" To Confirm, "No" To Discard)

============ Input And Output Port Control Command

OUT xx ON/OFF Set OUTPUT:xx On Or Off

OUT xx FR yy   Set OUTPUT:xx From INPUT:yy

         xx=00: Select All OUTPUT Port

         xx=[01...04]: Select One OUTPUT Port

         yy=[01...04]: Select One INPUT Port

EDID xx CP yy Set Input:xx EDID Copy From Output:yy

EDID xx DF zz Set Input:xx EDID To Default EDID:zz

xx=00: Select All INPUT Port

xx=[01...04]: Select One INPUT Port

yy=[01...04]: Select One OUTPUT Port

zz=00: HDMI 1080p@60Hz, Audio 2CH PCM

zz=01: HDMI 1080p@60Hz, Audio 5.1CH PCM/DTS/DOLBY

zz=02: HDMI 1080p@60Hz, Audio 7.1CH PCM/DTS/DOLBY/HD

zz=03: HDMI 1080i@60Hz, Audio 2CH PCM

zz=04: HDMI 1080i@60Hz, Audio 5.1CH PCM/DTS/DOLBY

zz=05: HDMI 1080i@60Hz, Audio 7.1CH PCM/DTS/DOLBY/HD

zz=06: HDMI 1080p@60Hz/3D, Audio 2CH PCM

zz=07: HDMI 1080p@60Hz/3D, Audio 5.1CH PCM/DTS/DOLBY

zz=08: HDMI 1080p@60Hz/3D, Audio 7.1CH PCM/DTS/DOLBY/HD

zz=09: HDMI 4K2K, Audio 2CH PCM

zz=10: HDMI 4K2K, Audio 5.1CH PCM/DTS/DOLBY

zz=11: HDMI 4K2K, Audio 7.1CH PCM/DTS/DOLBY/HD

zz=12: DVI 1280x1024@60Hz, Audio None

zz=13: DVI 1920x1080@60Hz, Audio None

zz=14: DVI 1920x1200@60Hz, Audio None

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Safety information

safeguards

To reduce the risk of electric shock, do not expose this product to rain or moisture

PRODUCT SERVICE

1) **Damage requiring service:** The unit should be serviced by qualified service personnel if:

(a)The DC power supply cord or AC adaptor has been damaged;

(b)Objects or liquids have gotten into the unit;

(c)The unit has been exposed to rain;

(d)The unit does not operate normally or exhibits a marked change in performance;

(e)The unit has been dropped or the cabinet damaged.

2) **Servicing Personnel:** Do not attempt to service the unit beyond that described in these operating instructions. Refer all other servicing to authorized servicing personnel.

3) **Replacement parts:** When parts need replacing ensure the servicer uses parts specified by the manufacturer or parts that have the same characteristics as the original parts. Unauthorized substitutes may result in fire, electric shock, or other hazards.

4) **Safety check:** After repairs or service, ask the servicer to perform safety checks to confirm that the unit is in proper working condition.

WARRANTY

If your product does not work properly because of a defect in materials or workmanship, our Company (referred to as "the warrantor") will , for the length of the period indicated as below, **(Parts(1)Year ,Labor(90) Days)** which starts with the date of original purchase ("Limited Warranty period"), at its option either(a) repair your product with new or refurbished parts, or (b) replace it with a new of a refurbished product. The decision to repair or replace will be made by the warrantor.

During the "Labor" Limited Warranty period there will be no charge for labor.

During the "Parts" warranty period, there will be no charge for parts. You must mail-in your product during the warranty period. This Limited Warranty is extended only to the original purchaser and only covers product purchased as new. A purchase receipt or other proof of original purchase date is required for Limited Warranty service.

Mail-In Service

When shipping the unit carefully pack and send it prepaid, adequately insured and preferably in the original carton. Include a letter detailing the complaint and provide a day time phone and/or email address where you can be reached.

LIMITED WARRANTY LIMITS AND EXCLUSIONS

1) This Limited Warranty ONLY COVERS failures due to defects in materials or workmanship, and DOES NOT COVER normal wear and tear or cosmetic damage. The Limited Warranty ALSO DOES NOT COVER damages which occurred in shipment, or failures which are caused by products not supplied by warrantor,or failures which result from accidents,misuse,abuse,neglect, mishandling, misapplication, alteration, faulty installation, set-up adjustments, misadjustment of consumer controls, improper maintenance, power line surge, lightning damage, modification, or service by anyone other than a Factory Service center or other Authorized Servicer, or damage that is attributable to acts of God.

2) THERE ARE NO EXPRESS WARRANTIES EXCEPT AS LISTED UNDER "LIMITED WARRANTY COVERAGE".THE WARRANTOR IS NOT LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRNTY. (As examples, this excludes damages for lost time, cost of having someone remove or re-install an installed unit if applicable, travel to and from the service, loss of or damage to media or images, data or other recorded content. The items listed are not exclusive, but are for illustration only.)

3) PARTS AND SERVICE, WHICH ARE NOT COVERED BY THIS LIMITED WARRANTY, ARE YOUR RESPONSIBILITY.