MX-5004MZ2E-CF

4x2 HDMI 2.0a Quad-View Video Processor with 4K2K60 4:4:4 & USB-C 4K Video Capture Function

User Manual

rev: 210521
Made in Taiwan

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INTRODUCTION

The **MX-5004MZ2E-CF 4x2 HDMI 2.0a Quad-View Video Processor with 4K2K60 4:4:4 & USB-C 4K Video Capture Function** provides the most flexible and cost effective solution in the market to route ultra-high definition video source from any of the four UHD HDMI sources to the remote display at the same time. Using powerful built-in USB-C capture & auto scale down features, users can broadcast up to 4K2K@30 video & 2ch audio thru real-time on line software, such as skype. This unique function makes this 4K video processor perfectly work as a live switch for either educational or multiple commercial applications. This solution is also well suited for use in digital signage, conference room presentation systems or other similar settings or applications.

With up to 4K2K60 4:4:4 output resolution, users can display the mixed video with improved presentation quality. In the meantime, the unit can be controlled thru the popular serial port and Ethernet port to provide the most flexible control way to fit into any applications.

FEATURES

- 4x HDMI inputs and 2x HDMI outputs
- Input resolutions support from 640x480 to 4096x2160@60Hz (4:4:4 8bits), interlaced or progressive
- Output resolutions support up to 4K2K@60Hz (4:4:4 8bits)
- Adjustable size & position through software
- Supports PIP, PBP, POP, full screen & quad-view display
- HDCP 1.4/2.2 compliant
- Firmware upgradable to support of new features and technology enhancements
- Titles, borders and colored backgrounds
- Supports Background picture & logo update
- Resize, position, zoom & pan and blend output video
- Supports seamless, fade-in-&-out, wipe and dissolve switching on full screen mode
- Pure unaltered uncompressed 7.1ch digital HDMI
- Software control through RS-232 and Ethernet
- Supports IR remote and front panel control
- Supports USB-C 4K Video Capture
  - HDMI video and audio streams over USB 3.1 Type-C Gen 1
  - Supports UVC1.0
  - Supports video resolution up to 4K2K@30
  - Supports deinterlace & scaler
  - Recording Video Format: Software Compression
  - Works on multiple operating system platforms (Windows 7/8.1/10, Mac and Linux OS)
  - Compatible with most 3rd party software such as OBS Studio and AMCap
  - Supports USB 3.1 Gen 1 (RGB/YUY2/NV12) (capture up to 4K2K@30) and USB 2.0 (YUY2/NV12) (capture up to 720P@30)
  - Low Latency

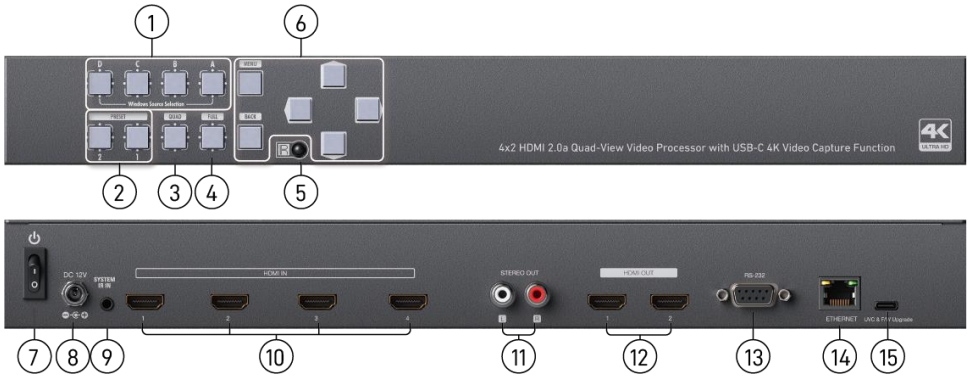
SPECIFICATIONS

Model Name		MX-5004MZ2E-CF
Technical		
Role of usage		Multi-viewer/ video processor
Background picture update		Yes
HDCP compliance		1.4 / 2.2
HDMI compliance		HDMI 2.0a
Video bandwidth		HDMI [600MHz [18Gbps]
Output Video Support		Up to 4K2K@60 (4:4:4 8bits)
Video support(USB-C)		Up to 4K2K@30
Input Video Support		Up to 4K2K@60 (4:4:4 8bits)
Video Format Support		HDMI 2.0
Audio support		LPCM
Control		RS-232/ Ethernet/ IR/ Front panel Control
Embedded video mixer		Yes
Input TMDS signal		1.2 Volts [peak to peak]
Recording Mode		Software Compression
Recording Video Format		RGB/YUY2/NV12 (USB3.1 Gen 1), YUY2/NV12 (USB2.0)
ESD protection		Human body model — ±15kV [air-gap discharge] & ±8kV [contact discharge]
Input		4x HDMI + 1x RS-232 + 1x RJ-45(Ethernet) + 1x 3.5mm (IR)
Output		2x HDMI + 1x USB-C + 2x RCA
HDMI connector		Type A [19-pin female]
USB connector		USB 3.0 Type C (SuperSpeed USB)
RS-232 connector		DE-9 [9-pin D-sub female]
RJ-45 connector		WE/SS 8P8C
Software compatibility (not complete list)(Video Capture Function)		OBS Studio (Windows, Linux, MAC), AMCap (Windows), Potplayer (Windows) , VLC (OS X, Linux), XSplit Boardcast (Windows), Skype (Windows, OS X), Zoom (Windows), Hangout (Windows), TeamViewer (Windows)
OS Support (Video Capture Function)		Windows 7 /8.1 /10, Mac and Linux OS
Mechanical		
Housing		Metal enclosure
Dimensions [L x W x H]	Model	440 x 237 x 44mm [1'4" x 9.3" x 1.7"]
	Package	526 x 318 x 156mm [1'7" x 12.5" x 6.1"]
	Carton	543 x 335 x 344mm [1'8" x 13.2" x 1'1"]
Weight	Model	2.3 kg [5 lbs]
	Package	3.5 kg [7.8 lbs]
Fixedness		Wall-mounting case
Power supply		12V DC
Power consumption		22 Watt [max]
Operation temperature		0~40°C [32~104°F]
Storage temperature		-20~60°C [-4~140°F]
Relative humidity		20~90% RH [no condensation]

PACKAGE CONTENTS

- 1 x MX-5004MZ2E-CF
- 1 x DC 12V
- 1 x Installation software CD
- 1 x User Manual
- 1 x IR Remote control (28 keys)
- 1 x IR Receiving cable
- 1x USB 3.0 A to C Cable (host to device)

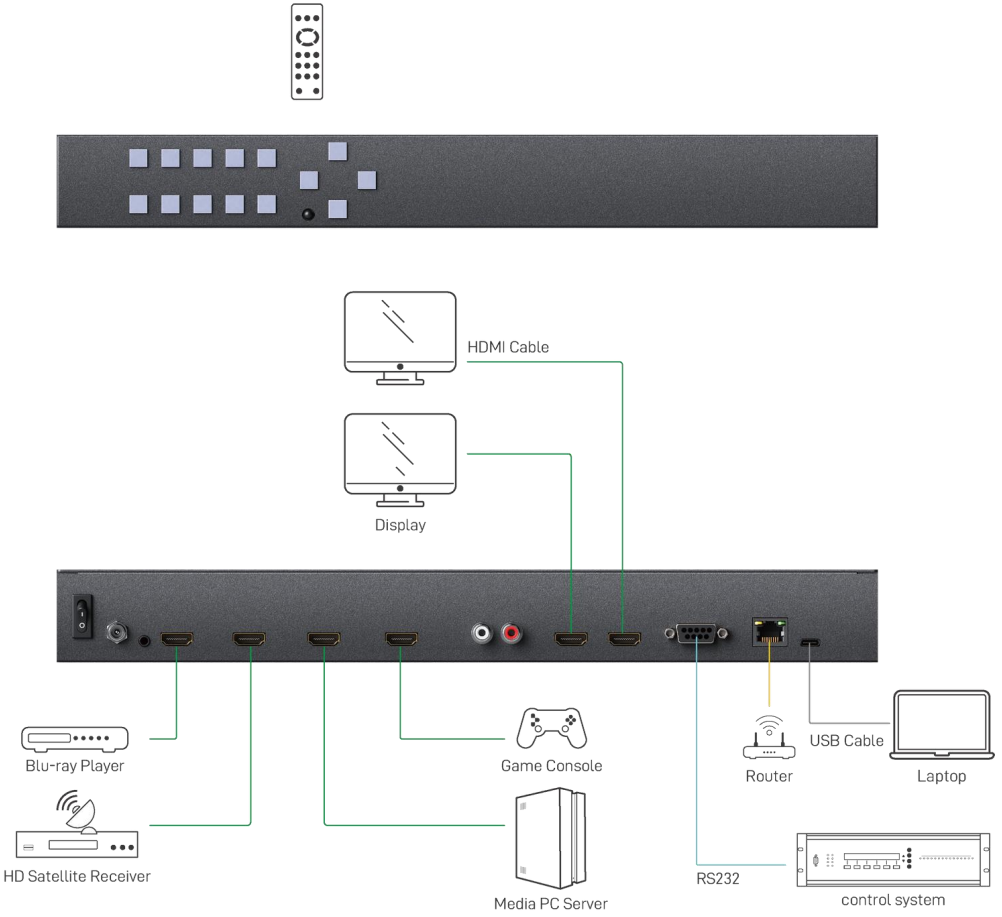
PANEL DESCRIPTIONS



1. **Windows Source Selection A-D:** Window A-D source selection (from the left to the right is D, C, B, A)
2. **Presets:** User preset 2 and user preset 1
3. **Quad:** Fast switch to quad-view mode
4. **Full Screen:** Switch Window in full scree mode
5. **IR SENSOR:** IR sensor for receiving the IR commands from IR remote
6. **OSD Button**
7. **Power switch:** Power On/Off
8. **+12V DC:** 12V DC power jack
9. **IR Receiver:** 3.5mm socket for plugging in the extension cable of IR receiver
10. **SOURCE 1-4:** HDMI inputs
11. **Stereo audio output – L/R**
12. **OUTPUT 1-2:** HDMI outputs*
13. **RS-232:** RS-232 control port
14. **Ethernet:** Ethernet control port
15. **USB-C OUT:** Connect to a USB host such as PC, NB, and MAC (for capture function and F/W update)

* The MX-5004MZ2E-CF is able to automatically downscale on output 2 port according to EDID of connected display equipment.

CONNECTION DIAGRAM



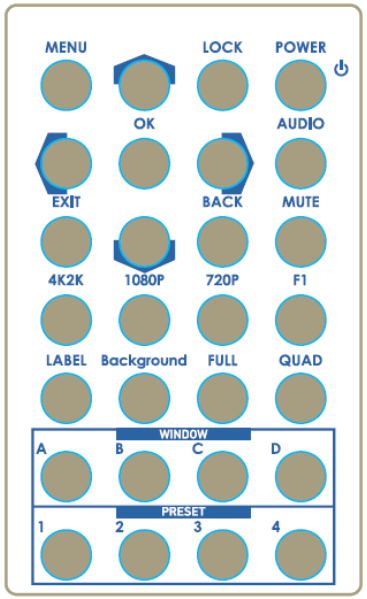
HARDWARE INSTALLATION

MX-5004MZ2E-CF as master

1. Connect all sources to HDMI Inputs on the MX-5004MZ2E-CF.
2. Connect the display to HDMI Output on the MX-5004MZ2E-CF.
3. Connect the +12V 5A DC power supply to the MX-5004MZ2E-CF.

OPERATION APPROACH

Method A: IR Remote Control



Button	Function
POWER	Power on/off the device
LOCK	Lock/unlock the device
▲	Arrow button (up)
MENU	OSD menu
AUDIO	Select audio sources
▶	Arrow button (right)
OK	Trigger the setting
◀	Arrow button (left)
MUTE	Turn off the audio
BACK	Back to previous page of OSD menu
▼	Arrow button (down)
EXIT	Exit from the menus
F1	Reserved
720P	Switch output resolution to 720p 60Hz
1080P	Switch output resolution to 1080p 60Hz
4K2K	Switch output resolution to 4K2K 60Hz
QUAD	Fast switch to quad-view mode
FULL	Fast switch to full screen mode
Background	To set up the background picture of window
LABEL	Window label ON/OFF
D	Select source D to be the input source
C	Select source C to be the input source
B	Select source B to be the input source
A	Select source A to be the input source
P4	User preset 4
P3	User preset 3
P2	User preset 2
P1	User preset 1

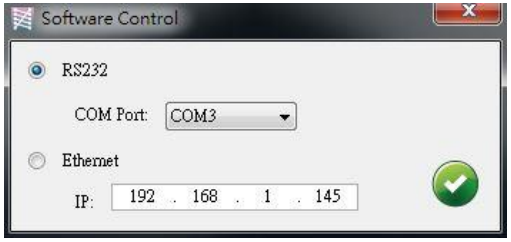
Method B: Software Control through Micro-USB port

1. **System Requirement**
   (1) OS Information: MS Win XP/7/8/10
   (2) Baud rates: 115200
   (3) Software size: 10 MB
   (4) Minimum RAM requirement: 256 MB

2. **Control Interface**
   When clicking on the executable file, the following dialog will pop-up (under Microsoft Windows 7, please run as administrator)

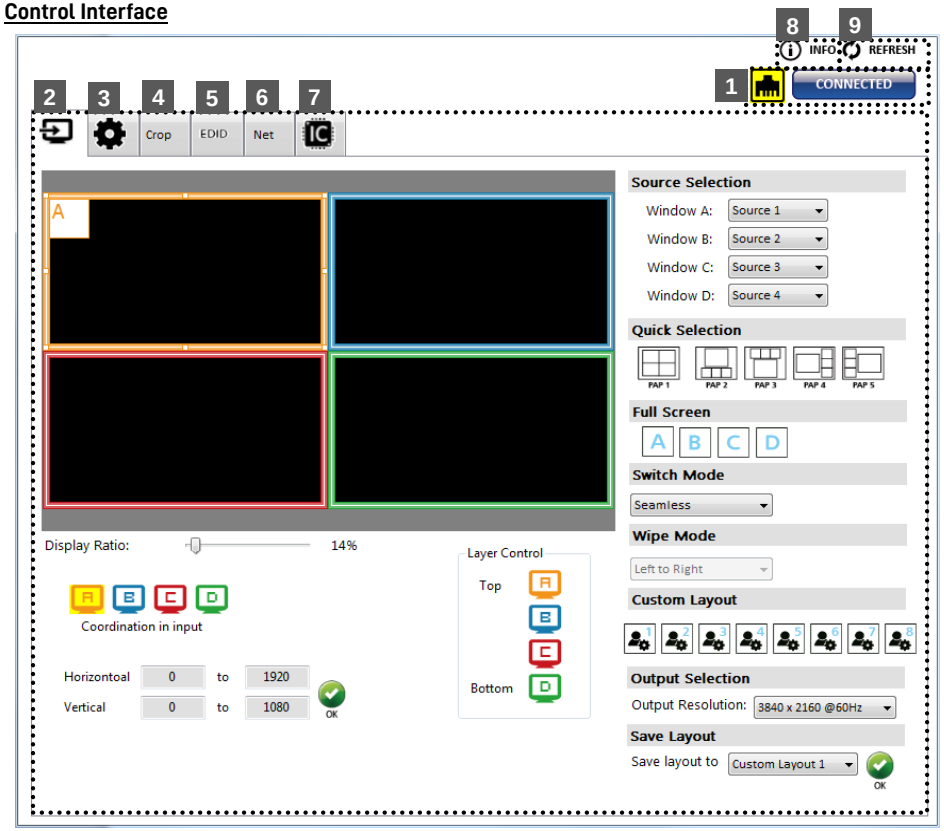
   RS-232 serial Mode: Use RS-232 to connect the port on device and computer. Select correct COM port and click the OK button.

   Ethernet Mode: Enter the IP address of the device and click the OK button.



   After the software control setting is accomplished, it will enter directly to control interface.

Control Interface



1. Connection Status:

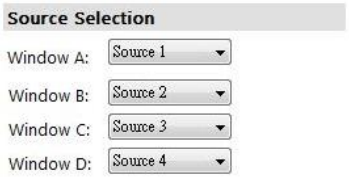
Show the connect information and status. If users use RS-232 serial Mode to connect device, the graph is  . In contrast, the graph of Ethernet is  . In addition, if users would link to change the control method, uses can click on the  button to change.

2. Output Settings

In this section, users can set up the coordinate for inputs, the source of window A~D, output resolution, layout setting (PAP or full screen) and switch mode.

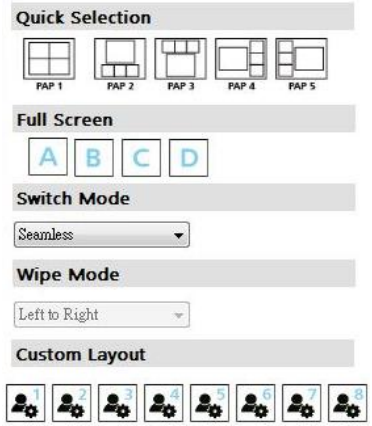
(1) Source Selection

For each display window, you can assign arbitrary video source here.



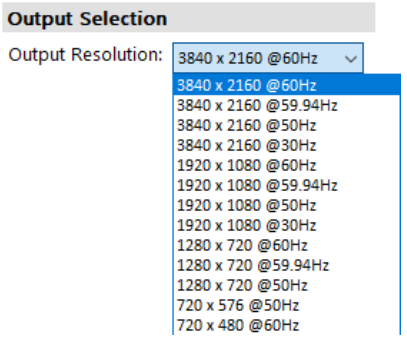
(2) Quick Selection

We provide 9 default modes, 8 custom modes and 4 switching effects (Seamless, Fade in/out, Dissolve, Wipe) for user to select.



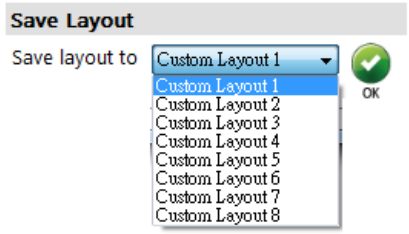
(3) Output Resolution

Set the output resolution.



(4) Save Layout

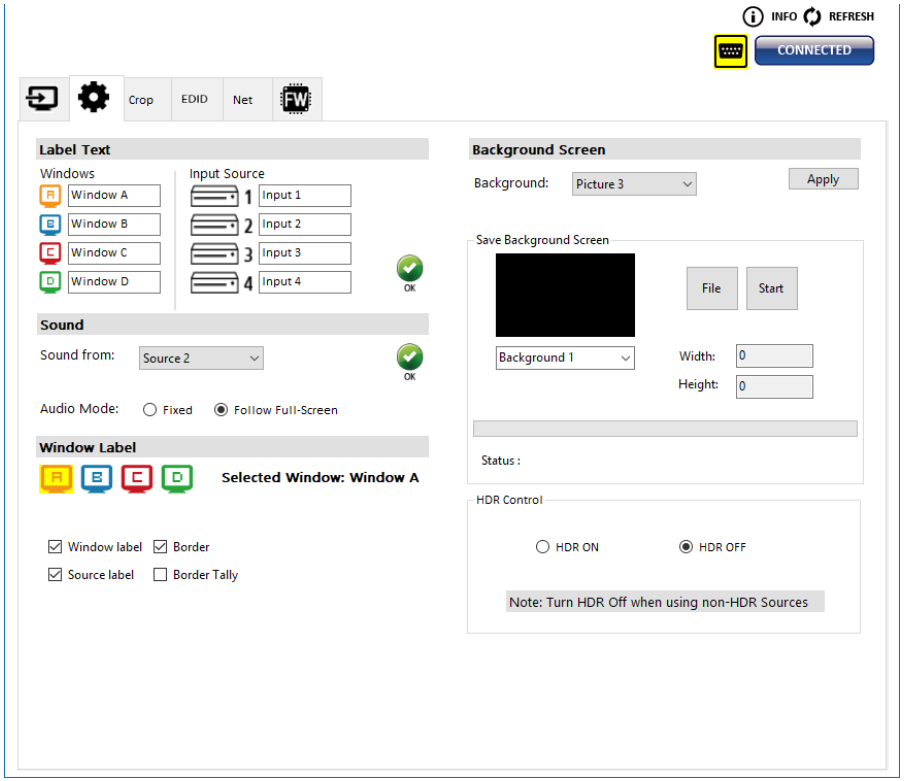
We provide 8 custom layout space for users to save the frequently used scenarios into the flash memory.



(5) Display Panel

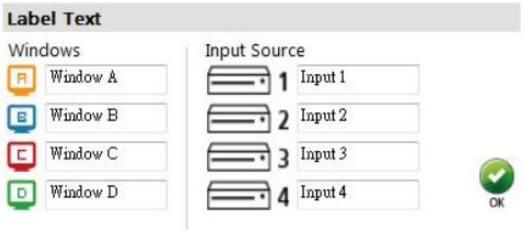
In the left part of control interface, user can customize the display mode thru control. The different colors of frame represent the different input windows. The information of coordinate shows the position of input source screen. In addition, we provide display ratio for users to set the display panel sizes. If you want to change window layer, please drag window icon in Layer Control section.

3. Advanced Setting



(1) Label Text

In here, users can input the texts to be shown with the video.



(2) Sound

To set up the audio source of the output and R/L channels.

- Audio Mode

  Fixed: The audio source of the output and R/L channels will fix to be selected source

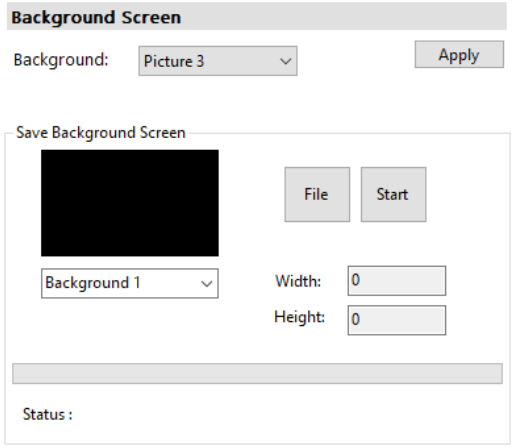
  Follow Full-Screen: The audio source of output and R/L channels will follow selected full screen. (This function only can be enabled on full screen mode)

(3) Window Label

In this function, users can determine if the window's label/border is turned on or off.

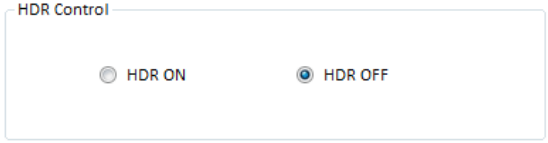
(4) Background

To set up the background of window. We provide 4 empty space for user to upload background pictures. User can click **File** button to load the picture which you want to use and click **Start** button to write this picture into the device.

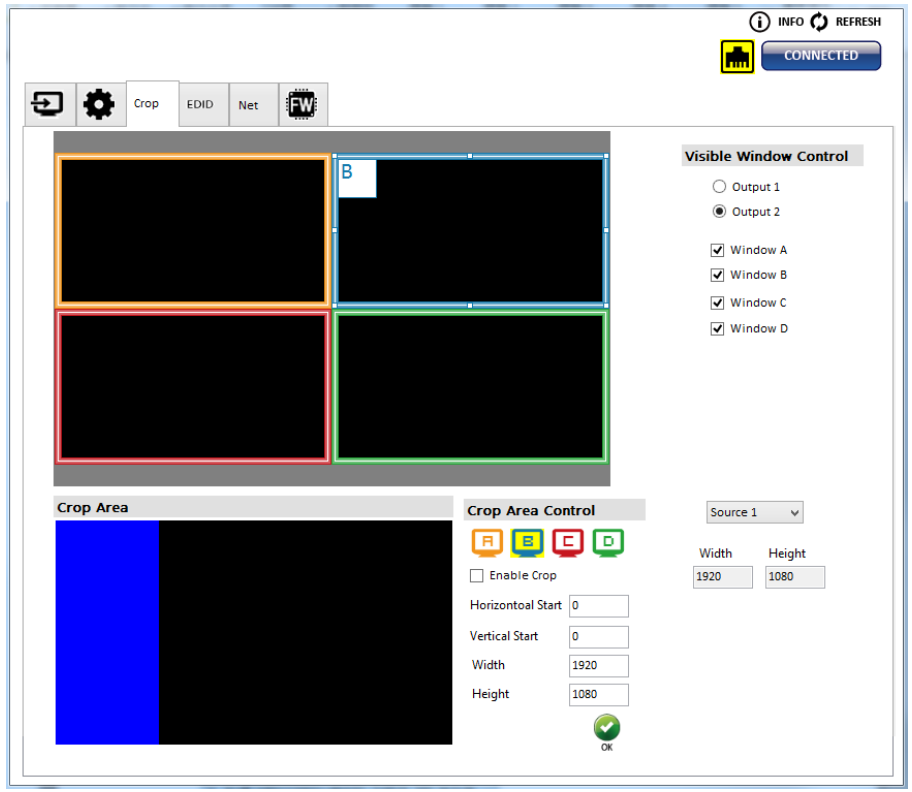


(5) HDR Control

To Enable/ Disable HDR



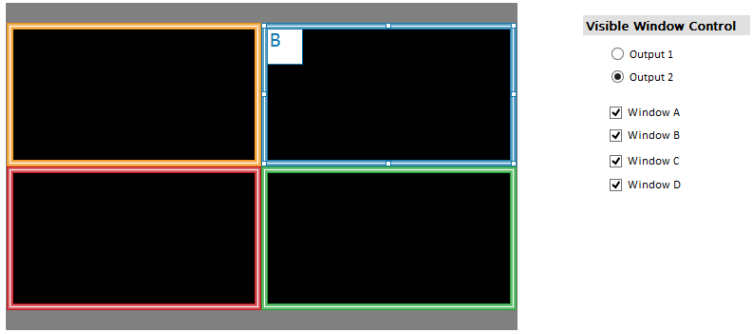
4. Crop Setting



* If users want to use Crop mode, remember to set the window A-D to the same video source in the Source Selection of the Connection Status page.

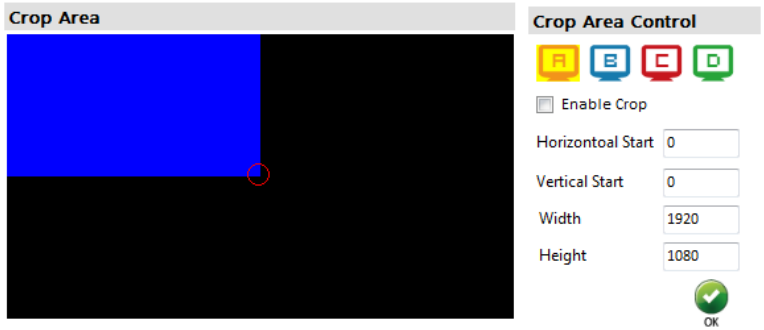
(1) Visible Window Control

Users can customize the display mode thru control. First, select the input windows to be displayed on output1 and output2 on the right. Then adjust the range of the window in the Display Panel on the left. The different colors of frame represent the different input windows.



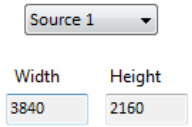
(2) Corp Area & Crop Area Control

User can customize the range to crop video source and display it on window A-D. Define the area range by entering parameters or adjusting the frame in the crop area. After setting the crop range, please click the **"Enable Crop"** and the **"OK"** button.

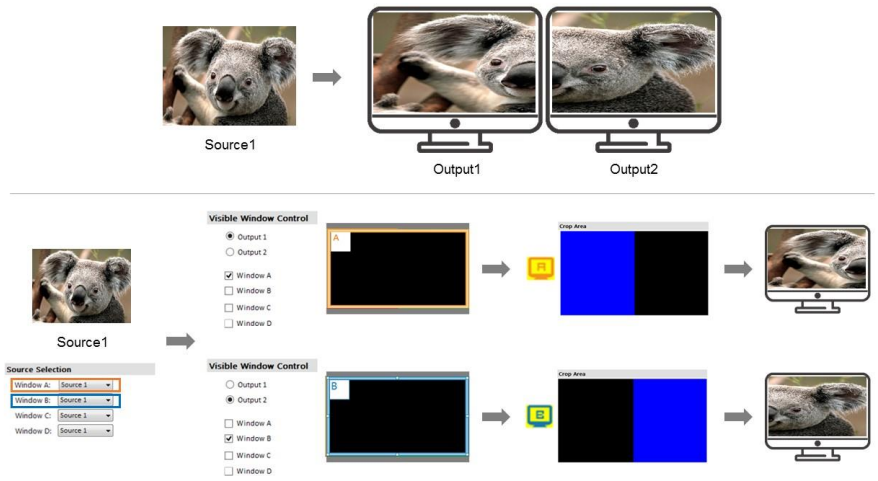


(3) To get the width & height of source information

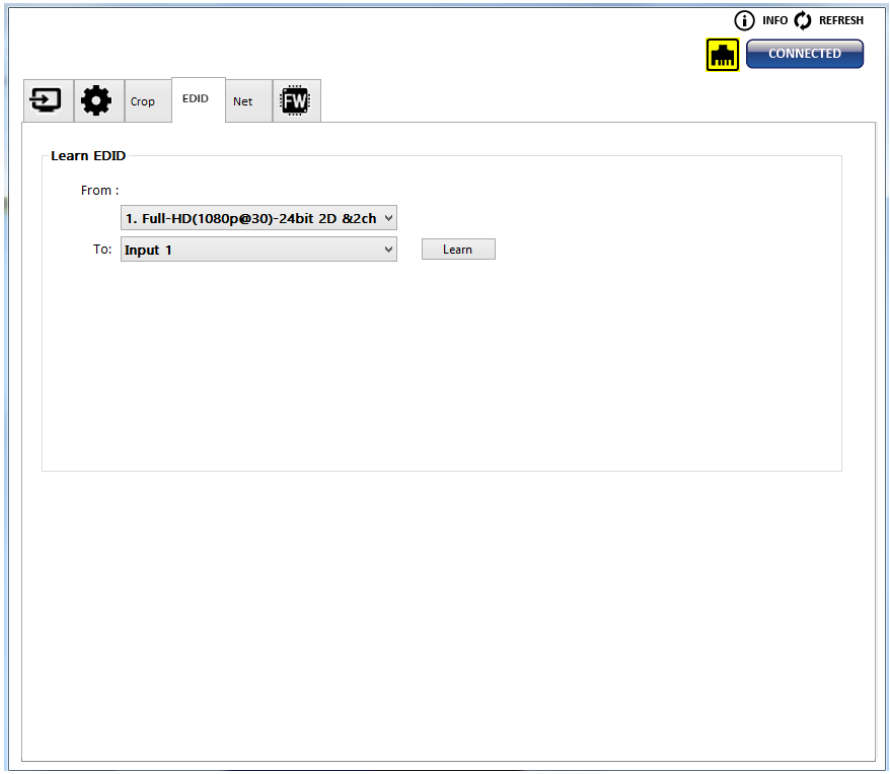
Users can get the width & height of source 1-4 information as a reference for the cutting range.



* The image below shows an example of using Crop mode.

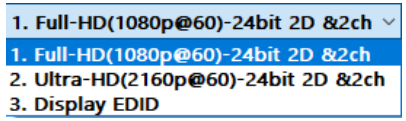


5. EDID (Extended display identification data)

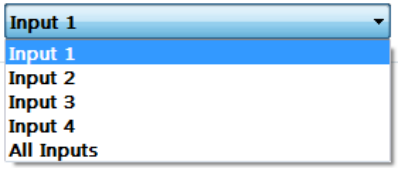


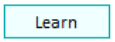
Learn EDID from Default or Display

- Select EDID



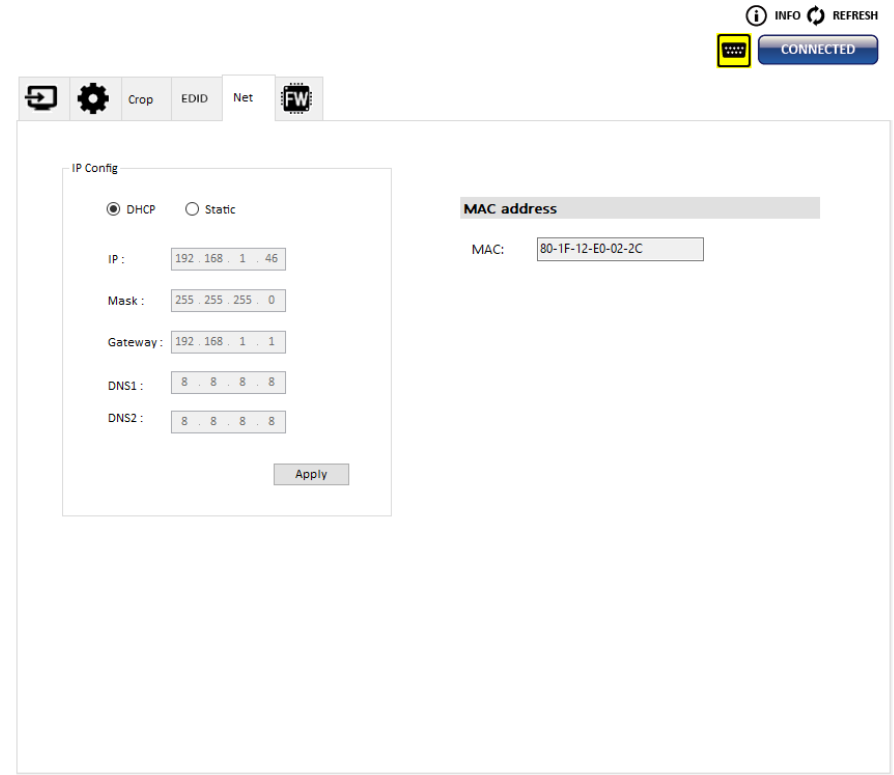
- Select Input



- Click 

button to learn EDID.

6. Net Setting



(1) IP Configure

User also can use the WEB to control the mixer. Please setup the Ethernet for the unit as below example shows. After the step of IP configuration, please click the Apply button.

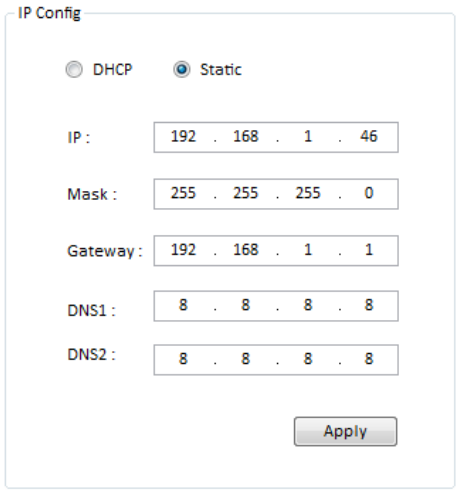
The default IP: 192.168.1.46

- IP Configure-DHCP mode

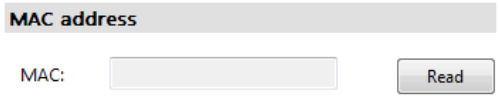
  Select DHCP and click Apply button to automatically get the IP address

- IP Configure-Static mode

  Select Static and then key in the "IP", "MASK", "GATEWAY" information. After the step of IP configuration, please click the Apply button. The setup of Ethernet for the unit as below example shows.



(2) MAC address



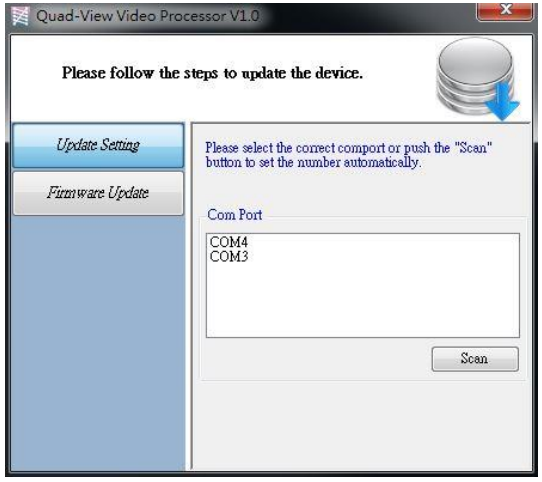
- MAC

  Read the device's MAC address information.

7. System Setting

(1) Firmware Update

- Click FIRMWARE UPDATE button to do firmware update.
- The "Firmware update" window shows up as below.



- Please select the correct COM port or click "Scan" button to connect device.
- Click "update" button to do firmware update.

(2) Factory Reset

- Click FACTORY RESET button to do factory default reset.
- The process of default reset will take about 25 seconds.

8. Info

Read the Software and firmware version.

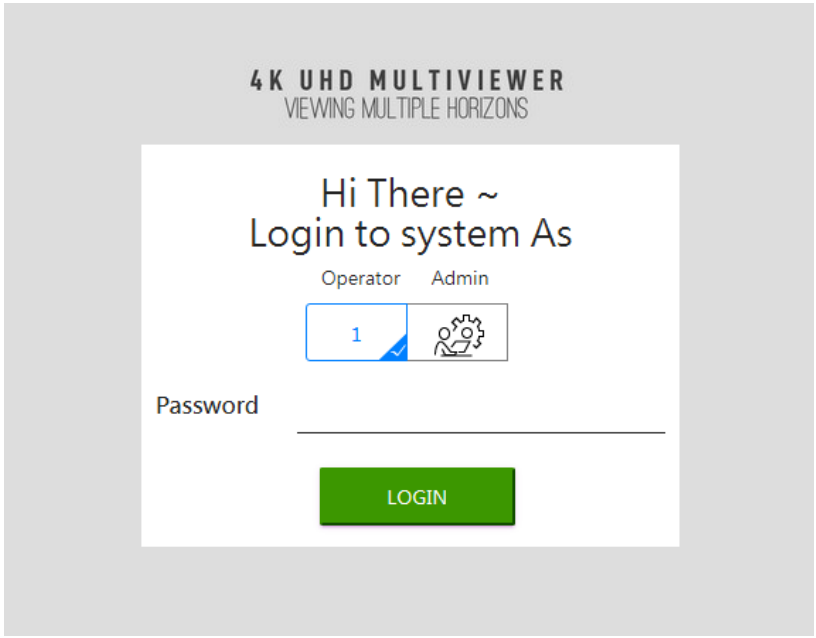
*Software/firmware information subject to change without notification.

9. Refresh

This function can get all information of the device and update this software state.

Method C: Web Interface Control

The default IP address: 192.168.1.46



User can choose Operator or Admin account to login.

1. The password of Operator: **operator**
2. The password of Admin: **admin**

USB PIN DEFINITION

P1			P2	
VBUS	A4, B4, A9, B9	⟷	1	VBUS
Dn1	A7	⟷	2	D-
Dp1	A6	⟷	3	D+
GND	A1, B1, A12, B12	⟷	4	GND
SSTxn1	A3	⟷	5	SSRX-
SSTxp1	A2	⟷	6	SSRX+
GND	A1, B1, A12, B12	⟷	7	GND
SSRxn1	B10	⟷	8	SSTX-
SSRxp1	B11	⟷	9	SSTX+

WARRANTY

The SELLER warrants the **MX-5004MZ2E-CF 4x2 HDMI 2.0a Quad-View Video Processor with 4K2K60 4:4:4 & USB-C 4K Video Capture Function** free from defects in the material and workmanship for 1 year from the date of purchase from the SELLER or an authorized dealer. Should this product fail to be in good working order within 1 year warranty period, The SELLER, at its option, repair or replace the unit, provided that the unit has not been subjected to accident, disaster, abuse or any unauthorized modifications including static discharge and power surge. This warranty is offered by the SELLER for its BUYER with direct transaction only. This warranty is void if the warranty seal on the metal housing is broken.

Unit that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for 90 days from the day of reshipment to the BUYER. If the unit is delivered by mail, customers agree to insure the unit or assume the risk of loss or damage in transit. Under no circumstances will a unit be accepted without a return authorization number.

The warranty is in lieu of all other warranties expressed or implied, including without limitations, any other implied warranty or fitness or merchantability for any particular purpose, all of which are expressly disclaimed.

Proof of sale may be required in order to claim warranty. Customers outside Taiwan are responsible for shipping charges to and from the SELLER. Cables and power adapters are limited to a 30 day warranty and must be free from any markings, scratches, and neatly coiled.

The content of this manual has been carefully checked and is believed to be accurate. However, The SELLER assumes no responsibility for any inaccuracies that may be contained in this manual. The SELLER will NOT be liable for direct, indirect, incidental, special, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. **Also, the technical information contained herein regarding the MX-5004MZ2E-CF features and specifications is subject to change without further notice.**