User Manual

MP-IPM3000

4K Encoding and Decoding Integrated IP Matrix

Version: MP-IPM3000_2025V1.0

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 Sep. 5, 2025. 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. Product Introduction

The 4K Encoding and Decoding Integrated IP Matrix integrates advanced video compression, network, visualization, and centralized control technologies. It builds an IP-based system combining video splicing, KVM management, audio processing, and encoding/decoding with distributed, visualized, and server-less features. Supporting HDMI 4K@60Hz input/output, multi-screen splicing, and IR, I/O and RS-232 control, it ensures synchronization, real-time performance, and vivid color reproduction. This cost-effective solution simplifies wiring and offers visual control and decentralized operation for HD/1080p applications. Ideal for conference centers, exhibition halls, command centers, and transportation hubs.

1.1 Features

- Integrated Encoder and Decoder: Combines encoder and decoder functions in one unit with DIP-switch to change the mode.
- Support for H.264 and H.265 Protocols: Compatible with H.264 and H.265 encoding and decoding protocols.
- High Resolution Support: HDMI interface supports up to 3840x2160@60Hz for input and output.
- Multiple Controlling Method: I/O, IR, RS-232
- Seamless Switching
- Visualization Operation
- Ultra-thin Design: The height is only 16mm.
- Multi-channel Decoding: Supports at least 4 images displaying in a single screen.

1.2 Package List

- 1x MP-IPM3000
- 4x Rubbery feet
- 4x 3-pin Phoenix terminal block
- 1x User Manual

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

2. Specifications

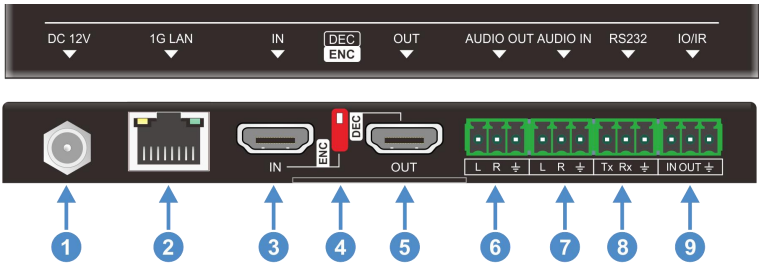
ENC Mode	
Video Input	1x HDMI IN (Type-A Female Port), up to 3840x2160@60Hz
Digital Audio Input	1x HDMI IN (Type-A Female Port)
Analog Audio Input	1x 3-Pin Terminal Block
Video Output	1x RJ45 for IP Stream Output
	1x HDMI Loopout (Type-A Female Port)
Encoding Performance	3840x2160@60Hz x1
DEC Mode	
Video Input	1x RJ-45 (1000Mbps) for IP Stream Input
Video Output	1x HDMI (Type-A Female port), up to 4K@60Hz
Digital Audio Output	1x HDMI (Type-A Female port)
Analog Audio Output	1x 3-Pin Terminal Block
Decoding Performance	3840x2160@60Hz x1, or 1920x1080@60Hz x4, or 1920x1080@30Hz x6, or D1@30Hz x6 PAL Standard: D1 will be 720x576 NTSC Standard: D1 will be 720x480
General	
Control Connector	1 x 3-Pin Terminal Block for I/O or IR
	1 x 3-Pin Terminal Block for RS-232
Codec	H.264, H.265
Communication Protocols	TCP/IP, UDP
Bit Depth	8-bit, 4:2:0
Latency	Less than 150ms
Operation Temperature	0℃ ~ +50℃
Storage Temperature	-10℃ ~ +70℃
Relative Humidity	10%-90%
Power	DC 12V/2A, or PoE
Power Consumption	10W
Dimension (W x H x D)	152mm x 16mm x 104mm
Net Weight	308g

3. Panel Description

3.1 Front Panel

1. **ACT LED:** The LED glows when it goes over-temperature.
2. **HDMI LED:** The LED illuminates when HDMI IN port detects signal input or HDMI OUT port has signal output.
3. **LAN LED:** The LED illuminates when the device is connected to LAN or internet via 1G LAN port.
4. **POWER LED:** The LED illuminates when the device is powered by PoE or DC 12V.

3.2 Rear Panel



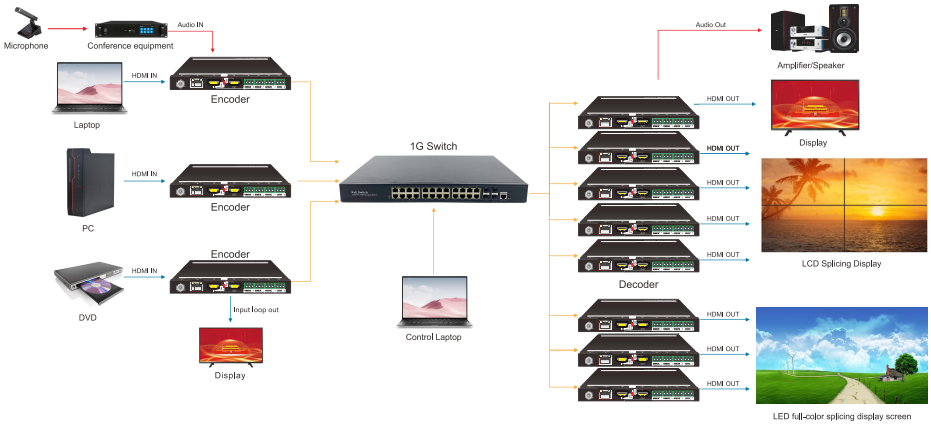
1. **DC 12V:** Connect to the DC 12V/2A power adapter (size is 5.5x2.1mm).
2. **1G LAN:** 1 x RJ-45 port, connecting to the IP network for the IP stream output. Gigabit Ethernet with PoE support, default LAN IP is 192.168.*.*
3. **HDMI IN:** 1 x HDMI Type-A female port, connecting to the video source.
4. **DEC/ENC:** Switch for selecting encoding/decoding mode, ENC make it an encoding node, and DEC make is a decoding node.
5. **HDMI OUT:** 1 x HDMI Type-A female port. In ENC mode, it output video from HDMI IN. In DEC mode, it output video from 1G LAN.
6. **Audio OUT:** 3-pin audio out, to output the audio from the HDMI IN.
7. **Audio IN:** 3-pin audio input, to embed the audio to HDMI OUT.
8. **RS232:** 3-pin RS-232 serial control port, used for outputting commands.
9. **I/O or IR:** 3-pin port for I/O or IR, supports for sending or receiving signal.

4. System Connection

4.1 Precautions

- Make sure all components and accessories are included before installation.
- The 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 being powered on.

4.2 System Diagram



5. Client UI Operation

5.1 Login the Client

On your PC, run the client software, and the login page will immediately prompt out.

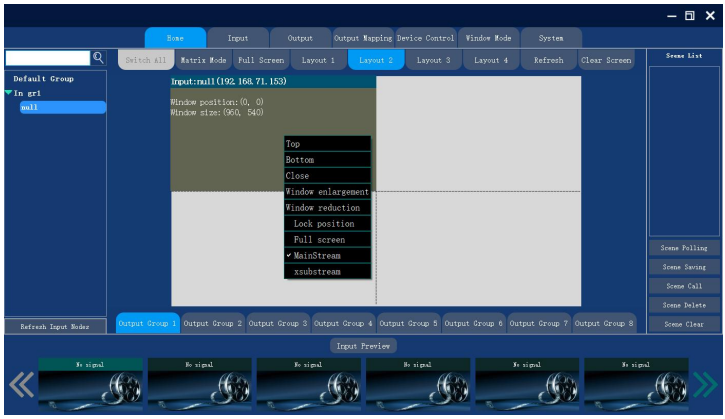
IP:	Input the IP address of the MP-IPM3000. As the IP address of device is made 192.168.x.x, subnet mask is made 255.255.0.0, so the IP address of PC should also be set to 192.168.x.x, and subnet should be 255.255.0.0.
User Name:	Default User Name is 'admin'.
Password:	Default password is 'admin'.

5.2 Main Page

1. Input List: List all the encoding nodes, with a search bar to locate devices.
2. Menu Bar: Includes seven tabs: Home, Input, Output, Output Mapping, Device Control, Window Mode, and System.
3. Window Operation Area: Supports window layout switching, matrix/splicing mode toggling, interface refresh, and screen window clearing. Layout modes can be modified in Window Mode.
4. Scene List: Scene operation area for scene cycling, saving, recalling, deleting, or clearing.

5. Output Display Operation Area: Shows a virtual large-screen spliced image, enabling window opening, moving, and splicing operations. Right-click the virtual screen accesses "Upload Background Image" and "Upload Subtitle" interfaces.
    - Upload Background Image: Right-click a physical screen to access the background image settings interface.
    - Upload Subtitle: Right-click a physical screen to access the subtitle settings interface.
6. Output Grouping: Allows switching between output screen wall groups, supporting up to 8 groups.
7. Input Preview: Features 12 input preview windows, where signal sources from the input list can be dragged to designated windows for previewing the input feed.

5.3 Operation of the UI windows.



Top: Sets the window to the forefront.

Bottom: Places the window at the lowest layer.

Close: Closes the window.

Window enlargement: Displays the window in full-screen on its occupied logical sub-screen.

Window reduction: Returns the maximized window to its original size.

Lock Position: Locks the window's position, preventing movement.

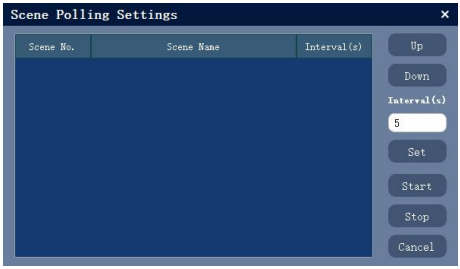
Full Screen: Enlarges the window to full-screen display.

MainStream: Displays the window's content using the main stream.

xsubstream: Displays the window's content using the sub-stream.

5.4 Scene Management

5.4.1 Scene Polling



Select the scenes to be cycled and set the polling time interval (minimum 5 seconds). Click "Start Polling" to begin scene polling.

Up/Down: Adjust the selected scene's order in the polling sequence.
Set: Confirm the polling time interval.
Start: Start scene polling.
Stop: Terminate scene polling.
Cancel: Close the interface.

5.4.2 Scene Saving

Scene Name: Enter the scene name, supporting up to eight Chinese characters.
Exceeding this limit may result in incomplete display on the main interface.

Scene No.: Supports saving up to 128 scenes.

Scene Rename: Right-click a saved scene on the main interface to modify its name.

5.4.3 Scene Call

Select the desired scene and click the "Recall" button to activate the chosen scene.
Alternatively, double-click the scene to directly recall it.

5.4.4 Delete Scene

Delete the selected scene.

5.4.5 Scene Clear

Clear all saved scenes.

5.5 Background Image Configuration

Right-click the virtual video wall to display the "Upload Background Image" button. Click to access the background image configuration interface.

Browse: Select an image to be the background, supporting JPG format.

Upload: Upload the selected image.

5.6 Subtitle Configuration

Right-click the virtual video wall to display the "Upload Subtitle" button. Click to access the subtitle configuration interface.

Font Settings: Configure font type, style, size, strikethrough, and underline.

Text Color: Set the color of the subtitle text.

Background Color: Set the background color, with support for transparency.

Display Position and Size: Adjust the subtitle's position on the video wall group and its display height.

Scroll Mode: Configure subtitles to scroll from left to right or right to left.

Scroll Timing: Set the time interval for subtitle scrolling.

Subtitle Toggle: Enable or disable subtitle display.

Upload Subtitle: After configuring the above parameters, upload the subtitles to the device for display based on the specified settings.

5.7 Input Configuration

5.7.1 Input Scanning

Scan Setting: Supports standard scanning and cross-subnet scanning.

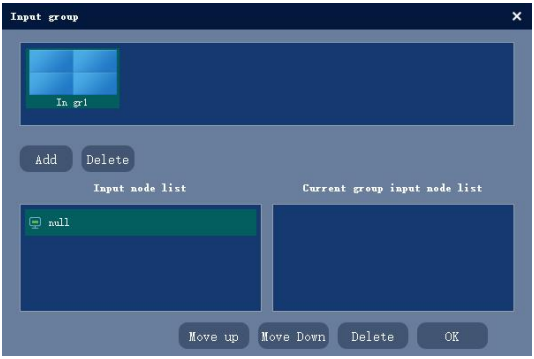
- Normal Scan: Scans devices within the same IP subnet on the LAN, allowing various configurations.
- Cross Subnet Scanning: Scans devices across different or same IP subnets on the LAN. Configuration is not possible until the control computer is set to the same subnet, followed by standard scanning for settings.

Scan: Initiates scanning for devices on the LAN.

Restore Default: Resets selected devices to their default configurations.

Restart: Restarts selected devices.

Input Group: Enables custom grouping of input devices for streamlined management.



- **Add:** Create and name a new input group.
- **Delete:** Remove the selected input group.
- **Input Node List:** Displays all input nodes; drag and drop to the current group node list for grouping management.
- **Move Up:** Moves the selected node's display order upward.
- **Move Down:** Moves the selected node's display order downward.
- **Delete:** Removes the selected node from the list.
- **OK:** Saves the configuration.

Select All: Selects all devices.

Invert Selection: Inverts the current device selection.

5.7.2 Input Network Settings

Name: Assigns or modifies the node name.

IP: Queries or updates the node's IP address.

Subnet Mask: Queries or updates the node's subnet mask.

Gateway: Queries or updates the node's gateway.

5.7.3 Input Video Settings

Video Information: Displays the current node's input resolution and frame rate.

Input Mode: Progressive (P, by default) or Interlaced (I) quality.

Main Stream Resolution: Set the resolution for encoder. It is set to be the same as the input resolution by default.

Main Stream Encoder: Support H.264 and H.265.

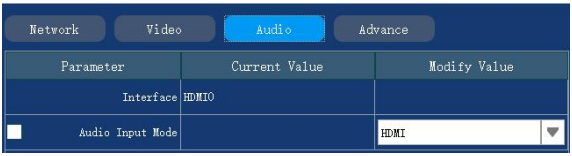
Main Stream Frame Rate: Matches the input by default, cannot be modified.

Sub Stream 1 Resolution: Preview resolution of echo and sub-stream, 720x576 by default, and it is modifiable.

Sub Stream 1 Encoder: Supports H.264 and H.265.

Sub Stream 1 Frame Rate: 30 fps by default, modifiable.

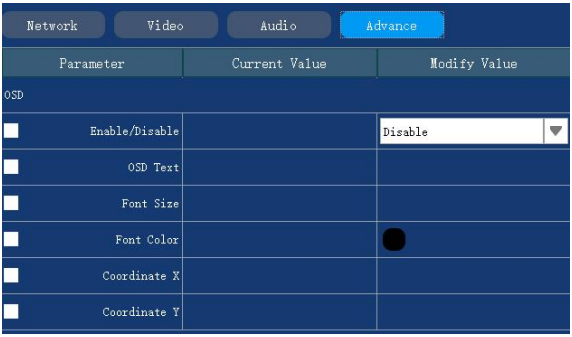
5.7.4 Audio Settings (Input)



Audio Input Mode: Supports HDMI and 3.5mm audio inputs. HDMI uses the embedded audio source, while 3.5mm enables audio embedding, overriding HDMI audio with input from the 3.5mm interface.

5.7.5 Advanced Settings (Input) - OSD

The OSD overlay function superimposes text information on the input source video.



Enable/Disable: Enables or disables the OSD overlay function.

OSD Text: Specifies the text content to be displayed.

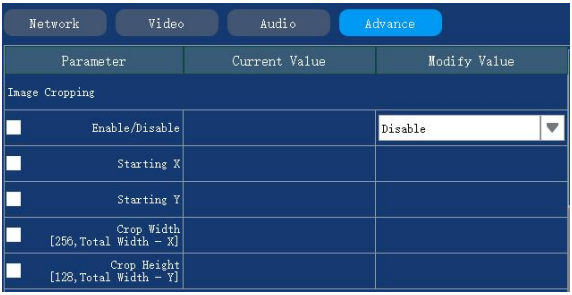
Font Size: Adjusts the font size of the OSD text.

Font Color: Sets the color of the OSD text.

Coordinate X/Y: Defines the display position of the OSD on the input source.

5.7.6 Advanced Settings (Input) - Image Cropping

The image cropping function extracts a portion of the input source video for display.



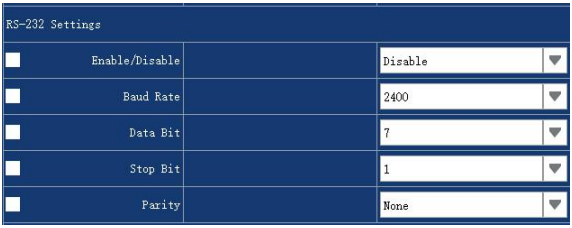
Enable/Disable: Enables or disables the cropping function.

Starting X/Y: Specifies the starting coordinates for cropping.

Crop Width/Height: Defines the size of the cropped area from the starting X, Y coordinates.

5.7.7 Advanced Settings (Input) - RS-232 Settings

Configures RS232 serial port output settings, including enable/disable, baud rate, data bits, stop bits, and parity.

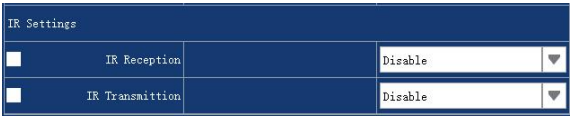


5.7.8 Advanced Settings (Input) - Input I/O Settings

I/O and IR (infrared) functions are multiplexed; enabling I/O disables IR.

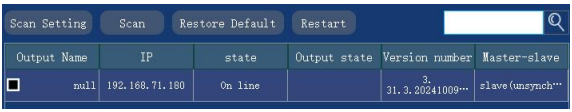
5.7.9 Advanced Settings (Input) - IR Settings

I/O and IR (infrared) functions are multiplexed; enabling IR will disables I/O.



5.8 Output Configuration

5.8.1 Output Scanning



Scan Setting: Supports standard scanning and cross-subnet scanning.

- **Normal Scan:** Scans devices within the same IP subnet on the LAN, enabling various configurations.
- **Cross Subnet Scanning:** Scans devices across different or same IP subnets on the LAN. Configuration requires setting the control computer to the same subnet, followed by standard scanning.

Scan: Start scanning devices in the LAN.

Restore Default: Resets selected devices to default configurations.

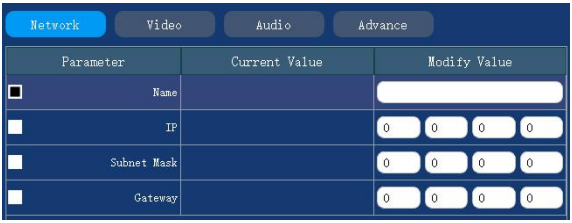
Restart: Restarts selected devices.

State: Displays if the device is online.

Output State: Displays the current node's output resolution.

Master-Slave: Indicates master/slave status. Only one master node is allowed in a LAN. All other devices are slaves. Full master/slave synchronization ensures seamless video wall display, preventing image misalignment.

5.8.2 Output Network Settings



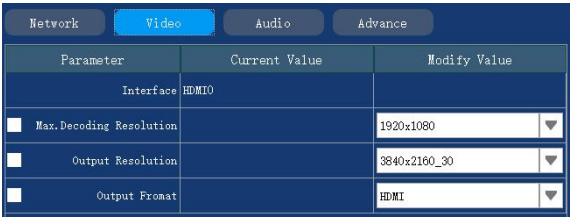
Name: Assigns or modifies the node name.

IP: Queries or updates the node's IP address.

Subnet Mask: Queries or updates the node's subnet mask.

Gateway: Queries or updates the node's gateway.

5.8.3 Output Video Settings

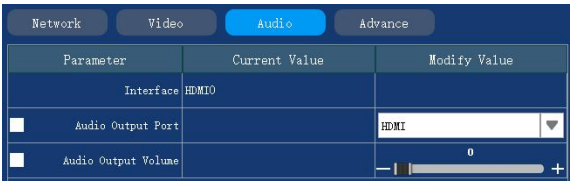


Maximum Decoding Resolution: Sets the maximum supported decoding resolution for the output node.

Output Resolution: Configures the resolution of the HDMI output port.

Output Format: Supports HDMI and DVI signal formats.

5.8.4 Output Audio Settings

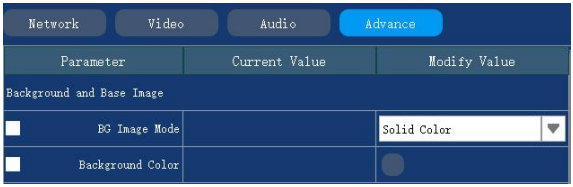


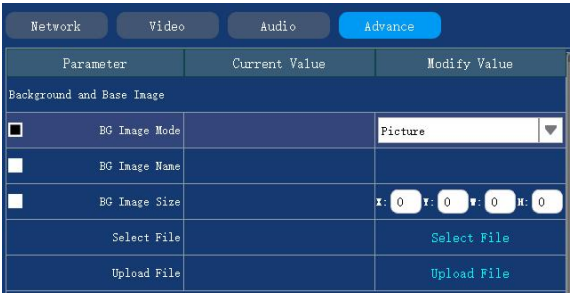
Audio Output Mode: Configures audio to be embedded in the HDMI signal for display output or routed through the 3-pin interface to external devices like speakers.

Audio Output Volume: Adjusts the output volume level.

5.8.5 Advanced Settings (Output) - Background and Base Image

Set the background image displayed by a single output node when no windows are active.





BG Image Mode: Supports solid color or image modes.

- **Solid Color Mode:** Selects a color as the output background.
- **Image Mode:** Allows selection of an image from the computer as the output background.

Background Color: Set a background color.

BG Image Name: Not configurable.

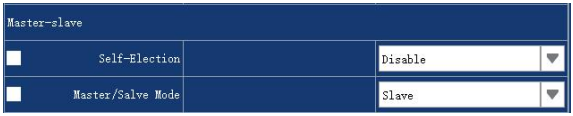
Base Image Size: Set according to the video wall dimensions.

Select File: Select a file to be the background.

Upload File: Upload the selected background file.

5.8.6 Output Advanced Features - Master/Slave

The master/slave function aligns all slave nodes to the master node, ensuring synchronized video wall display without tearing. Only one master node is allowed; all others are slaves.



Self-Election: Automatically designates a node as the master when none exists.

Master/Slave Mode: Manually sets a node's master/slave status. In LED splicing mode, designate a node with 1080p@60Hz output as the master.

5.8.7 Output Advanced RS-232, I/O, IR Settings

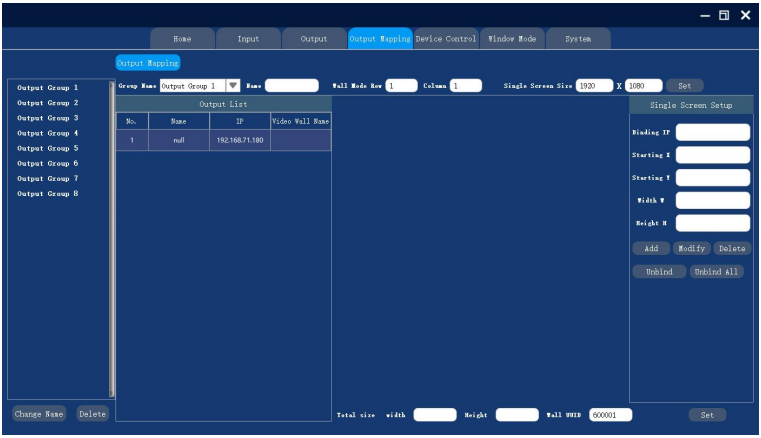
RS232 Settings: Refer to 4.7.7 Input Advanced Features - RS232 Settings.

I/O Settings: Refer to 4.7.8 Input I/O Settings.

IR Settings: Refer to 4.7.9 Input Infrared Settings.

5.9 Output Mapping

Output mapping configures video wall settings, including screen name, row and column of video wall, and pixel dimensions. Each group supports one screen, with a maximum of 8 groups.



Group Name: Selects the group to configure.

Name: User-defined, up to 7 characters.

Wall Mode Row & Column: Up to 16x16.

Single Screen Size: Width range: 256–3840 (even numbers); height range: 56–2160 (even numbers). Matches output resolution.

Single Screen Setup: Adjusts screen position and dimensions on the video wall. Supports adding, modifying, deleting, or unbinding a node.

Unbind All: Releases all node bindings for the output group.

Total Size (Width & Height): For reference.

Wall UUID: Used for API commands.

Set button**:** Apply configuration, update the output group on the homepage.

5.10 Peripheral Control

5.10.1 RS-232 Command Transmission Settings

Nodes support command pass-through between network and RS-232 ports.

Node IP Address: Double-click to input the IP address of the input/output nodes.

Data Format: Select a format for the RS-232 command, ASCII or HEX.

RS-232 Commands: Double-click to type in the RS-232 command.

Notes: Make a note here to describe the function of the command.

Send: Click the button to send out the RS-232 command to the corresponding node.

Import/Export: Import/export the RS-232 commands, support CSV file format.

5.10.2 I/O Control

Controls node I/O port activation and deactivation.

Node IP Address: Double click to input the IP address of the input/output nodes.

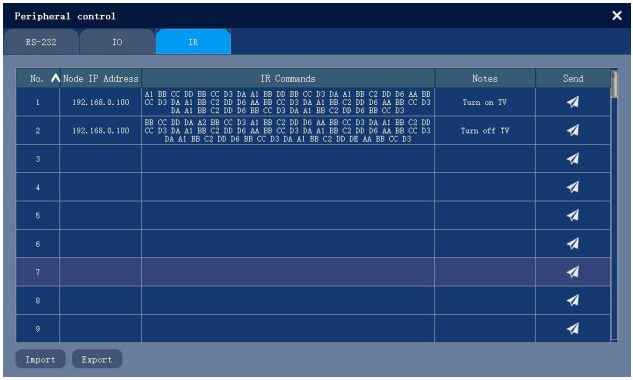
Notes: Make a note here to describe the function of the command.

Switching: Outputs 5V signal when clicked the 'Open' button. And will be 0V when clicked the 'Close' button.

Import/Export: Import/export the I/O commands, support CSV file format.

5.10.3 IR Control

Set IR commands. Once it is sent, the IR port with an infrared emitter will transmits the IR command to IR devices.



Node IP Address: Double click to input the IP address of the input/output nodes.

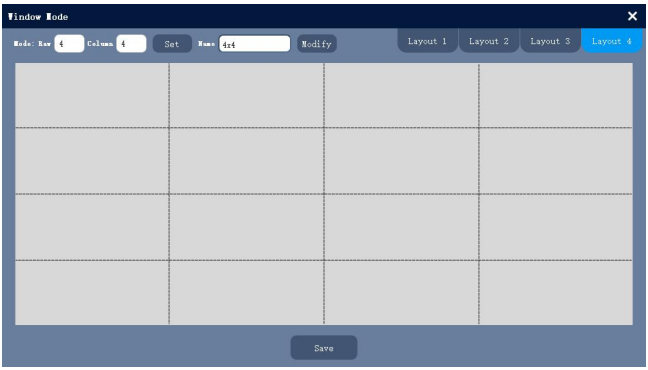
Notes: Make a note here to describe the function of the command.

Send: Click the button to send out the IR command to the corresponding node.

Import/Export: Import/export the IR commands, support CSV file format.

5.11 Window Mode

Window mode divides the video wall into several rows and columns, providing reference lines for quick window placement.



Row/Column: Configures the number of rows and columns for the layout.

Set button: To make the Row and Column parameters take effect.

Name: Give the layout a nickname. This nickname will be displayed on the homepage.

Modify button: To change the nickname of the layout.

5.12 Client Settings

Import Configuration: Import the system configuration from a zip file.

Export: Export the system configuration to a zip file.

Language Setting: Set the display language for this software. Support Simplified Chinese and English.