adertech

VMP2-U4H-88
VMP2-U4H-1616
VMP2-U4H-3636

Modular Seamless Switching Matrix



User Manual

VER 3.0

Surge protection device recommended

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

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1. Introduction

This Modular Seamless Switching Matrix is a professional all-in-one machine that supports various audio and video signal switching and distribution, integrated video wall function and control system.
It supports up to 8~36 signal inputs and 8~36 signal outputs. Audio and video matrix adopts pure hardware high-speed matrix switching chip, which has high integration, stable system, no compression/loss/delay of signal.
Advanced full digital signal processing technology can ensure signal distortion-free processing, and the best image quality to the display devices.

This series of Modular Seamless Switching Matrix, supported by the high bandwidth backplane, provides up to 4Kx2K@60Hz RGB 4:4:4 24bit input/output and arbitrary routing of various signals. It supports HDMI 2.0b, 18Gbps video bandwidth, color depth up to 12 bits. The matrix adopts pluggable card structure, which is flexible and convenient for installation. It provides HDMI, DVI-U (DVI/VGA/YPbPr/CVBS), VGA, 3G/HD/SDI, HDBaseT and optical fiber input/output cards. One card with four channels, both 2K series and 4K series cards are supported. Input cards support audio embedding, and output cards support audio de-embedding, providing maximum support for the audio system in the whole system. It offers multiple control methods such as front panel buttons (with LCD screen), IR remote, RS-232 signals, LAN, PC tool or Web GUI control.

The built-in video wall function can realize any splicing mode within the range of 8/16/36 total output channels, providing a turnkey solution for the distribution and processing of video signals with various formats in various industries.
The built-in control system integrates multiple control interfaces and intelligent control GUI modules that can be directly recalled by users.

This Matrix is applicable to video conference, energy and power, judicial prison, smart city, government service, water conservancy and hydrology, meteorology and earthquake, enterprise management, metallurgy and steel, banking and finance, public security and transportation, exhibition, production scheduling, radio and television, education and scientific research and other fields.

2. Features

☆ HDCP 2.2 compliant
☆ HDMI 18Gbps video bandwidth, up to 4K60 RGB 4:4:4 24bit as specified in HDMI 2.0b
☆ Pluggable card structure (One card with four channels)
☆ Support 8/16/36 channel video signal inputs and outputs
☆ Multiple input/output cards with HDMI, DVI-U (DVI/VGA/YPbPr/CVBS), VGA, 3G/HD/SD-SDI, HDBaseT and optical fiber
☆ Video resolution up to 1920×1200p60hz (2K series card), 3840x2160p60hz (4K series card)
☆ Seamless switching without image tear, black screen or flicker in the switching process
☆ Based on Gen-Lock video wall splicing technology, the latency between any output channel is less than 0.1ms
☆ Any splicing modes in the allowed range of 8x8~36x36, especially suitable for LCD/LED video wall
☆ Multiple output resolutions to meet the needs of different types of display devices
☆ Adopt pure hardware high-speed matrix switching chip with high integration
☆ Built-in signal equalization, signal recovery and signal redriver
☆ Built-in video quality enhancement, output video quality can be adjusted
☆ Built-in HDCP processing logic to avoid HDCP compatibility issues
☆ Input cards support audio embedding, output cards support audio de-embedding
☆ Analog audio embedding supports LPCM 2.0CH, analog audio and video signals are input synchronously
☆ Analog audio de-embedding supports LPCM 2.0CH, analog audio and video signals are output synchronously
☆ Up to 64 kinds of scene presets can be recalled
☆ Advanced EDID management (Internal EDID or copy from any output devices)
☆ Control via front panel buttons, IR, RS-232, TCP/IP, Web GUI or PC program
☆ Built-in intelligent control system with user-friendly GUI
☆ Silent fan design, low noise, stable performance
☆ AC power port with built-in power module
☆ Standard rack size design, convenient for installation

3. Package Contents

① 1 x Modular Seamless Switching Matrix
② 1 x IR Remote
③ 1 x RS-232 Serial Cable (DP9 female connector to 3pin H2.0 Phoenix Connector, 1.5 meters)
④ 1 × USB to RS-232 Serial Cable (USB A to RS-232 serial DB9 male connector)
⑤ 4 × Rubber Foot
⑥ 4 × Machine Screw (M3*4)
⑦ 1 x 100~240V AC 50/60Hz Power Cord
(Note: The dual power card is equipped with two AC power cords.)
⑧ 1 x User Manual

4. Specifications

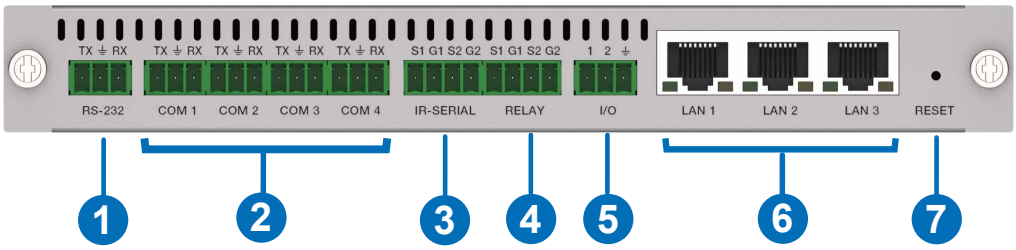
4.1 Specifications-Matrix

Technical	
HDMI Compliance	HDMI 1.4 (2K series card), HDMI 2.0b (4K series card)
HDCP Compliance	HDCP 1.4 (2K series card), HDCP2.2 (4K series card)
Video Bandwidth	600MHz/18Gbps
Video Resolution	1920x1200p60Hz (2K series card) 3840x2160p60Hz 4:4:4 (4K series card)
Color Depth	**2K series card:** 8/10/12-bit (1080p60Hz) **4K series card:** 8/10/12-bit (4K30Hz); 8-bit (4K60Hz 4:4:4)
Color Space	RGB, YCbCr 4:4:4 / 4:2:2 / 4:2:0
Audio Formats	**HDMI audio:** LPCM 2.0 / 5.1 / 7.1CH **Analog audio:** LPCM 2.0CH
ESD Protection	IEC 61000-4-2: ± 8KV (Air-gap discharge) & ± 4KV (Contact discharge)
Connections	
Input	2 x Input card (8x8 Matrix); 4 x Input card (16x16 Matrix); 9 x Input card (36x36 Matrix)
Output	2 x Output card (8x8 Matrix); 4 x Output card (16x16 Matrix); 9 x Output card (36x36 Matrix)
Control	1 x Main control card

Mechanical	
Housing	Metal Enclosure
Color	Black
Dimensions	8x8 Matrix: 483mm (W) × 377mm (D) × 89mm (H) 16x16 Matrix: 483mm (W) × 379mm (D) × 133mm (H) 36x36 Matrix: 483mm (W) × 378mm (D) × 266mm (H)
Weight	8x8 Matrix: 5.95kg (No input/output cards are included) 16x16 Matrix: 8.62kg (No input/output cards are included) 36x36 Matrix: 15.4kg (No input/output cards are included)
Power Supply	AC 100-240V, 50/60Hz
Power Consumption	8x8 Matrix: 40W~190W (Match with different input/output cards) 16x16 Matrix: 80W~320W (Match with different input/output cards) 36x36 Matrix: 200W~840W (Match with different input/output cards)
Operating Temperature	0°C ~ 40°C / 32°F ~ 104°F
Storage Temperature	-20°C ~ 60°C / -4°F ~ 140°F
Relative Humidity	20~90% RH (no condensation)

4.2 Specifications-Main Control Cards

4.2.1 Main Control Card (optional 1)

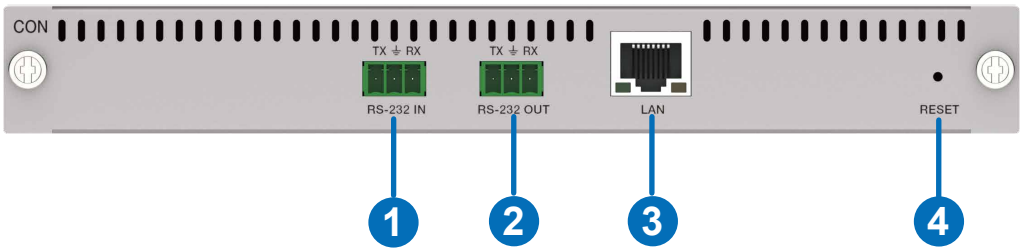


No.	Name	Function Description
1	RS-232 port	Connect to the PC or the third party control processor to transmit RS-232 command and control the Matrix.
2	COM1-4	Four sets of programmable two-way multi-mode serial port, which is a 3-pin phoenix connector (male), compliant with RS-232 communication protocol, and capable of configuring 8 baud rates in the range of 2400-115200bps. The pin-outs of the RS-232 ports are PIN1 for TXD, PIN2 for GND, and PIN3 for RXD.

No.	Name	Function Description
3	IR-SERIAL	2 sets of multi-mode 2-PIN phoenix connectors for IR transmitting or one-way serial signal outputting. The ports can connect to devices with signal level 0-5V in RS-232 mode. The left pin is for IR/serial data, the right for signal GND. The IR-Serial working mode is programmable: In **IR transmitting** mode, the outputting IR wave length ranges within 20K-60KHZ. In **one-way serial data outputting** mode, the left pin is for TXD, the right for GND, and both are configurable in the program.
4	RELAY	2 sets of relay output ports (2-PIN phoenix connectors); each relay is isolated and normally open, and can switch up to 2A 30VDC / 1A 125VAC peak. The connector does not support voltage output.
5	I/O	2-CH GPIO dry contact input interface, with a voltage range of 0~ 24V, for collecting digital level signals, capable of low level signal sensing.
6	LAN1-3	Standard 10M/100M Ethernet RJ45 port, allowing device access, connected to the PC or the third party control processor to control the Matrix. The control host boots up with DHCP enabled by default. After powering on, when the control host connects to a network where there is no router present to assign IP addresses, the control host will take the pre-set IP address: 192.168.0.101. If there is a router present on the same network, the router will assign an IP address to the control host in three minutes and the pre-set IP address will be invalid. **Note:** When the control host is DHCP enabled after power on, the router (if connected to the same network) will assign an IP address to the control host. If network is disconnected at this time, the control host won't be able to pre-set an IP address and its IP address would be 0.0.0.0. If a pre-set IP address is needed, you need to power off the control host and then power it on again. If it is in static IP mode after power on, the control host won't preset an IP address either. If there is no router present, you can connect your PC to the LAN port of the host and modify the PC's IP address in the network segment of 192.168.0.X, then the PC will preset an IP address to the control host in three minutes for data communication.

No.	Name	Function Description
7	RESET button	**#1** Short press the RESET button for less than 1s, there is no reaction. **#2** Long press the RESET button for more than 1s but less than 5s, the control device will reboot. It won't upload the user projects after rebooting. **#3** Long press the RESET button for more than 5s, the control host will reset the user configuration information, the IP will be restored to DHCP state, the login password of the management page will be initialized to "admin", the time will be initialized to automatic acquisition mode, but user projects won't be deleted by factory initialization.

4.2.2 Main Control Card (optional 2)

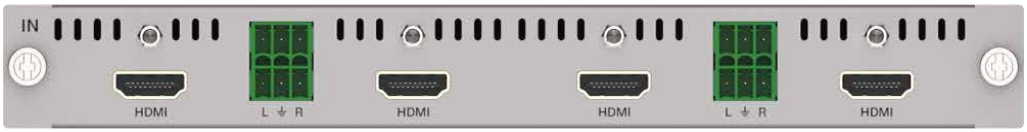


No.	Name	Function Description
1	RS-232 IN port	RS-232 serial signal input port, connected to the PC or the third party control processor to transmit RS-232 command and control the Matrix.
2	RS-232 OUT port	RS-232 serial signal output port. (1) Connect to external device and control it through RS-232 command. (2) Connect to other Matrix for cascading.
3	LAN	Standard 10M/100M Ethernet RJ45 port, allowing device access, connected to the PC or the third party control processor to control the Matrix.
4	RESET button	After the device boots up, long press the RESET button for more than 10s, then release it, the system will reset the MCU configuration and the MCU will restore factory settings.

4.3 Specifications-Input & Output Cards

4.3.1 2K Input Cards

(1) 2K HDMI Input Card



Signal Channel	4-channel HDMI input signals
Resolution	640x480p60Hz, 800x600p60Hz, 1024x768p60Hz, 1280x768p60Hz, 1280x800p60Hz, 1280x1024p60Hz, 1360x768p60Hz, 1400x1050p60Hz, 1600x1200p60Hz, 1920x1080p60Hz, 1920x1200p60Hz; 720x480i59.94Hz (480i59), 720x480p59.94Hz (480p59), 720x576i50Hz (576i50), 720x576p50Hz (576p50), 1280x720p50Hz (720p50), 1280x720p59.94Hz (720p59), 1280x720p60Hz (720p60), 1920x1080i50Hz (1080i50), 1920x1080i59.94Hz (1080i59), 1920x1080i60Hz(1080i60), 1920x1080p23.98Hz (1080p23), 1920x1080p24Hz (1080p24), 1920x1080p25Hz (1080p25), 1920x1080p29.97Hz (1080p29), 1920x1080p30Hz (1080p30), 1920x1080p50Hz (1080p50), 1920x1080p59.94Hz (1080p59), 1920x1080p60Hz (1080p60), 1920x1200p60Hz (1200p60)
HDMI Compliance	HDMI 1.4
HDCP Compliance	HDCP 1.4
Video Bandwidth	6.75Gbps
Color Depth	8/10/12-bit (1080p60Hz)
Audio	Support external audio source input (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
HDMI Port	HDMI Type A
Max Transmission Distance	HDMI 1080p60Hz=15 meters
Status Indicator	When there is no signal input, the display device will prompt “NO SIGNAL”.

(2) 2K HDBT 70M Input Card



Signal Channel	4-channel HDBT input signals
Resolution	640x480p60Hz, 800x600p60Hz, 1024x768p60Hz, 1280x768p60Hz, 1280x800p60Hz, 1280x1024p60Hz, 1360x768p60Hz, 1400x1050p60Hz, 1600x1200p60Hz, 1920x1080p60Hz, 1920x1200p60Hz；720x480i59.94Hz (480i59), 720x480p59.94Hz (480p59), 720x576i50Hz (576i50), 720x576p50Hz (576p50), 1280x720p50Hz (720p50), 1280x720p59.94Hz (720p59), 1280x720p60Hz (720p60), 1920x1080i50Hz (1080i50), 1920x1080i59.94Hz (1080i59), 1920x1080i60Hz(1080i60), 1920x1080p23.98Hz (1080p23), 1920x1080p24Hz (1080p24), 1920x1080p25Hz (1080p25), 1920x1080p29.97Hz (1080p29), 1920x1080p30Hz (1080p30), 1920x1080p50Hz (1080p50), 1920x1080p59.94Hz (1080p59), 1920x1080p60Hz (1080p60), 1920x1200p60Hz (1200p60)
HDCP Compliance	HDCP 1.4
Video Bandwidth	6.75Gbps
Color Depth	8/10/12-bit (1080p60Hz)
Audio	Support external audio source input (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
HDBT Port	RJ45
Max Transmission Distance	HDBT 1080p60Hz=70 meters
Status Indicator	When there is no signal input, the display device will prompt “NO SIGNAL”.

(3) 2K HDBT 100M Input Card



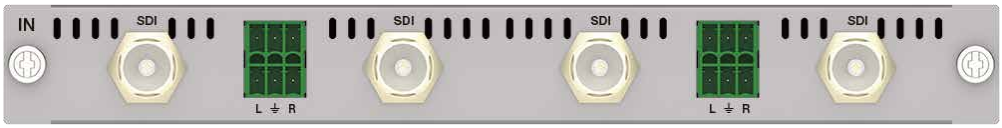
Signal Channel	4-channel HDBT input signals
Resolution	640x480p60Hz, 800x600p60Hz, 1024x768p60Hz, 1280x768p60Hz, 1280x800p60Hz, 1280x1024p60Hz, 1360x768p60Hz, 1400x1050p60Hz, 1600x1200p60Hz, 1920x1080p60Hz, 1920x1200p60Hz; 720x480i59.94Hz (480i59), 720x480p59.94Hz (480p59), 720x576i50Hz (576i50), 720x576p50Hz (576p50), 1280x720p50Hz (720p50), 1280x720p59.94Hz (720p59), 1280x720p60Hz (720p60), 1920x1080i50Hz (1080i50), 1920x1080i59.94Hz (1080i59), 1920x1080i60Hz(1080i60), 1920x1080p23.98Hz (1080p23), 1920x1080p24Hz (1080p24), 1920x1080p25Hz (1080p25), 1920x1080p29.97Hz (1080p29), 1920x1080p30Hz (1080p30), 1920x1080p50Hz (1080p50), 1920x1080p59.94Hz (1080p59), 1920x1080p60Hz (1080p60), 1920x1200p60Hz (1200p60)
HDCP Compliance	HDCP 1.4
Video Bandwidth	6.75Gbps
Color Depth	8/10/12-bit (1080p60Hz)
Audio	Support external audio source input (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
HDBT Port	RJ45
Max Transmission Distance	HDBT 1080p60Hz=100 meters
Status Indicator	When there is no signal input, the display device will prompt “NO SIGNAL”.

(4) 2K HDBT 150M Input Card



Signal Channel	4-channel HDBT input signals
Resolution	640x480p60Hz, 800x600p60Hz, 1024x768p60Hz, 1280x768p60Hz, 1280x800p60Hz, 1280x1024p60Hz, 1360x768p60Hz, 1400x1050p60Hz, 1600x1200p60Hz, 1920x1080p60Hz, 1920x1200p60Hz; 720x480i59.94Hz (480i59), 720x480p59.94Hz (480p59), 720x576i50Hz (576i50), 720x576p50Hz (576p50), 1280x720p50Hz (720p50), 1280x720p59.94Hz (720p59), 1280x720p60Hz (720p60), 1920x1080i50Hz (1080i50), 1920x1080i59.94Hz (1080i59), 1920x1080i60Hz(1080i60), 1920x1080p23.98Hz (1080p23), 1920x1080p24Hz (1080p24), 1920x1080p25Hz (1080p25), 1920x1080p29.97Hz (1080p29), 1920x1080p30Hz (1080p30), 1920x1080p50Hz (1080p50), 1920x1080p59.94Hz (1080p59), 1920x1080p60Hz (1080p60), 1920x1200p60Hz (1200p60)
HDCP Compliance	HDCP 1.4
Video Bandwidth	6.75Gbps
Color Depth	8/10/12-bit (1080p60Hz)
Audio	Support external audio source input (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
HDBT Port	RJ45
Max Transmission Distance	HDBT 1080p60Hz=150 meters
Status Indicator	When there is no signal input, the display device will prompt “NO SIGNAL”.

(5) 2K SDI Input Card



Signal Channel	4-channel SDI input signals
Signal Format	HD-SDI (SMPTE 292M) / 3G-SDI (SMPTE 425M, SMPTE 424M, SMPTE 292M, SMPTE 259M-C)
Resolution	720x480i59.94Hz (480i59), 720x576i50Hz (576i50), 1280x720p50Hz (720p50), 1280x720p59.94Hz (720p59), 1280x720p60Hz (720p60), 1920x1080i50Hz (1080i50), 1920x1080i59.94Hz (1080i59), 1920x1080i60Hz(1080i60), 1920x1080p23.98Hz (1080p23), 1920x1080p24Hz (1080p24), 1920x1080p25Hz (1080p25), 1920x1080p29.97Hz (1080p29), 1920x1080p30Hz (1080p30), 1920x1080p50Hz (1080p50), 1920x1080p59.94Hz (1080p59), 1920x1080p60Hz (1080p60)
Color Depth	8-bit (1080p60Hz)
Impedance	75Ω
Video Bandwidth	2.97Gbps
Audio	Support external audio source input (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
SDI Port	BNC/female
Max Transmission Distance	SDI 1080p60Hz=100 meters

(6) 2K VGA Input Card



Signal Channel	4-channel VGA input signals
Signal Format	RGB (Analog)
Resolution	640x480p60Hz, 800x600p60Hz, 1024x768p60Hz, 1280x720p 60Hz, 1280x800p60Hz, 1280x1024p60Hz,1360x768p60Hz, 1440x900p60Hz, 1440x1050p60Hz, 1600x1200p60Hz, 1920x1080p60Hz, 1920x1200p60Hz
Color Depth	8-bit (1080p60Hz)
Impedance	75Ω
Video Bandwidth	4.95Gbps

Horizontal Scan Frequency	15KHz ~ 90KHz
Synchronization Type	RGBHV
Nominal level	0.7Vp-p
Audio	Support external audio source input (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
VGA Port	DB15, 15-pin female
Max Transmission Distance	VGA 1080p60Hz=10 meters
Status Indicator	When there is no signal input, the display device will prompt “NO SIGNAL”.

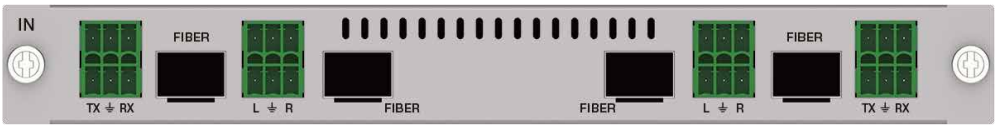
(7) 2K DVI Input Card



Signal Channel	4-channel DVI input signals
Signal Format	DVI-I full digital TMDS signal, which is compliant with DVI1.0
Resolution	**HDMI/DVI:** 640x480p60Hz, 800x600p60Hz, 1024x768p60Hz, 1280x768p60Hz, 1280x800p60Hz, 1280x1024p60Hz, 1360x768p60Hz, 1400x1050p60Hz, 1600x1200p60Hz, 1920x1080p60Hz, 1920x1200p60Hz; 720x480i59.94Hz (480i59), 720x480p59.94Hz (480p59), 720x576i50Hz (576i50), 720x576p50Hz (576p50), 1280x720p50Hz (720p50), 1280x720p59.94Hz (720p59), 1280x720p60Hz (720p60), 1920x1080i50Hz (1080i50), 1920x1080i59.94Hz (1080i59), 1920x1080i60Hz(1080i60), 1920x1080p23.98Hz (1080p23), 1920x1080p24Hz (1080p24), 1920x1080p25Hz (1080p25), 1920x1080p29.97Hz (1080p29), 1920x1080p30Hz (1080p30), 1920x1080p50Hz (1080p50), 1920x1080p59.94Hz (1080p59), 1920x1080p60Hz (1080p60), 1920x1200p60Hz (1200p60) **VGA:** 640x480p60Hz, 800x600p60Hz, 1024x768p60Hz, 1280x720p60Hz, 1280x800p60Hz, 1280x1024p60Hz, 1360x768p60Hz, 1440x900p60Hz, 1440x1050p60Hz, 1600x1200p60Hz, 1920x1080p60Hz, 1920x1200p60Hz **YPbPr:** 480i60, 576i50, 720p50, 720p60, 1080i50, 1080i60, 1080p50, 1080p60 **CVBS:** 720x480i60_PAL, 720x576i50_NTSC
Color Depth	8-bit (1080p60Hz)

Video Bandwidth	4.95Gbps
Audio	Support external audio source input (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
DVI Port	DVI-I, 28-pin female
Max Transmission Distance	DVI 1080p60Hz=15 meters
Status Indicator	When there is no signal input, the display device will prompt “NO SIGNAL”.

(8) 2K FIBER Input Card



Signal Channel	4-channel FIBER input signals
Resolution	640x480p60Hz, 800x600p60Hz, 1024x768p60Hz, 1280x768p60Hz, 1280x800p60Hz, 1280x1024p60Hz, 1360x768p60Hz, 1400x1050p60Hz, 1600x1200p60Hz, 1920x1080p60Hz, 1920x1200p60Hz; 720x480i59.94Hz (480i59), 720x480p59.94Hz (480p59), 720x576i50Hz (576i50), 720x576p50Hz (576p50), 1280x720p50Hz (720p50), 1280x720p59.94Hz (720p59), 1280x720p60Hz (720p60), 1920x1080i50Hz (1080i50), 1920x1080i59.94Hz (1080i59), 1920x1080i60Hz(1080i60), 1920x1080p23.98Hz (1080p23), 1920x1080p24Hz (1080p24), 1920x1080p25Hz (1080p25), 1920x1080p29.97Hz (1080p29), 1920x1080p30Hz (1080p30), 1920x1080p50Hz (1080p50), 1920x1080p59.94Hz (1080p59), 1920x1080p60Hz (1080p60), 1920x1200p60Hz (1200p60)
Color Depth	8/10/12-bit (1080p60Hz)
Video Bandwidth	6.75Gbps
Audio	Support external audio source input (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
SFP Port	SFP_HOST, 20-pin female
Max Transmission Distance	Single mode fiber: 10KM, multi-mode fiber: 300M
Status Indicator	When there is no signal input, the display device will prompt “NO SIGNAL”.

4.3.2 2K Output Cards

(1) 2K HDMI Output Card / 2K HDMI-V Output Card



Signal Channel	4-channel HDMI output signals
Resolution	1024x768p60, 1280x720p50, 1280x720p60, 1280x800p60, 1280x1024p60, 1360x768p60, 1680x1050p60, 1600x1200p60, 1920x1080p24, 1920x1080p25, 1920x1080p30, 1920x1080p50, 1920x1080p60, 1920x1200p60 (The user can select the resolution through the control software.)
HDMI Compliance	HDMI 1.4
HDCP Compliance	HDCP 1.4
Video Bandwidth	4.95Gbps
Color Depth	8-bit (1080p60Hz)
Audio	Support stereo analog audio output (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
HDMI Port	HDMI Type A
Max Transmission Distance	HDMI 1080p60Hz=15 meters

(2) 2K HDBT 70M Output Card



Signal Channel	4-channel HDBT output signals
Resolution	1024x768p60, 1280x720p50, 1280x720p60, 1280x800p60, 1280x1024p60, 1360x768p60, 1680x1050p60, 1600x1200p60, 1920x1080p24, 1920x1080p25, 1920x1080p30, 1920x1080p50, 1920x1080p60, 1920x1200p60 (The user can select the resolution through the control software.)
HDCP Compliance	HDCP 1.4
Video Bandwidth	4.95Gbps
Color Depth	8-bit (1080p60Hz)
Audio	Support stereo analog audio output (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
HDBT Port	RJ45
Max Transmission Distance	HDBT 1080p60Hz=70 meters

(3) 2K HDBT 100M Output Card



Signal Channel	4-channel HDBT output signals
Resolution	1024x768p60, 1280x720p50, 1280x720p60, 1280x800p60, 1280x1024p60, 1360x768p60, 1680x1050p60, 1600x1200p60, 1920x1080p24, 1920x1080p25, 1920x1080p30, 1920x1080p50, 1920x1080p60, 1920x1200p60 (The user can select the resolution through the control software.)
HDCP Compliance	HDCP 1.4
Video Bandwidth	4.95Gbps
Color Depth	8-bit (1080p60Hz)
Audio	Support stereo analog audio output (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
HDBT Port	RJ45
Max Transmission Distance	HDBT 1080p60Hz=100 meters

(4) 2K HDBT 150M Output Card



Signal Channel	4-channel HDBT output signals
Resolution	1024x768p60, 1280x720p50, 1280x720p60, 1280x800p60, 1280x1024p60, 1360x768p60, 1680x1050p60, 1600x1200p60, 1920x1080p24, 1920x1080p25, 1920x1080p30, 1920x1080p50, 1920x1080p60, 1920x1200p60 (The user can select the resolution through the control software.)
HDCP Compliance	HDCP 1.4
Video Bandwidth	4.95Gbps
Color Depth	8-bit (1080p60Hz)
Audio	Support stereo analog audio output (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
HDBT Port	RJ45
Max Transmission Distance	HDBT 1080p60Hz=150 meters

(5) 2K SDI Output Card



Signal Channel	4-channel SDI output signals
Signal Format	HD-SDI (SMPTE 292M) / 3G-SDI (SMPTE 424M/425M-AB)
Resolution	720x480i60, 720x576i50, 1280x720p25, 1280x720p30, 1280x720p50, 1280x720p60, 1920x1080i50, 1920x1080i60, 1920x1080p24, 1920x1080p25, 1920x1080p30, 1920x1080p50, 1920x1080p60
Color Depth	8-bit (1080p60Hz)
Impedance	75Ω
Video Bandwidth	2.97Gbps
Audio	Support stereo analog audio output (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
SDI Port	BNC/female
Max Transmission Distance	SDI 1080p60Hz=100 meters

(6) 2K VGA Output Card



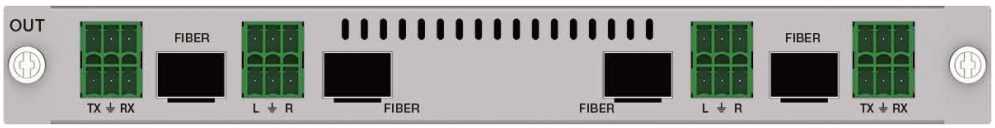
Signal Channel	4-channel VGA output signals
Signal Format	RGB (Analog)
Resolution	1024x768p60, 1280x720p50, 1280x720p60, 1280x800p60, 1280x1024p60, 1360x768p60, 1680x1050p60, 1600x1200p60, 1920x1080p24, 1920x1080p25, 1920x1080p30, 1920x1080p50, 1920x1080p60, 1920x1200p60 (The user can select the resolution through the control software.)
Color Depth	8-bit (1080p60Hz)
Impedance	75Ω
Video Bandwidth	4.95Gbps
Horizontal Scan Frequency	15KHz ~ 90KHz
Synchronization Type	RGBHV
Nominal level	0.7Vp-p
Audio	Support stereo analog audio output (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
VGA Port	DB15, 15-pin female
Max Transmission Distance	VGA 1080p60Hz=10 meters

(7) 2K DVI Output Card



Signal Channel	4-channel DVI output signals
Signal Format	DVI-I full digital TMDS signal, which is compliant with DVI1.0
Resolution	**HDMI/DVI:** 1280x720p50, 1280x720p60, 1280x800p60, 1280x1024p60, 1360x768p60, 1680x1050p60, 1600x1200p60, 1920x1080p24, 1920x1080p25, 1920x1080p30, 1920x1080p50, 1920x1080p60, 1920x1200p60 **VGA:** 1280x720p50, 1280x720p60, 1280x800p60, 1280x1024p60, 1360x768p60, 1680x1050p60, 1600x1200p60, 1920x1080p24, 1920x1080p25, 1920x1080p30, 1920x1080p50, 1920x1080p60, 1920x1200p60 **YPbPr:** 1920x1080p60, 1280x720p60 **CVBS:** 720x480i60_PAL, 720x576i50_NTSC
Color Depth	8-bit (1080p60Hz)
Video Bandwidth	4.95Gbps
Audio	Support stereo analog audio output (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
DVI Port	DVI-I, 28-pin female
Max Transmission Distance	DVI 1080p60Hz=15 meters

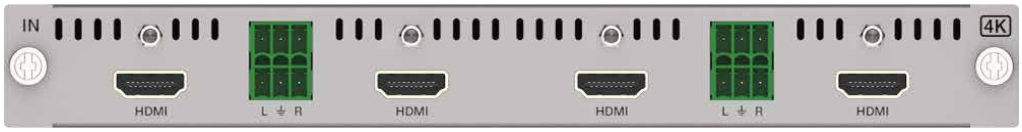
(8) 2K FIBER Output Card



Signal Channel	4-channel FIBER output signals
Resolution	1024x768p60, 1280x720p50, 1280x720p60, 1280x800p60, 1280x1024p60, 1360x768p60, 1680x1050p60, 1600x1200p60, 1920x1080p24, 1920x1080p25, 1920x1080p30, 1920x1080p50, 1920x1080p60, 1920x1200p60 (The user can select the resolution through the control software.)
Color Depth	8-bit (1080p60Hz)
Video Bandwidth	4.95Gbps
Audio	Support stereo analog audio output (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
SFP Port	SFP_HOST, 20-pin female
Max Transmission Distance	Single mode fiber: 10KM, multi-mode fiber: 300M

4.3.3 4K Input Cards

(1) 4K HDMI Input Card



Signal Channel	4-channel HDMI input signals
Resolution	640x480p60Hz, 800x600p60Hz, 1024x768p60Hz, 1280x768p60Hz, 1280x800p60Hz, 1280x1024p60Hz, 1360x768p60Hz, 1400x1050p60Hz, 1600x1200p60Hz, 1920x1080p60Hz, 1920x1200p60Hz; 720x480i59.94Hz (480i59), 720x480p59.94Hz (480p59), 720x576i50Hz (576i50), 720x576p50Hz (576p50), 1280x720p50Hz (720p50), 1280x720p59.94Hz (720p59), 1280x720p60Hz (720p60), 1920x1080i50Hz (1080i50), 1920x1080i59.94Hz (1080i59), 1920x1080i60Hz(1080i60), 1920x1080p23.98Hz (1080p23), 1920x1080p24Hz (1080p24), 1920x1080p25Hz (1080p25), 1920x1080p29.97Hz (1080p29), 1920x1080p30Hz (1080p30), 1920x1080p50Hz (1080p50), 1920x1080p59.94Hz (1080p59), 1920x1080p60Hz (1080p60), 1920x1200p60Hz (1200p60), 3840x2160p24(2160p24), 3840x2160p25(2160p25), 3840x2160p30(2160p30), 3840x2160p50(2160p50),3840x2160p60(2160p60), 4096x2160p24(2160p24), 4096x2160p25(2160p25), 4096x2160p30(2160p30), 4096x2160p50(2160p50), 4096x2160p60(2160p60)
HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.2
Video Bandwidth	18Gbps
Color Depth	8/10/12-bit
Audio	Support external audio source input (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
HDMI Port	HDMI Type A
Max Transmission Distance	HDMI 1080p60Hz=15 meters, 4K30Hz=10 meters, 4K60Hz=8 meters

(2) 4K HDBT 70M Input Card



Signal Channel	4-channel HDBT input signals
Resolution	640x480p60Hz, 800x600p60Hz, 1024x768p60Hz, 1280x768p60Hz, 1280x800p60Hz, 1280x1024p60Hz, 1360x768p60Hz, 1400x1050p60Hz, 1600x1200p60Hz, 1920x1080p60Hz, 1920x1200p60Hz; 720x480i59.94Hz (480i59), 720x480p59.94Hz (480p59), 720x576i50Hz (576i50), 720x576p50Hz (576p50), 1280x720p50Hz (720p50), 1280x720p59.94Hz (720p59), 1280x720p60Hz (720p60), 1920x1080i50Hz (1080i50), 1920x1080i59.94Hz (1080i59), 1920x1080i60Hz (1080i60), 1920x1080p23.98Hz (1080p23), 1920x1080p24Hz (1080p24), 1920x1080p25Hz (1080p25), 1920x1080p29.97Hz (1080p29), 1920x1080p30Hz (1080p30), 1920x1080p50Hz (1080p50), 1920x1080p59.94Hz (1080p59), 1920x1080p60Hz (1080p60), 1920x1200p60Hz (1200p60), 3840x2160p24 (2160p24), 3840x2160p25 (2160p25), 3840x2160p30 (2160p30), 3840x2160p50 (2160p50), 3840x2160p60 (2160p60), 4096x2160p24 (2160p24), 4096x2160p25 (2160p25), 4096x2160p30 (2160p30), 4096x2160p50 (2160p50), 4096x2160p60 (2160p60)
HDCP Compliance	HDCP 2.2
Video Bandwidth	18Gbps
Color Depth	8/10/12-bit
Audio	Support external audio source input (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
HDBT Port	RJ45
Max Transmission Distance	HDBT 1080p60Hz=70 meters, 4K30Hz/4K60Hz=40 meters

(3) 4K HDBT 100M Input Card



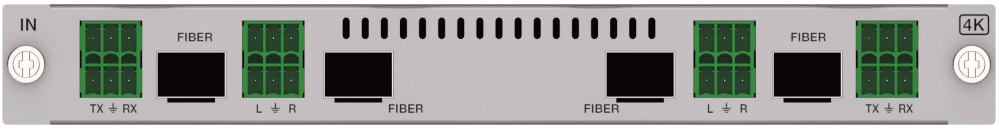
Signal Channel	4-channel HDBT input signals
Resolution	640x480p60Hz, 800x600p60Hz, 1024x768p60Hz, 1280x768p60Hz, 1280x800p60Hz, 1280x1024p60Hz, 1360x768p60Hz, 1400x1050p60Hz, 1600x1200p60Hz, 1920x1080p60Hz, 1920x1200p60Hz; 720x480i59.94Hz (480i59), 720x480p59.94Hz (480p59), 720x576i50Hz (576i50), 720x576p50Hz (576p50), 1280x720p50Hz (720p50), 1280x720p59.94Hz (720p59), 1280x720p60Hz (720p60), 1920x1080i50Hz (1080i50), 1920x1080i59.94Hz (1080i59), 1920x1080i60Hz (1080i60), 1920x1080p23.98Hz (1080p23), 1920x1080p24Hz (1080p24), 1920x1080p25Hz (1080p25), 1920x1080p29.97Hz (1080p29), 1920x1080p30Hz (1080p30), 1920x1080p50Hz (1080p50), 1920x1080p59.94Hz (1080p59), 1920x1080p60Hz (1080p60), 1920x1200p60Hz (1200p60), 3840x2160p24 (2160p24), 3840x2160p25 (2160p25), 3840x2160p30 (2160p30), 3840x2160p50 (2160p50), 3840x2160p60 (2160p60), 4096x2160p24 (2160p24), 4096x2160p25 (2160p25), 4096x2160p30 (2160p30), 4096x2160p50 (2160p50), 4096x2160p60 (2160p60)
HDCP Compliance	HDCP 2.2
Video Bandwidth	18Gbps
Color Depth	8/10/12-bit
Audio	Support external audio source input (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
HDBT Port	RJ45
Max Transmission Distance	HDBT 1080p60Hz=100 meters, 4K30Hz/4K60Hz=70 meters

(4) 4K HDBT 150M Input Card



Signal Channel	4-channel HDBT input signals
Resolution	640x480p60Hz, 800x600p60Hz, 1024x768p60Hz, 1280x768p60Hz, 1280x800p60Hz, 1280x1024p60Hz, 1360x768p60Hz, 1400x1050p60Hz, 1600x1200p60Hz, 1920x1080p60Hz, 1920x1200p60Hz; 720x480i59.94Hz (480i59), 720x480p59.94Hz (480p59), 720x576i50Hz (576i50), 720x576p50Hz (576p50), 1280x720p50Hz (720p50), 1280x720p59.94Hz (720p59), 1280x720p60Hz (720p60), 1920x1080i50Hz (1080i50), 1920x1080i59.94Hz (1080i59), 1920x1080i60Hz (1080i60), 1920x1080p23.98Hz (1080p23), 1920x1080p24Hz (1080p24), 1920x1080p25Hz (1080p25), 1920x1080p29.97Hz (1080p29), 1920x1080p30Hz (1080p30), 1920x1080p50Hz (1080p50), 1920x1080p59.94Hz (1080p59), 1920x1080p60Hz (1080p60), 1920x1200p60Hz (1200p60), 3840x2160p24 (2160p24), 3840x2160p25 (2160p25), 3840x2160p30 (2160p30), 3840x2160p50 (2160p50), 3840x2160p60 (2160p60), 4096x2160p24 (2160p24), 4096x2160p25 (2160p25), 4096x2160p30 (2160p30), 4096x2160p50 (2160p50), 4096x2160p60 (2160p60)
HDCP Compliance	HDCP 2.2
Video Bandwidth	18Gbps
Color Depth	8/10/12-bit
Audio	Support external audio source input (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
HDBT Port	RJ45
Max Transmission Distance	HDBT 1080p60Hz/4K30Hz=150 meters, 4K60Hz=120 meters

(5) 4K FIBER Input Card



Signal Channel	4-channel FIBER input signals
Resolution	640x480p60Hz, 800x600p60Hz, 1024x768p60Hz, 1280x1024p60Hz, 1360x768p60Hz, 1440x900p60Hz, 1440x1050p60Hz, 1600x1200p60Hz, 720x480i59.94Hz(480i59), 720x480p59.94Hz(480p59), 720x576i50Hz(576i50), 720x576p50Hz(576p50), 1280x720p50Hz(720p50), 1280x720p59.94Hz(720p59), 1280x720p60Hz(720p60), 1920x1080i50Hz(1080i50), 1920x1080i59.94Hz(1080i59), 1920x1080i60Hz(1080i60), 1920x1080p23.98Hz(1080p23), 1920x1080p24Hz(1080p24), 1920x1080p25Hz(1080p25), 1920x1080p29.97Hz(1080p29), 1920x1080p30Hz(1080p30), 1920x1080p50Hz(1080p50), 1920x1080p59.94Hz(1080p59), 1920x1080p60Hz(1080p60), 3840x2160p23.98Hz(2160p23), 3840x2160p24Hz(2160p24), 3840x2160p25Hz(2160p25), 3840x2160p29.97Hz(2160p29), 3840x2160p30Hz(2160p30), 3840x2160p50Hz(2160p50), 3840x2160p59.94Hz(2160p59), 3840x2160p60Hz(2160p60), 4096x2160p23.98Hz, 4096x2160p24Hz, 4096x2160p25Hz, 4096x2160p29.97Hz, 4096x2160p30Hz, 4096x2160p50Hz, 4096x2160p59.94Hz, 4096x2160p60Hz
Color Depth	8/10/12-bit
Video Bandwidth	18Gbps
Audio	Support external audio source input (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
SFP Port	SFP_HOST, 20-pin female
Max Transmission Distance	Single mode fiber: 10KM, multi-mode fiber: 300M

4.3.4 4K Output Cards

(1) 4K HDMI Output Card



Signal Channel	4-channel HDMI output signals
Resolution	720x576i50, 720x480i60, 1024x768p60, 1280x720p50,1280x720p60, 1280x800p60, 1280x1024p60, 1360x768p60, 1680x1050p60, 1600x1200p60, 1920x1080i50, 1920x1080i60, 1920x1080p24, 1920x1080p25, 1920x1080p30, 1920x1080p50, 1920x1080p60, 1920x1200p60, 2560x1440p60, 3840x2160p24, 3840x2160p25, 3840x2160p30, 3840x2160p50, 3840x2160p60, 4096x2160p24, 4096x2160p25, 4096x2160p30, 4096x2160p50, 4096x2160p60
HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.2
Video Bandwidth	18Gbps
Color Depth	8/10/12-bit
Audio	Support stereo analog audio output (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
HDMI Port	HDMI Type A
Max Transmission Distance	HDMI 1080p60Hz=15 meters, 4K30Hz=10 meters, 4K60Hz=8 meters

(2) 4K HDBT 70M Output Card



Signal Channel	4-channel HDBT output signals
Resolution	720x576i50, 720x480i60, 1024x768p60, 1280x720p50,1280x720p60, 1280x800p60, 1280x1024p60, 1360x768p60, 1680x1050p60, 1600x1200p60, 1920x1080i50, 1920x1080i60, 1920x1080p24, 1920x1080p25, 1920x1080p30, 1920x1080p50, 1920x1080p60, 1920x1200p60, 2560x1440p60, 3840x2160p24, 3840x2160p25, 3840x2160p30, 3840x2160p50, 3840x2160p60, 4096x2160p24, 4096x2160p25, 4096x2160p30, 4096x2160p50, 4096x2160p60
HDCP Compliance	HDCP 2.2
Video Bandwidth	18Gbps
Color Depth	8/10/12-bit
Audio	Support stereo analog audio output (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
HDBT Port	RJ45
Max Transmission Distance	HDBT 1080p60Hz=70 meters, 4K30Hz/4K60Hz=40 meters

(3) 4K HDBT 100M Output Card



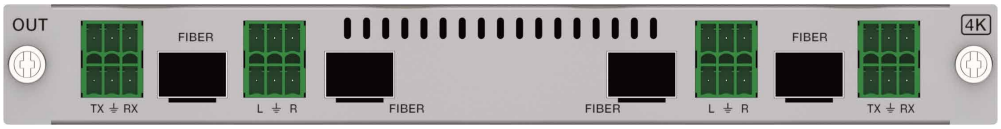
Signal Channel	4-channel HDBT output signals
Resolution	720x576i50, 720x480i60, 1024x768p60, 1280x720p50,1280x720p60, 1280x800p60, 1280x1024p60, 1360x768p60, 1680x1050p60, 1600x1200p60, 1920x1080i50, 1920x1080i60, 1920x1080p24, 1920x1080p25, 1920x1080p30, 1920x1080p50, 1920x1080p60, 1920x1200p60, 2560x1440p60, 3840x2160p24, 3840x2160p25, 3840x2160p30, 3840x2160p50, 3840x2160p60, 4096x2160p24, 4096x2160p25, 4096x2160p30, 4096x2160p50, 4096x2160p60
HDCP Compliance	HDCP 2.2
Video Bandwidth	18Gbps
Color Depth	8/10/12-bit
Audio	Support stereo analog audio output (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
HDBT Port	RJ45
Max Transmission Distance	HDBT 1080p60Hz=100 meters, 4K30Hz/4K60Hz=70 meters

(4) 4K HDBT 150M Output Card



Signal Channel	4-channel HDBT output signals
Resolution	720x576i50, 720x480i60, 1024x768p60, 1280x720p50,1280x720p60, 1280x800p60, 1280x1024p60, 1360x768p60, 1680x1050p60, 1600x1200p60, 1920x1080i50, 1920x1080i60, 1920x1080p24, 1920x1080p25, 1920x1080p30, 1920x1080p50, 1920x1080p60, 1920x1200p60, 2560x1440p60, 3840x2160p24, 3840x2160p25, 3840x2160p30, 3840x2160p50, 3840x2160p60, 4096x2160p24, 4096x2160p25, 4096x2160p30, 4096x2160p50, 4096x2160p60
HDCP Compliance	HDCP 2.2
Video Bandwidth	18Gbps
Color Depth	8/10/12-bit
Audio	Support stereo analog audio output (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
HDBT Port	RJ45
Max Transmission Distance	HDBT 1080p60Hz/4K30Hz=150 meters, 4K60Hz=120 meters

(5) 4K FIBER Output Card



Signal Channel	4-channel FIBER output signals
Resolution	640x480p60Hz, 800x600p60Hz, 1024x768p60Hz, 1280x1024p60Hz, 1360x768p60Hz, 1440x900p60Hz, 1440x1050p60Hz, 1600x1200p60Hz, 720x480i59.94Hz(480i59), 720x480p59.94Hz(480p59), 720x576i50Hz(576i50), 720x576p50Hz(576p50), 1280x720p50Hz(720p50), 1280x720p59.94Hz(720p59), 1280x720p60Hz(720p60), 1920x1080i50Hz(1080i50), 1920x1080i59.94Hz(1080i59), 1920x1080i60Hz(1080i60), 1920x1080p23.98Hz(1080p23), 1920x1080p24Hz(1080p24), 1920x1080p25Hz(1080p25), 1920x1080p29.97Hz(1080p29), 1920x1080p30Hz(1080p30), 1920x1080p50Hz(1080p50), 1920x1080p59.94Hz(1080p59), 1920x1080p60Hz(1080p60), 3840x2160p23.98Hz(2160p23), 3840x2160p24Hz(2160p24), 3840x2160p25Hz(2160p25), 3840x2160p29.97Hz(2160p29), 3840x2160p30Hz(2160p30), 3840x2160p50Hz(2160p50), 3840x2160p59.94Hz(2160p59), 3840x2160p60Hz(2160p60), 4096x2160p23.98Hz, 4096x2160p24Hz, 4096x2160p25Hz, 4096x2160p29.97Hz, 4096x2160p30Hz, 4096x2160p50Hz, 4096x2160p59.94Hz, 4096x2160p60Hz
Color Depth	8/10/12-bit
Video Bandwidth	18Gbps
Audio	Support stereo analog audio output (LPCM 2.0CH)
Audio Port	3.81mm Phoenix Connector
SFP Port	SFP_HOST, 20-pin female
Max Transmission Distance	Single mode fiber: 10KM, multi-mode fiber: 300M

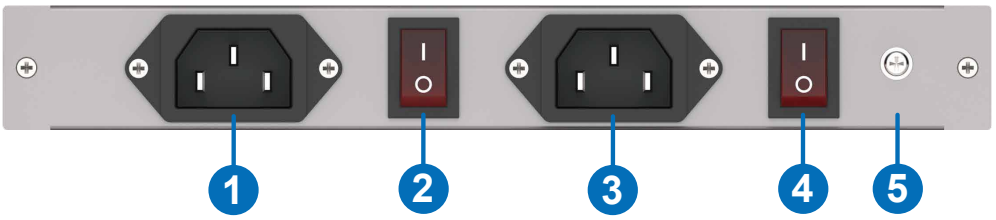
4.4 Specifications-Power Cards

4.4.1 Single Power Card (optional 1)



No.	Name	Function Description
1	Power port	Connect the power input port to the AC power supply using the included power cord.
2	Power switch	Press the power switch to power on/off the system.
3	GND	Used for connecting the ground or the earthing conductor of the rack.

4.4.2 Dual Power Card (optional 2)



No.	Name	Function Description
1	Power port	Connect the power input port to the AC power supply using the included power cord.
2	Power switch	Press the power switch to power on/off the system.
3	Redundant power port	When the main power supply fails, turning on the redundant power supply can provide power to the faulty device, to ensure the normal operation of the device.
4	Redundant power switch	When using the redundant power supply, press the power switch to power on/off the system.
5	GND	Used for connecting the ground or the earthing conductor of the rack.

4.5 Specifications-Blank Card



Note: When the Matrix is not fully filled with cards, blank cards are added by default.

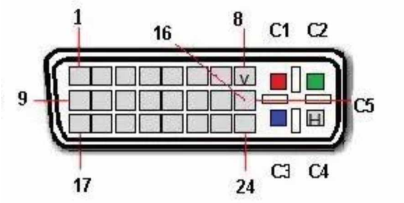
4.6 Specifications-Signal Adapters

The DVI card is equipped with three DVI signal adapters that can convert DVI signals to HDMI, VGA or YPbPr/CVBS signals. Users can use the corresponding signal adapter as required.

4.6.1 DVI Male to HDMI Female Adapter



DVI-I connector



DVI-I Connector Pin Definition List

Pin	Function
1	TMDS data 2-
2	TMDS data 2+
3	TMDS data GND
4	Reserved
5	Reserved
6	TMDS_ DDC clock
7	TMDS_ DDC data
9	TMDS data 1-
10	TMDS data 1+
11	TMDS data GND
12	Reserved
13	Reserved
14	TMDS +5V
15	TMDS data GND
16	TMDS_ HPD
17	TMDS data 0-
18	TMDS data 0+
19	TMDS data GND
20	Reserved
21	Reserved
22	TMDS data GND
23	TMDS data C+
24	TMDS data C-

4.6.2 DVI Male to VGA Female Adapter



VGA Connector Pin Definition List

Pin	Function
C1	Analog video signal Red
C2	Analog video signal Green
C3	Analog video signal Blue
C4	Analog video signal Hsync
C5	Analog video signal GND
8	Analog video signal Vsync

4.6.3 DVI Male to YPbPr/CVBS Female Adapter





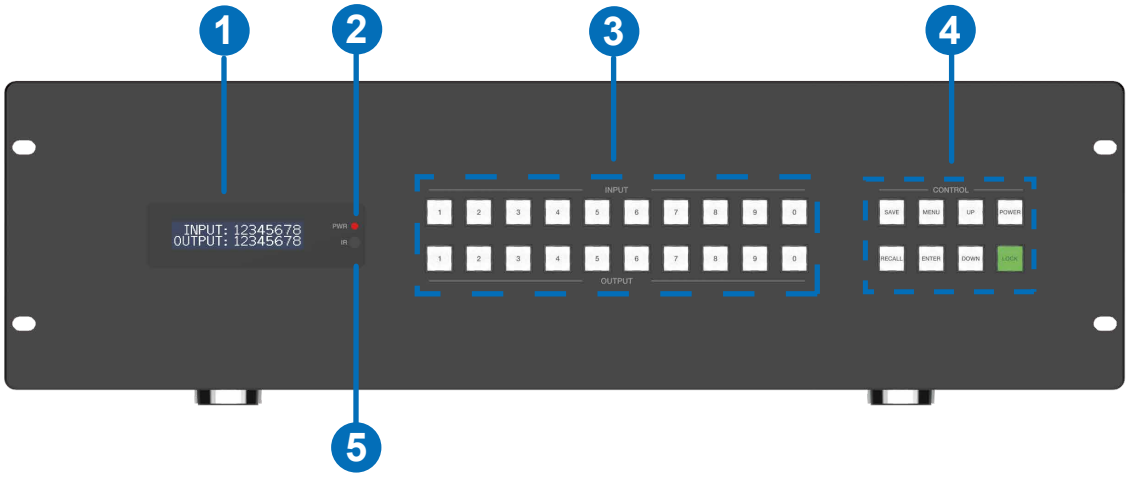
YPbPr/CVBS Connector Pin Definition List

Pin	Function
C3	Y channel luminance
C2	Pb channel blue chrominance
C1	Pr channel red chrominance

Pin	Function
C2	Composite synchronous video signal (CVBS)

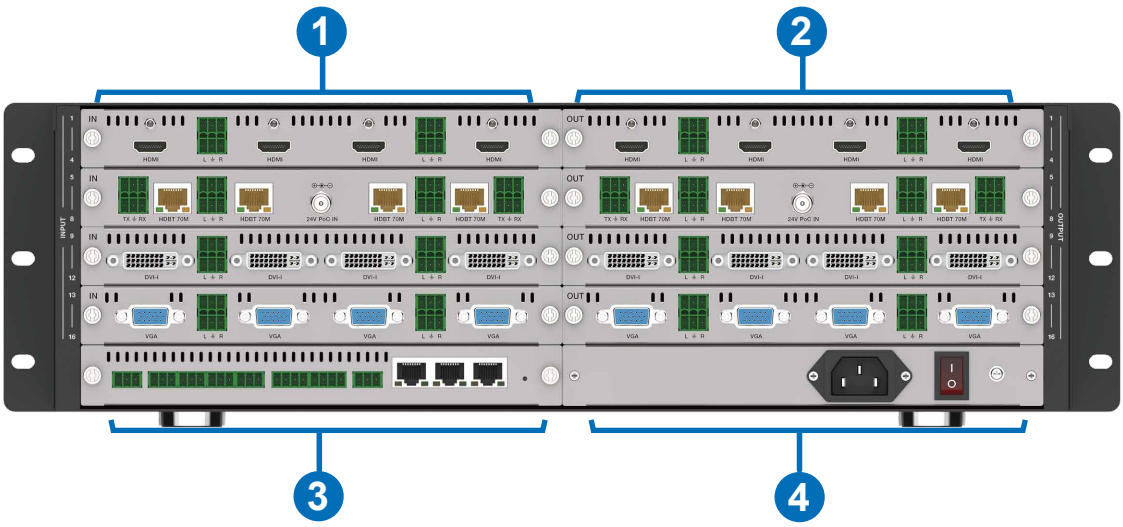
5. Operation and Use
5.1 Panel Introduction and Operation (Take the 16x16 Matrix as an example)

Front Panel



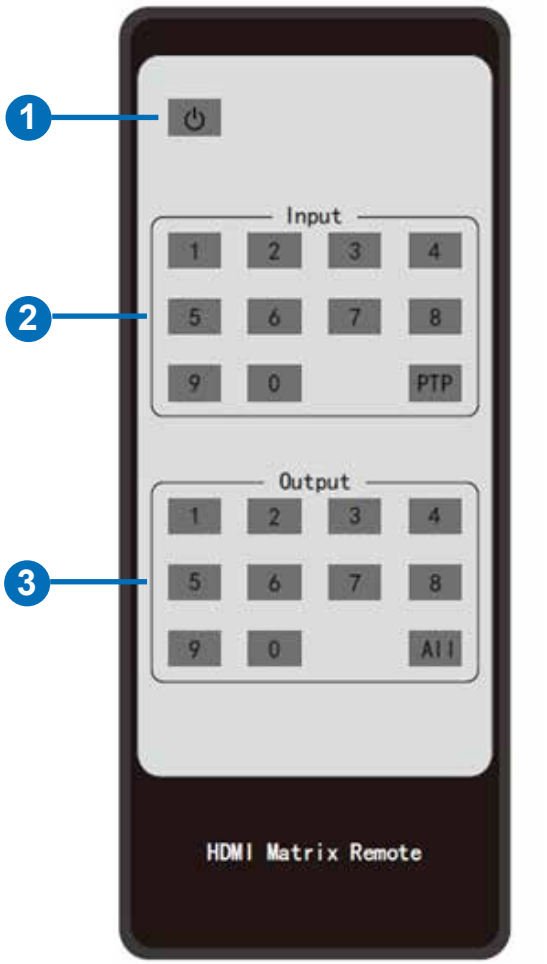
No.	Name	Function Description
1	LED screen	Display the current status information (Matrix switching channel, EDID information, baud rate and so on).
2	PWR LED	The power LED lights in green when the system is powered on, and red when the system is in standby.
3	INPUT & OUTPUT buttons (0~9)	Used to select the corresponding input and output channels. You need to press the input button (0~9) firstly, then press the output button (0~9) , finally press “ENTER” button to complete switching. Note: If the selected input/output channel number exceeds 16, it will prompt that the number is out of range and need to be reselected.
4	Control buttons	**SAVE:** Used to save the current display scene (up to 64 scenes can be saved). For example, press SAVE button firstly, the LED screen will show “Save Config to: Preset n”（n=1,2,...64). Then press UP/DOWN button to select “Preset 1”, finally press ENTER button to save the current display scene as Scene 1. **MENU:** Short press MENU to enter various menu function setting options in turn. When entering a certain function menu, select the setting parameters or input/output channel values through the UP/DOWN button circularly, and finally press ENTER to confirm. **UP:** Press this button to select upwards on the display screen. **DOWN:** Press this button to select downwards on the display screen. **POWER:** Press and hold this button for 3s to enter the standby mode, the power LED will light in red; In the standby state, press the button to resume starting, the power LED will light in green. **RECALL:** Used to recall the saved scene as the current display scene. e.g. Press “RECALL→UP/DOWN (to select number 1 ~ n)→ENTER” to recall the saved Scene n as the current display scene. **ENTER:** Used to confirm the operation and save the setting. **LOCK:** Short press this button to to lock the current setting status, other panel buttons will be locked. Press this button again to unlock, all panel buttons can be used normally.
5	IR window	IR receiver window. It only receives the IR remote signal from this product.

Rear Panel



No.	Name	Function Description
1	Input cards	Video input card, connected to source devices directly or via an Extender.
2	Output cards	Video output card, connected to display devices directly or via an Extender.
3	Main Control card	Main control card, equipped with various control ports.
4	Power card	Power cord, equipped with a power port, a power switch and a ground port.

5.2. Remote Control Introduction and Operation



① **Power button:** Power on the Matrix or set it to standby mode.
② **Input 1/2/3/4/5/6/7/8/9/0:** Used to select the input channel.
③ **Output 1/2/3/4/5/6/7/8/9/0:** Used to select the output channel.

The IR Remote has the following three operation methods (take the 36x36 Matrix as an example):
Method 1: First press the input button, then press the output button to switch the input signal to the display device.
For example:
Press Input-Y
(Y represents the input button from 01 to 36)
Then press Output-X
(X represents the output button from 01 to 36)
Note: The input and output channels must be selected with double digit (the maximum value cannot exceed 36), that is, for input and output channels less than 10, press 0 first, and then press the corresponding number button. For example, when switching from input 1 to output 1, press the input buttons 0 and 1 first, and then press the output buttons 0 and 1.

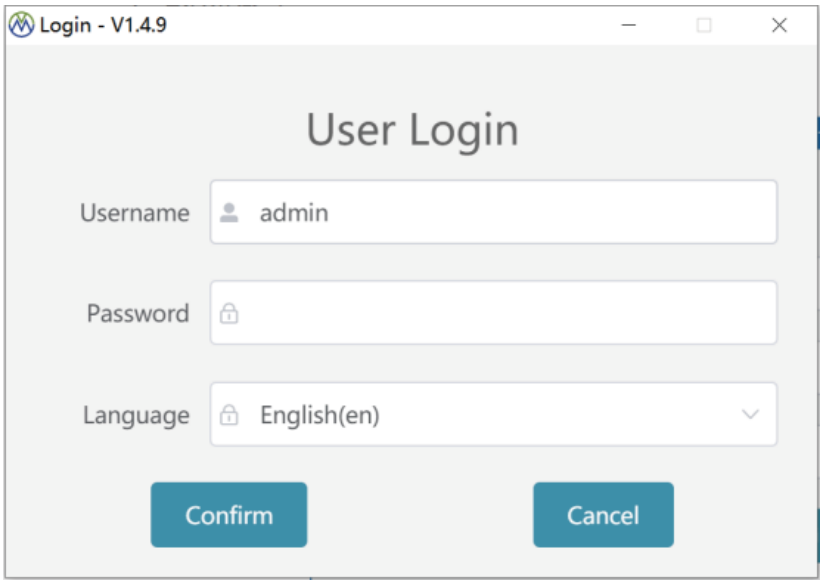
Method 2: Press the PTP button, then all input channels and output channels are switched in one-to-one correspondence.
Method 3: First press the input button (select the input channel), then press All button (select all output channels), the signals of the selected input channel will be output to all display devices.

5.3 Host Computer Control Operation Guide

5.3.1 Login & Connection

1. Login

Double-click the Host Computer to enter the Login interface, as shown in the figure below:



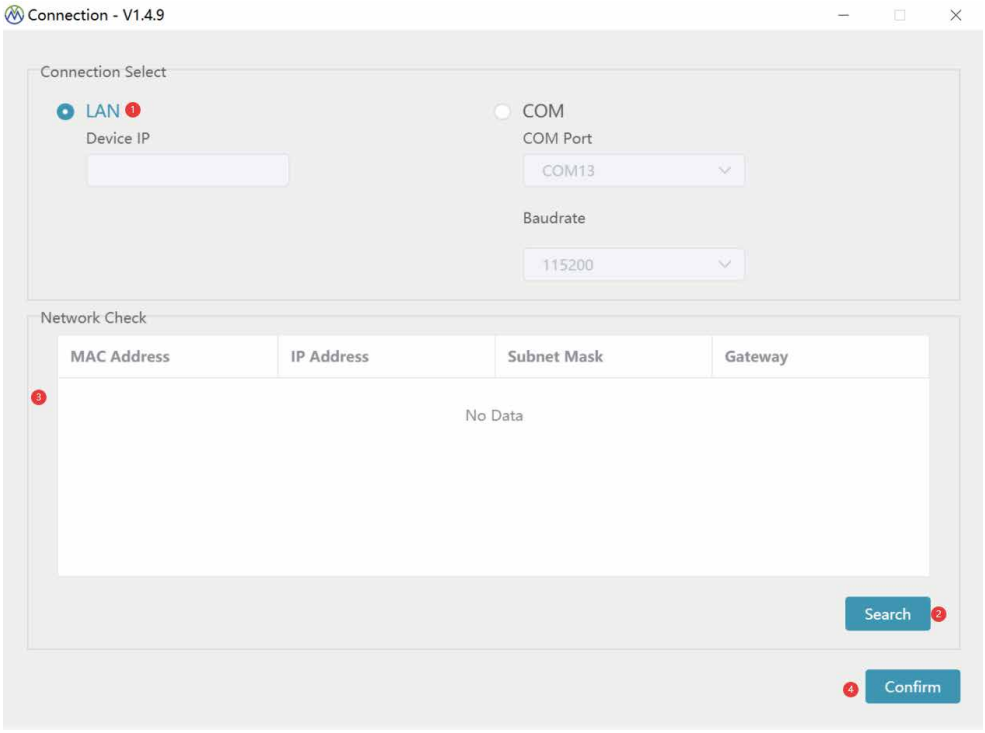
Input the username (admin) and the initial password (admin), then select the required language, finally click “Confirm” to enter the communication setting page.
Note: You can reset the password on the system setting page.

2. Connection

There are two connection methods: Network and serial port.
Method 1. Network connection
Step 1. Connect the LAN port of the Matrix to a PC with an UTP cable (as shown in the figure below), and set the IP address of the PC to be in the same network segment with the Matrix (default IP address: 192.168.0.100).

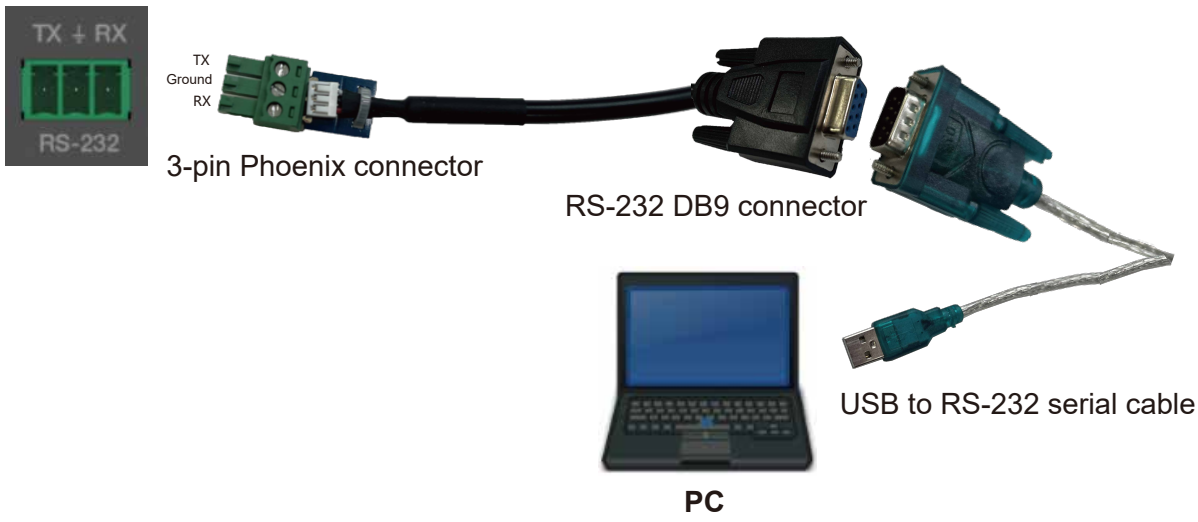


Step 2. Check “LAN” on the Connection page, and click “Search”. Then the searched device will appear in the list of “Network Check”. Click to select the device, and click “Confirm” to connect the device.

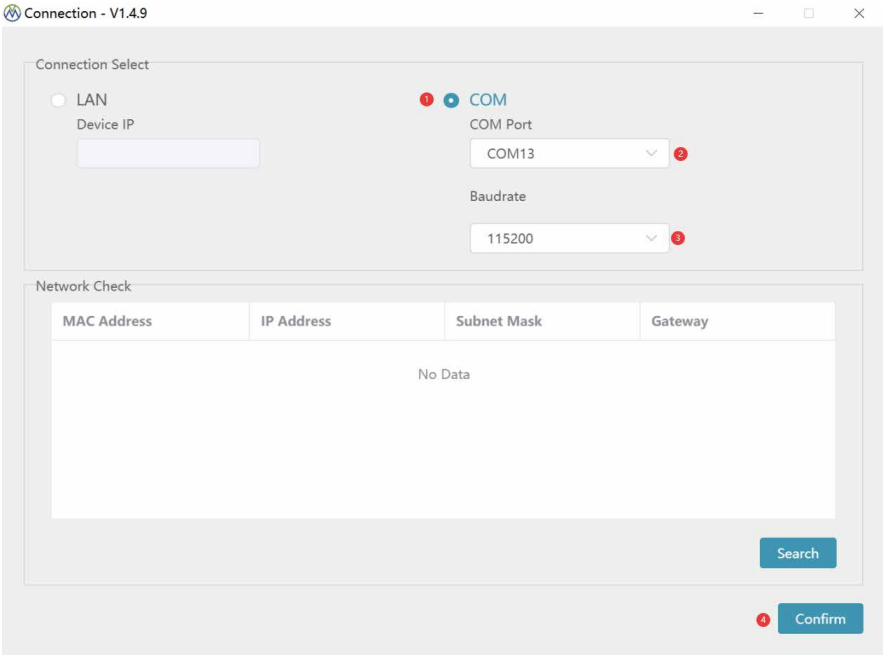


Method 2. Serial connection

Step 1. Connect the RS-232 port of the Matrix to a PC with the included RS-232 serial cable and USB to RS-232 serial cable, as shown in the figure below.



Step 2. Check “COM” on the Connection page, and select the corresponding COM Port and Baudrate (default Baudrate: 115200). Then click “Confirm” to connect the device.

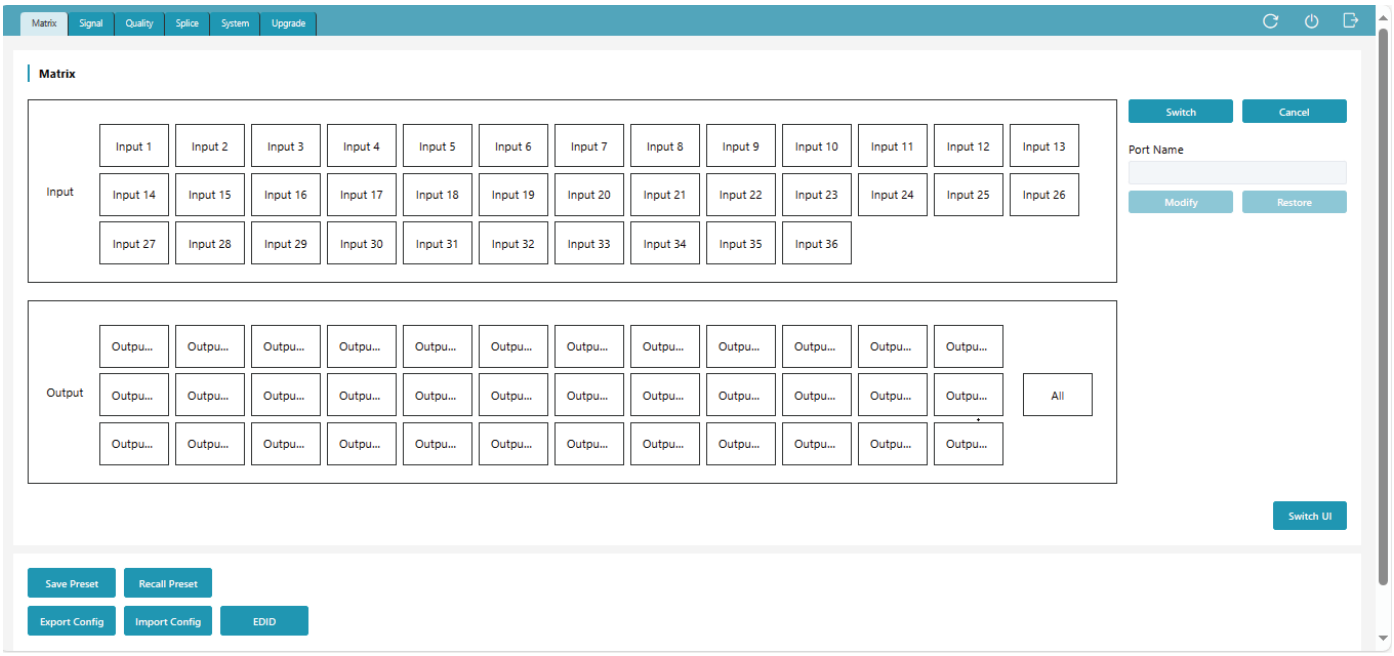


5.3.2. Host Computer Interface Instruction (Take the 36x36 Matrix as an example)

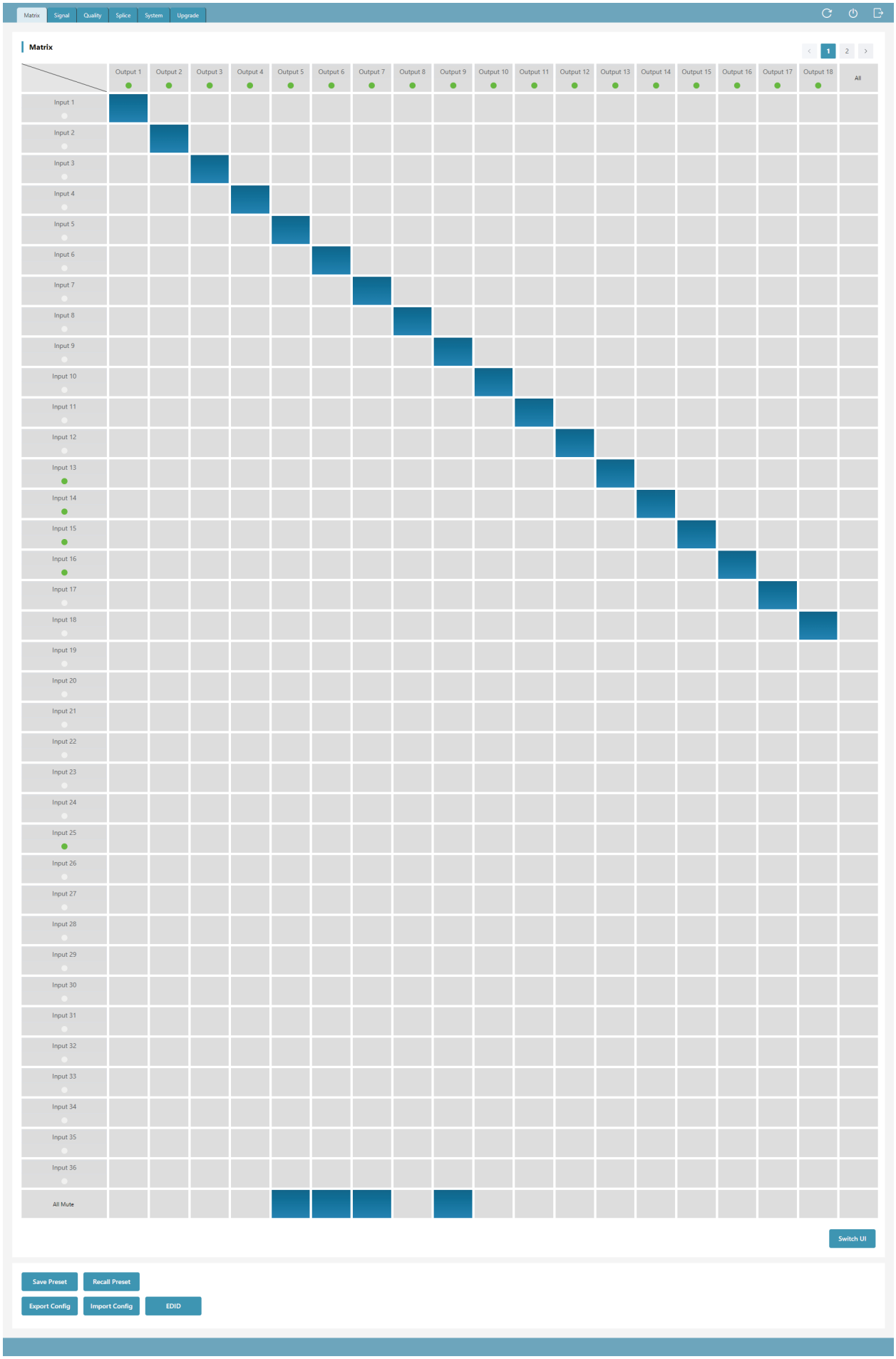
■ Matrix Switching Page

There are two UI styles of the Host Computer software. You can click the “Switch UI” button to switch between UI 1 and UI 2.

Matrix Switching UI 2



Matrix Switching UI 1



1. Refresh Data & Reconnection

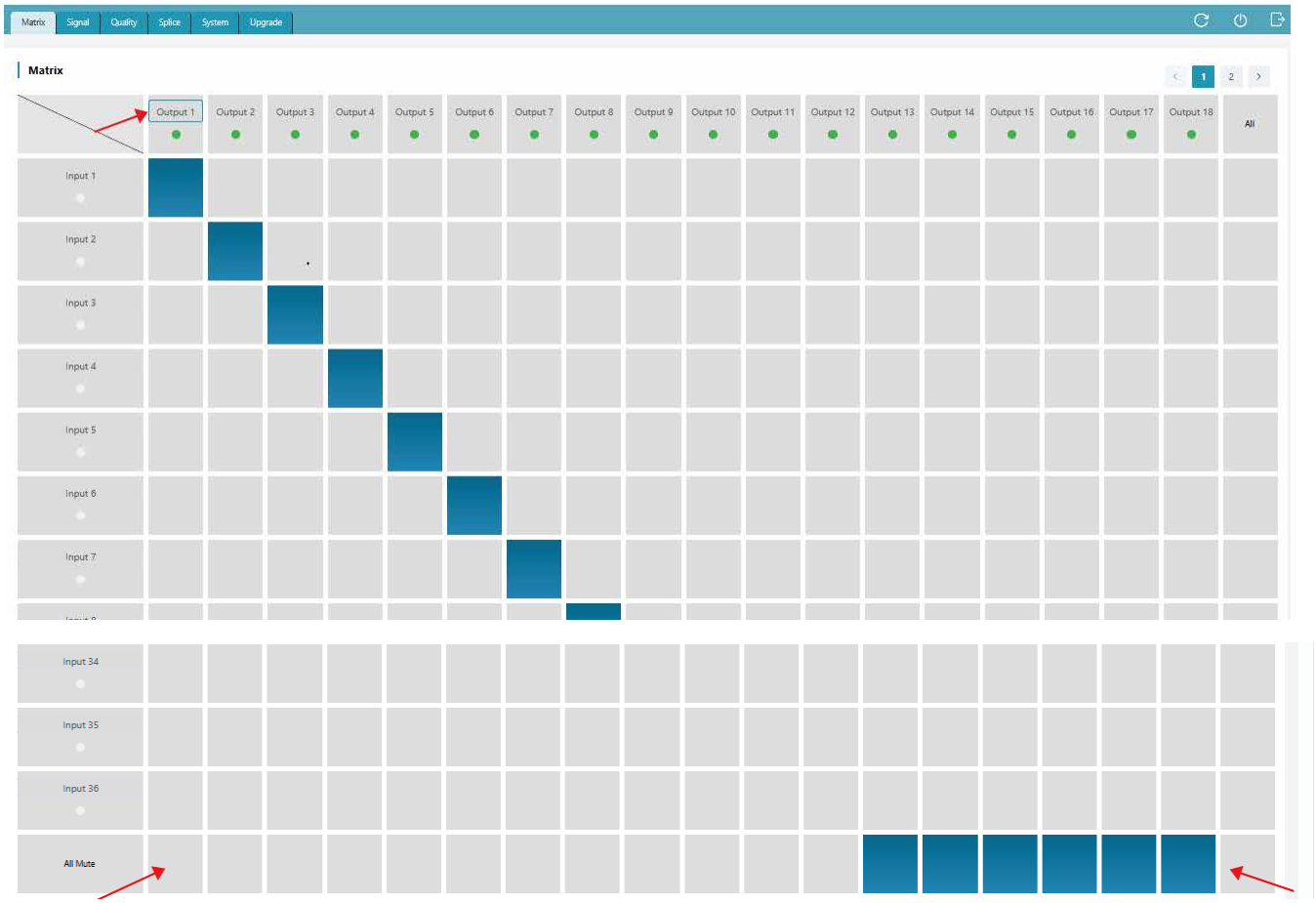


As shown in the figure above, icon ① is used to refresh the data of the current page; icon ② is used to power on the Matrix or set it to standby mode; icon ③ is used to logout and return to the login interface, then log in again.

2. Matrix Switching

The Matrix Switching page displays the names and statuses of all input and output ports. The green light under the name of the input/output port indicates that there are connected signal sources or display devices; The gray light indicates that no signal sources or display devices are connected. Besides, you can rename the input/output port, switch the matrix correspondence or turn off the output.

Matrix Switching UI 1

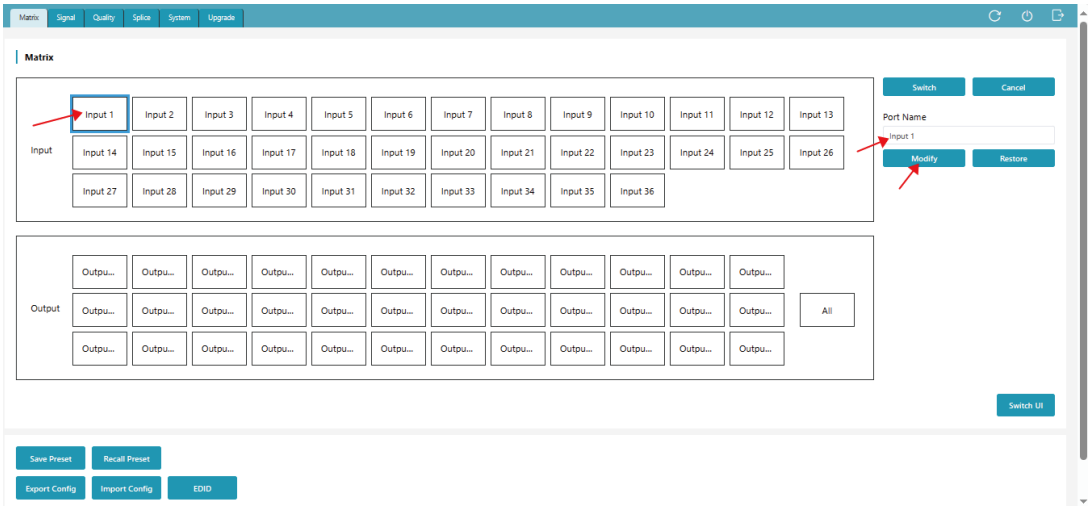


① Modify the name: Click the input/output port to rename it. (The name supports numbers, uppercase and lowercase letters and spaces, not all spaces. The maximum length is 32 English characters or 16 Chinese characters). And then click outside the input box to complete the name modification.

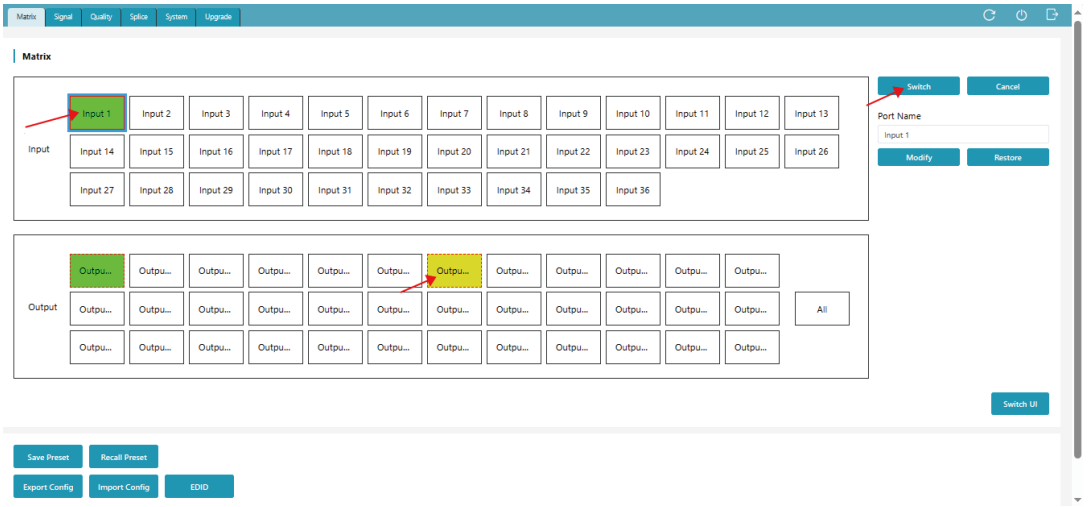
② Switch matrix correspondence: Click the grid corresponding to the input/output channel to set a single input and output switching; When "All" is selected, the same signal source can be output to all display devices.

③ Turn off the output: Click the grid of "AV Mute" corresponding to an output channel to turn off its audio and video output; When the grid of "AV Mute" corresponding to "All" is selected, the outputs of all output channels will be turned off.

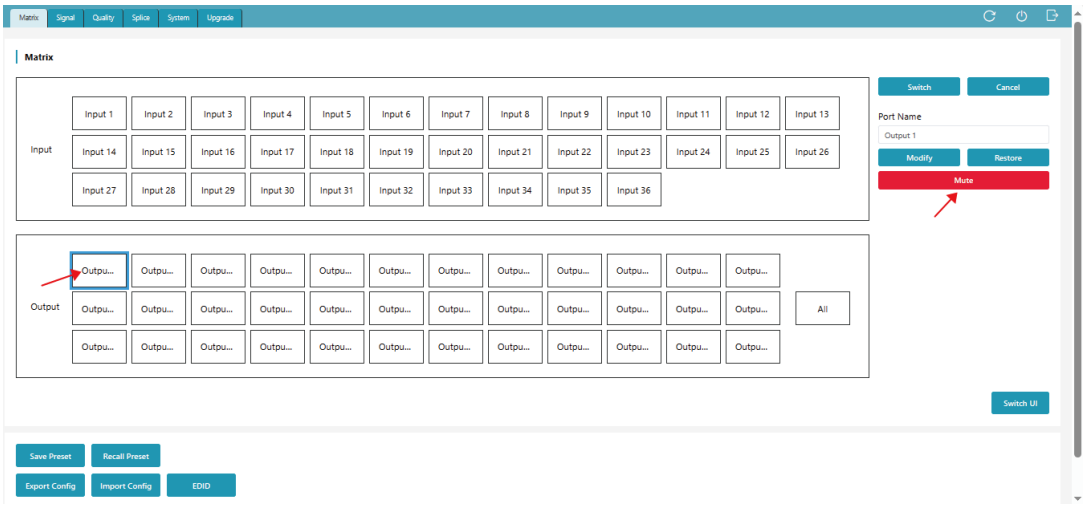
Matrix Switching UI 2

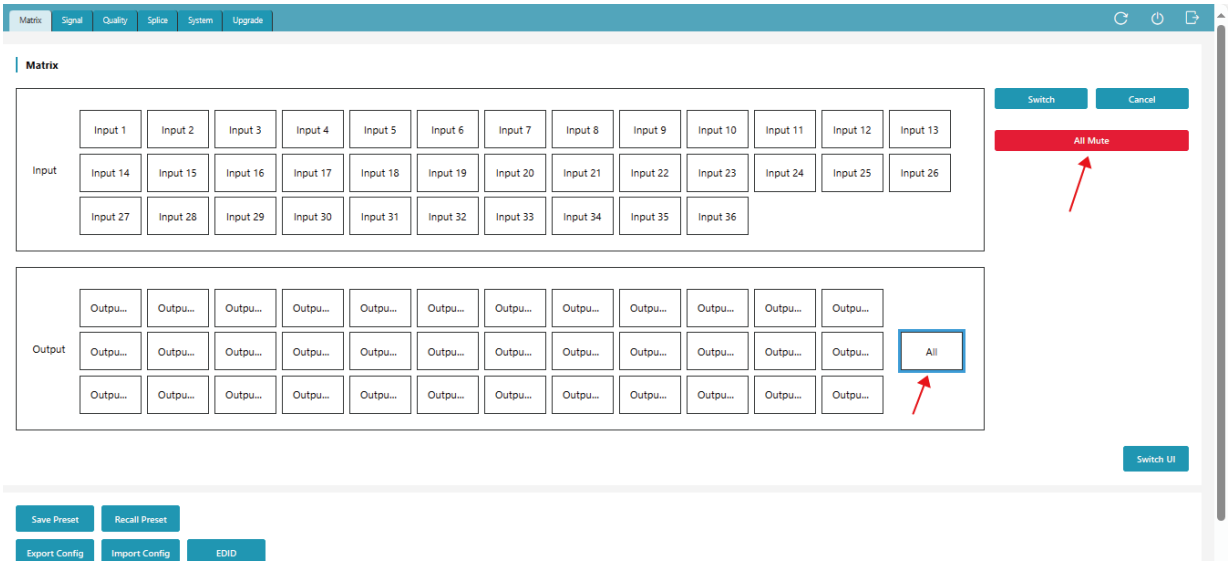


① Modify the name: As shown in the above figure, double-click the input/output port, then edit the name in the input box of “Port Name” (The name supports numbers, uppercase and lowercase letters and spaces, not all spaces. The maximum length is 32 English characters or 16 Chinese characters). And then click “Modify” to complete the name modification.



② Switch matrix correspondence: As shown in the above figure, click an input channel, and then click an output channel or click “All” (the selected output channel will turn to yellow), finally click "Switch" to take effect. After switching is completed, the output channel will turn to green.



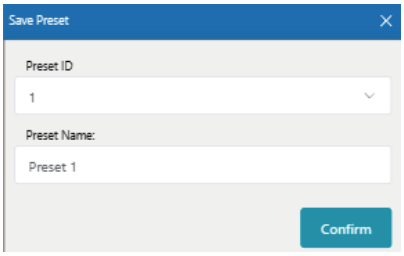


③ Turn off the output: As shown in the above figures, double-click an output port, then click “All Mute” to turn off the audio and video output of the selected output port; double-click “All”, then click “All Mute” to turn off the outputs of all output channels.

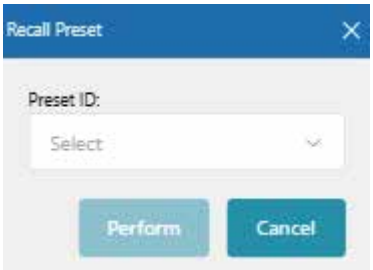
2. Preset and Configuration



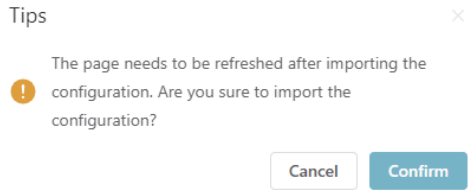
① Save Preset: Click the “Save Preset” button, and the following window will pop up. Select a preset ID, set a preset name or use the default name, then click “Confirm” to save the preset.

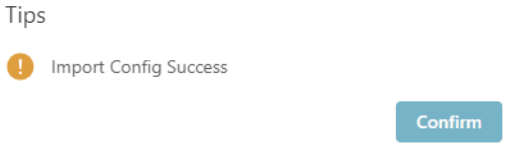


② Recall Preset: Click the “Recall Preset” button, and the following window will pop up. Select a preset ID, then click “Perform” to recall the preset.

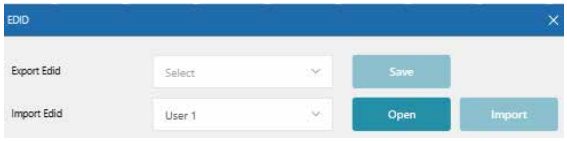


③ Import Config: Click the “Import Config” button, select the configuration file, it will prompt as shown in the lower left figure. Then click “Confirm” to import the configuration. After successful import, a prompt will appear, as shown in the lower right figure. After clicking “Confirm”, the system will automatically switch to the login interface.



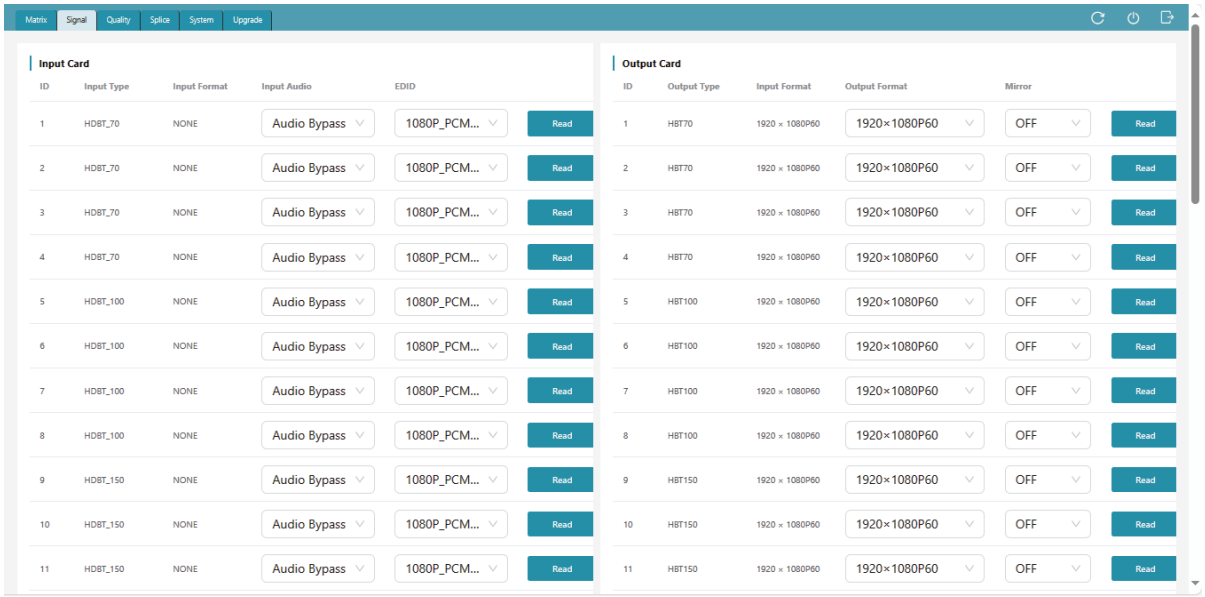


④ Export Config: Click the “Export Config” button, select the address to save the configuration, and then click "Confirm" to download the corresponding EDID file successfully.
⑤ Import/Export EDID: Click the “EDID” button, and the following window will pop up.

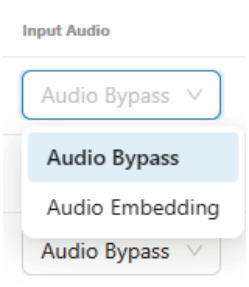


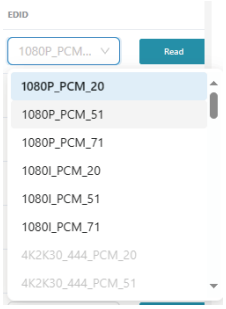
Export EDID: Select an input channel in the matrix interface, click the drop-down list of “Export EDID” to select an address, then click “Save” to download the corresponding EDID file.
Import EDID: Click the drop-down list of “Import EDID” to select an address (User1/User2), click “Open” to select an EDID file, then click “Import” to complete import.

■ Signal Setting Page



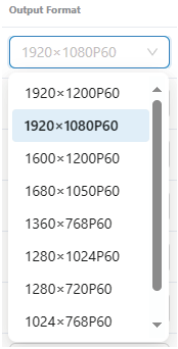
This page is mainly used to view and configure the relevant parameters of the I/O card.
The input card supports the configuration of audio source (bypass or embedding) and EDID.

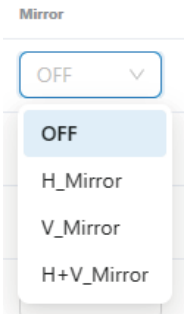




Notes:
(1) The 2K VGA input card does not support audio source switching, and is fixed to Audio Embedding.
(2) Both 2K SDI and 2K VGA input cards do not support EDID settings.
(3) The 2K VGA output card does not support copying the EDID of the VGA output port.
(4) The 2K SDI output card does not support copying the EDID of the SDI output port.

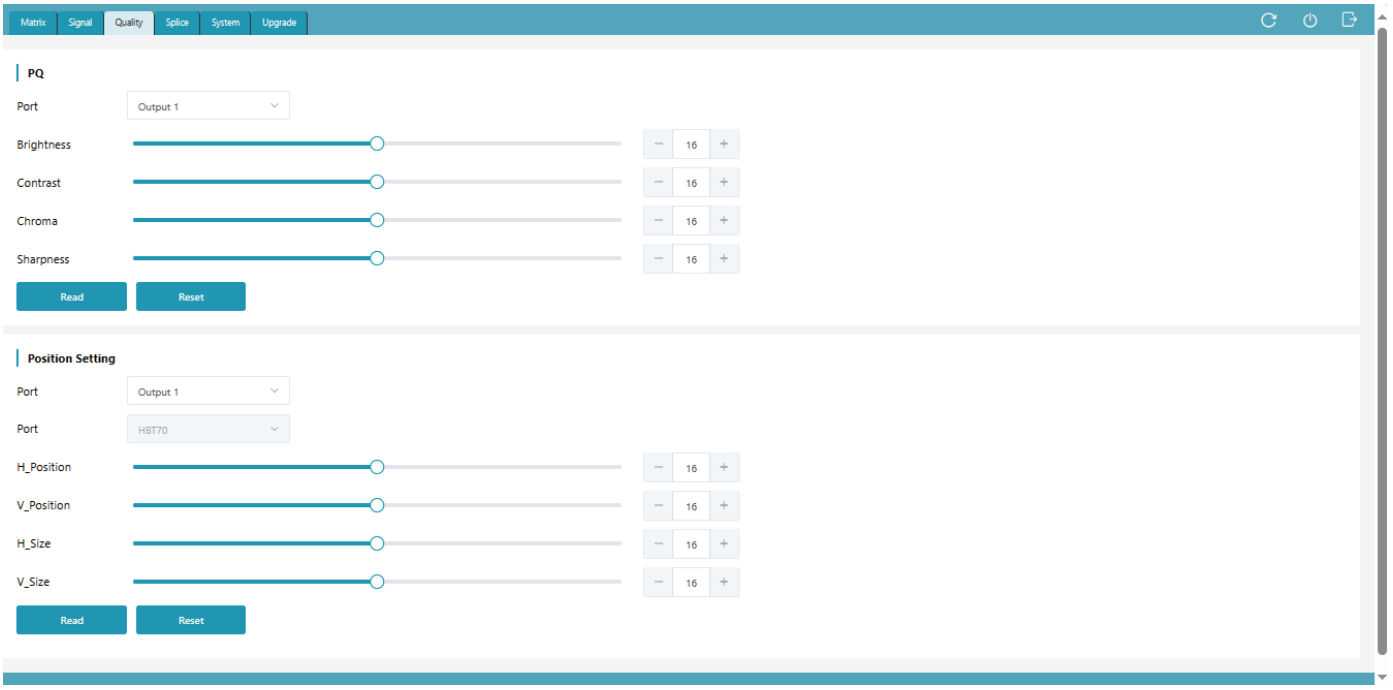
The output card supports the configuration of output resolution and mirroring.





Notes:
(1) The 2K HDMI-V output card, 2K SDI output card and 2K FIBER output card do not support mirroring.
(2) When the output resolution is set to CVBS/YPbPr, the 2K DVIU output card do not support mirroring.

■ Picture Quality Setting Page



1. Picture Quality Setting

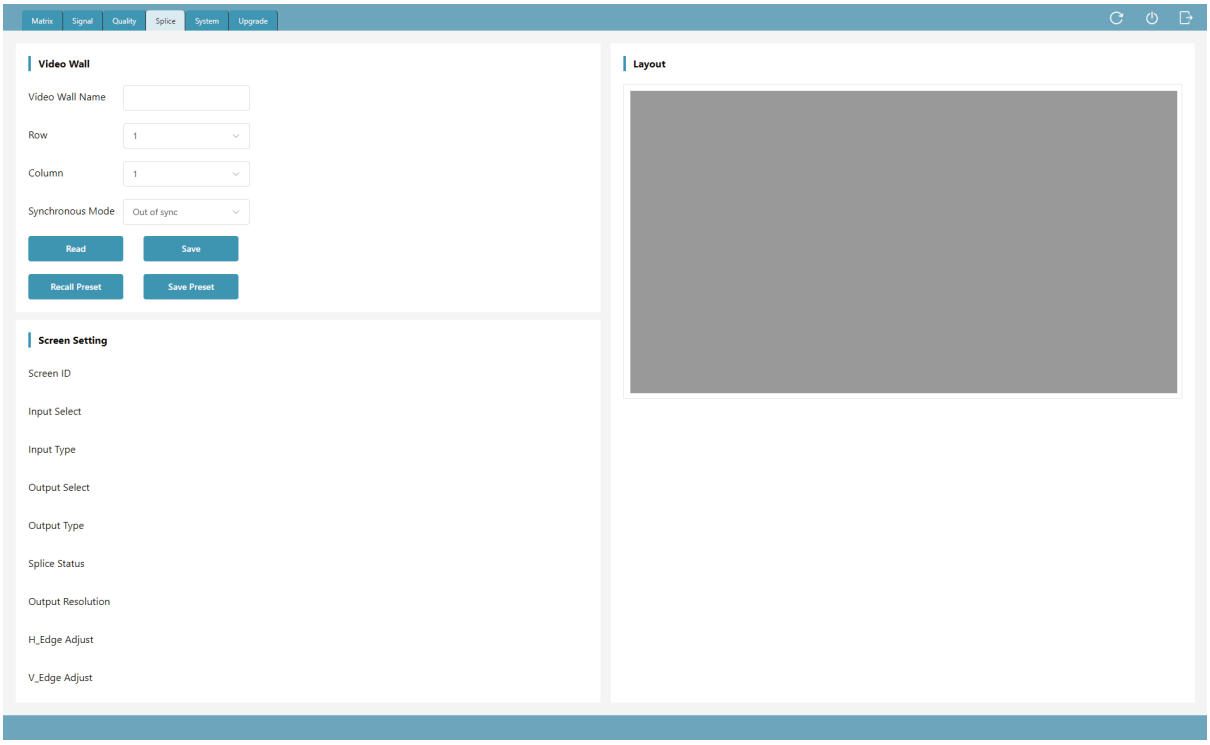
Click the drop-down list to select the output port, set the brightness, contrast, chroma and sharpness, then click “Read” to take effect. Finally, click the refresh icon to refresh the data.

2. Picture Position Setting

Click the drop-down list to select the output port and port type, set the H_Position, V_Position, H_Size and V_Size, then click “Read” to take effect. Finally, click the refresh icon to refresh the data.

Notes:
(1) Only output ports support picture quality setting and position setting, with a range of 0-32. If you click “Reset”, all values will be reset to 16.
(2) The 2K HDMI-V output card, 2K DVIU output card (when the output resolution is set to CVBS/YPbPr), 2K SDI output card and 2K FIBER output card do not support picture quality setting and position setting.

■ Video Wall Setting Page



1. Video Wall Creation

Follow the steps below to create a video wall.

Step 1. Input the video wall name (The maximum length is 32 English characters or 16 Chinese characters).

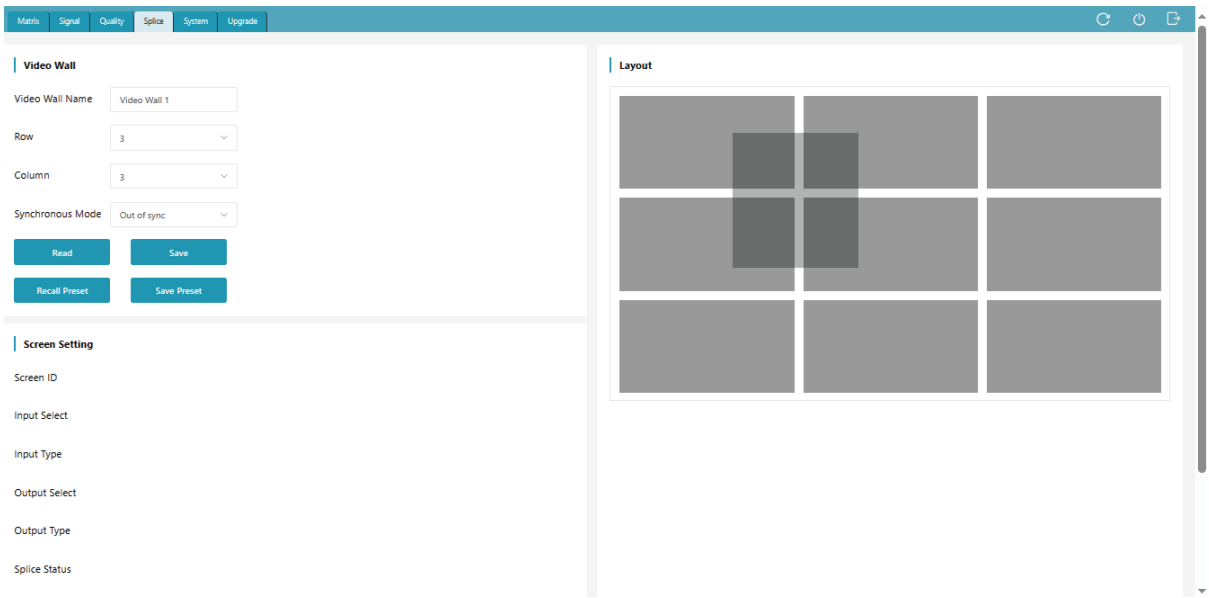
Step 2. Set the number of rows and columns of the video wall (ranging from 1 to 36). After the creation, parts with more than 36 screens will not be displayed.

Step 3. Click the drop-down list of “Synchronous Mode” to set the synchronous mode.

Step 4. Click the “Save” button, then the layout interface on the right side will display the corresponding windows.

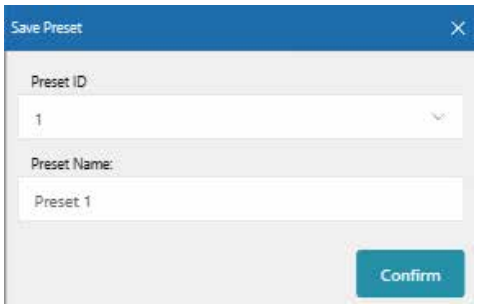
Step 5. Set the splicing. Hold down the left mouse button and drag to select the desired screens. The selected area is displayed as a gray curtain, and the screens covered by the gray curtain will be added to the current group, as shown in the following figure.

Note: If the screen covered by the grey curtain is already occupied by other groups at this time, there will be no response.

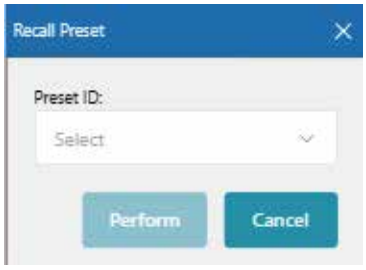


Step 6. After releasing the mouse, the selected screens will turn blue. Then click the right mouse button and select “Screen Splicing” from the settings menu to complete the splicing.
Note: The 2K DVIU output card (when the output resolution is set to CVBS/YPbPr), 2K SDI output card and 2K FIBER output card do not support splicing settings.

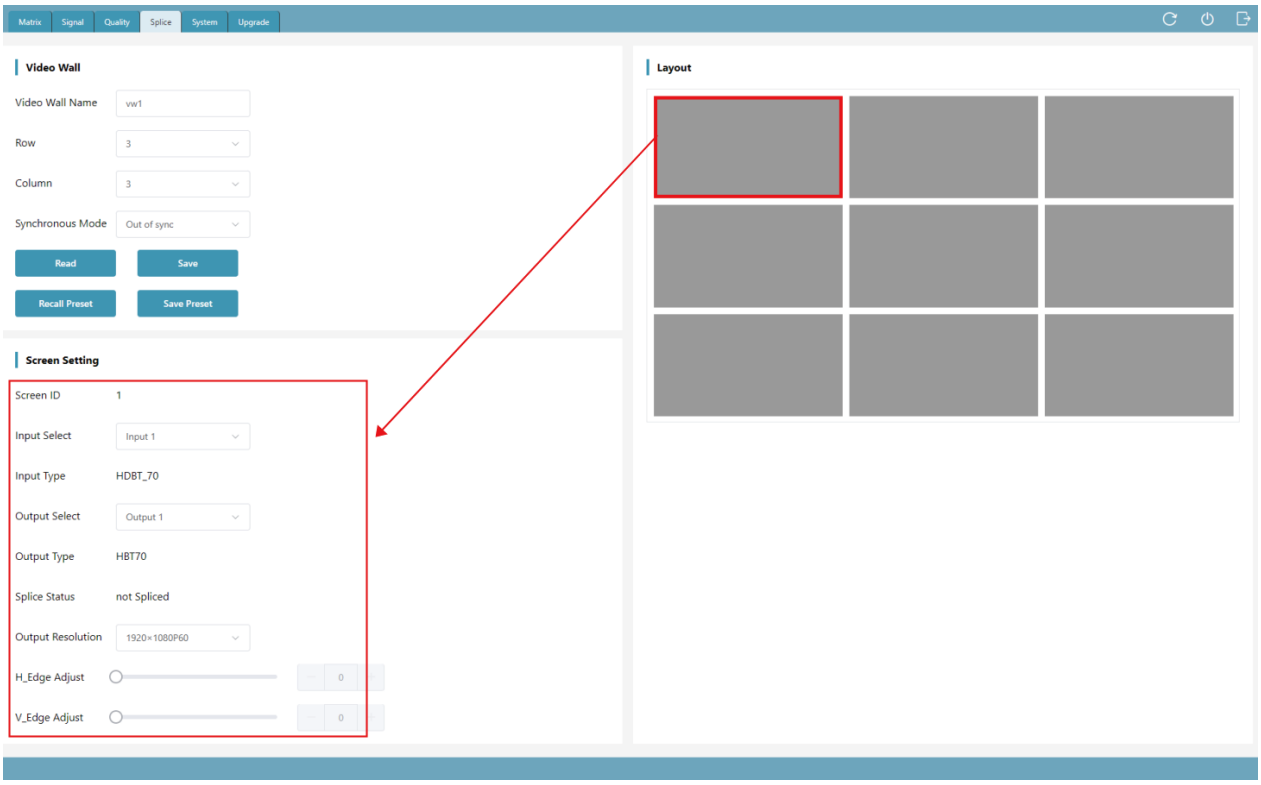
2. Save Preset: Click the “Save Preset” button, and the following window will pop up. Select a preset ID, set a preset name or use the default name, then click “Confirm” to save the preset.



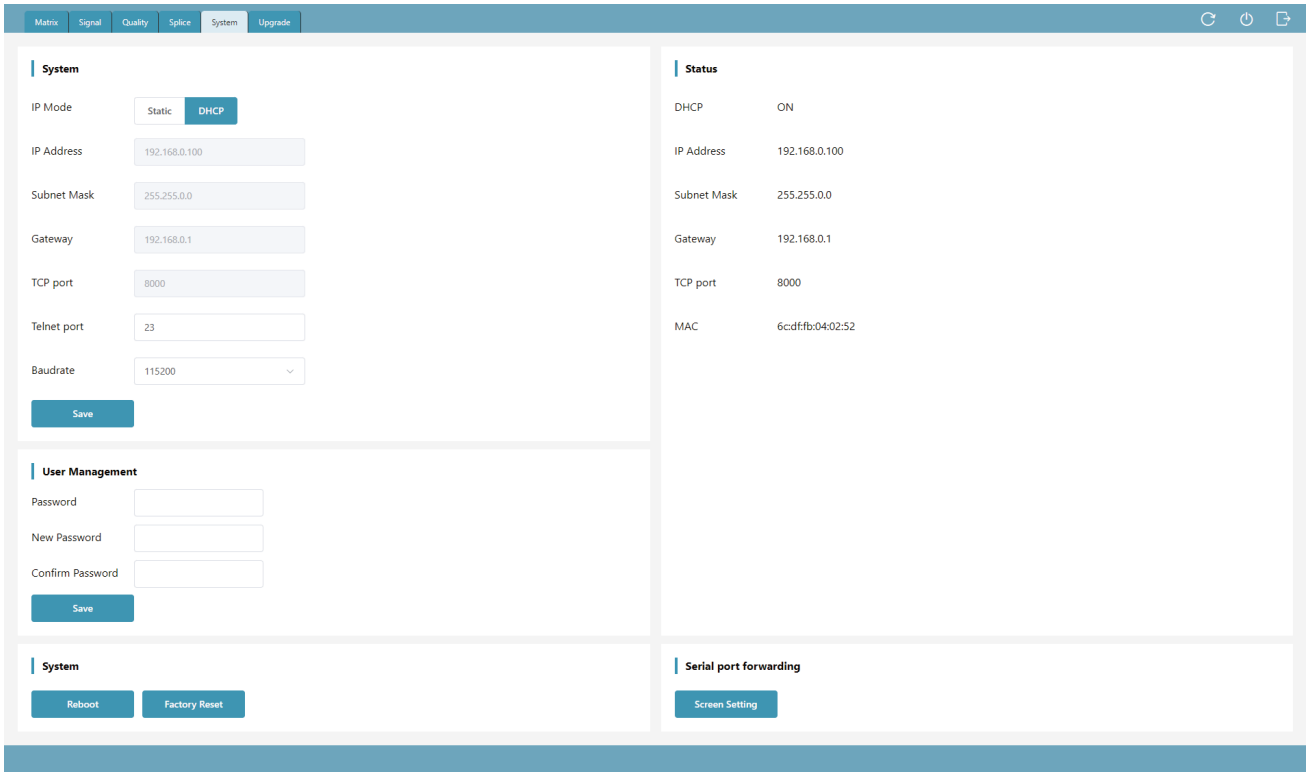
3. Recall Preset: Click the “Recall Preset” button, and the following window will pop up. Select a preset ID, then click “Perform” to recall the preset.



4. Screen Setting: You can click any screen to view the screen’s configuration information, or configure the corresponding input, output and other parameters, as shown in the figure below.
Note: When the screen is in splicing state, the corresponding output port can not be configured.



■ System Setting Page

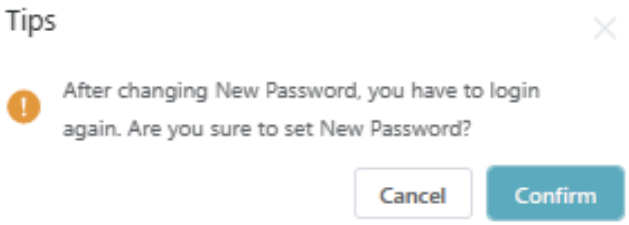


1. Modify Network Setting

If the IP Mode is set to “Static”, you can modify the IP Address, Subnet Mask, Gateway, TCP Port, Telnet Port and Baudrate as required, and click “Save” to take effect. Then the system will switch to the corresponding IP Address automatically.
If the IP Mode is set to “DHCP”, it will automatically search and switch to the IP Address assigned by the router.

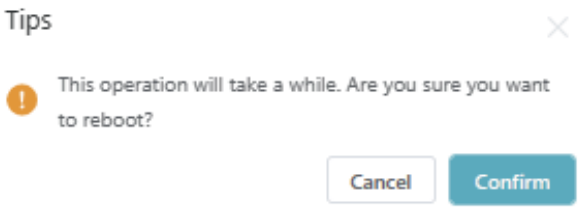
2. Modify User Password

You can modify the login password in User Management as required. Enter the correct Old Password, New Password and Confirm Password, then click “Save” to pop up a window as shown below. Click “Confirm” to take effect, then the system will switch to the login interface automatically, and you need to log in with the new password.

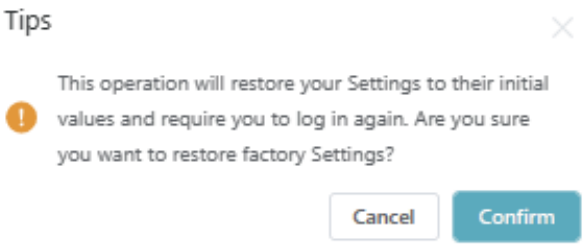


3. System Operation

You can click “Reboot” to pop up the window below, then click “Confirm” to reboot the system. After reboot, the system will automatically switch to the login page.



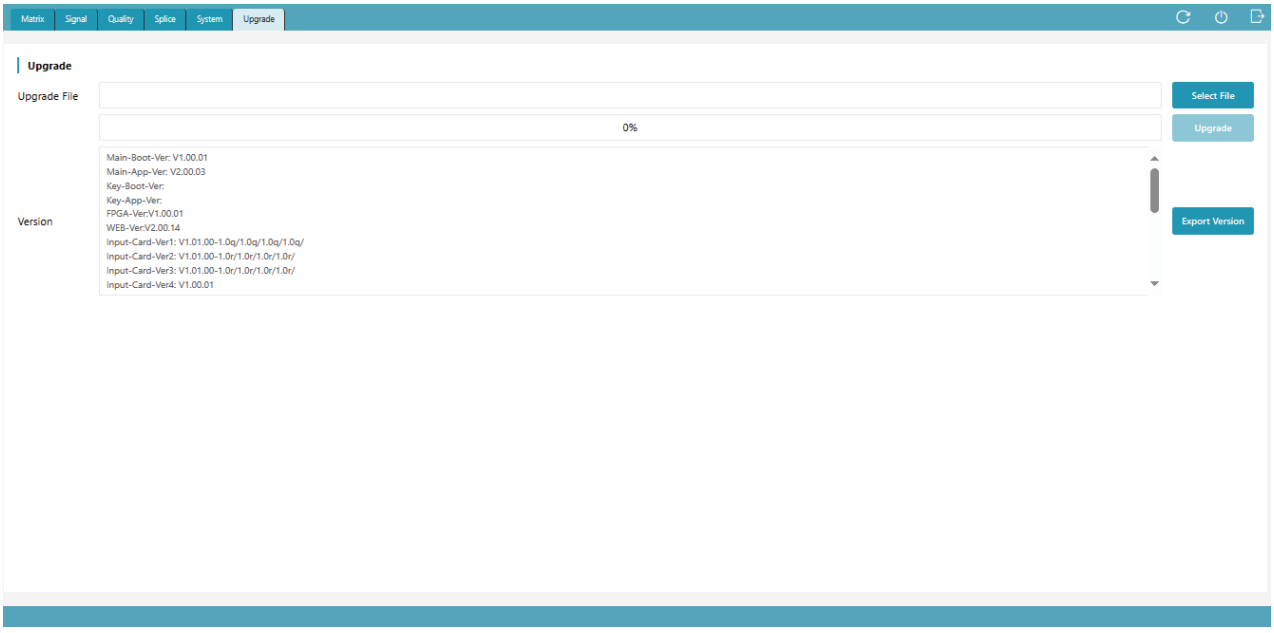
You can click “Factory Reset” to pop up the window below, then click “Confirm” to reset the device to factory defaults. After reset, the system will automatically switch to the login page.



4. Serial Port Pass-through

The system setting with the main control card (optional 2) supports serial port pass-through function. Click “Screen Setting” to enter the Screen Setting page, in which you can add the command (ASCII/HEX) for the manufacture and select the baud rate, then click “Send” to send commands through the external serial port.

■ System Upgrade Page

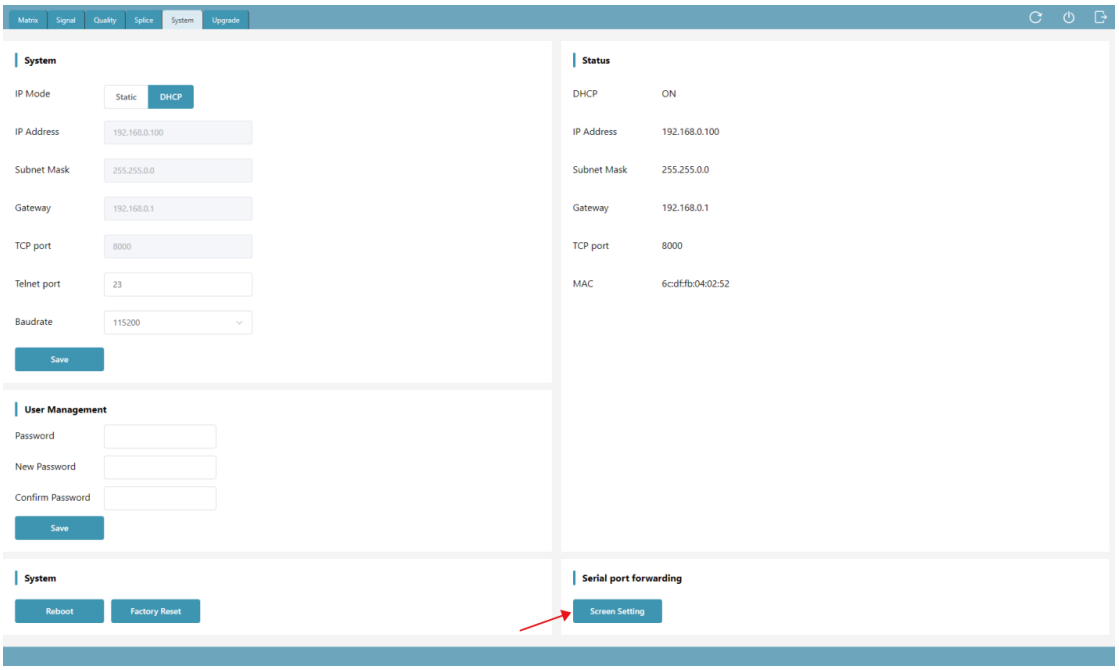


Click “Select File” to select the upgrade file, then click “Upgrade” to start the system upgrade. After the progress bar reaches 100%, the upgrade is successful, and the device will reboot automatically.

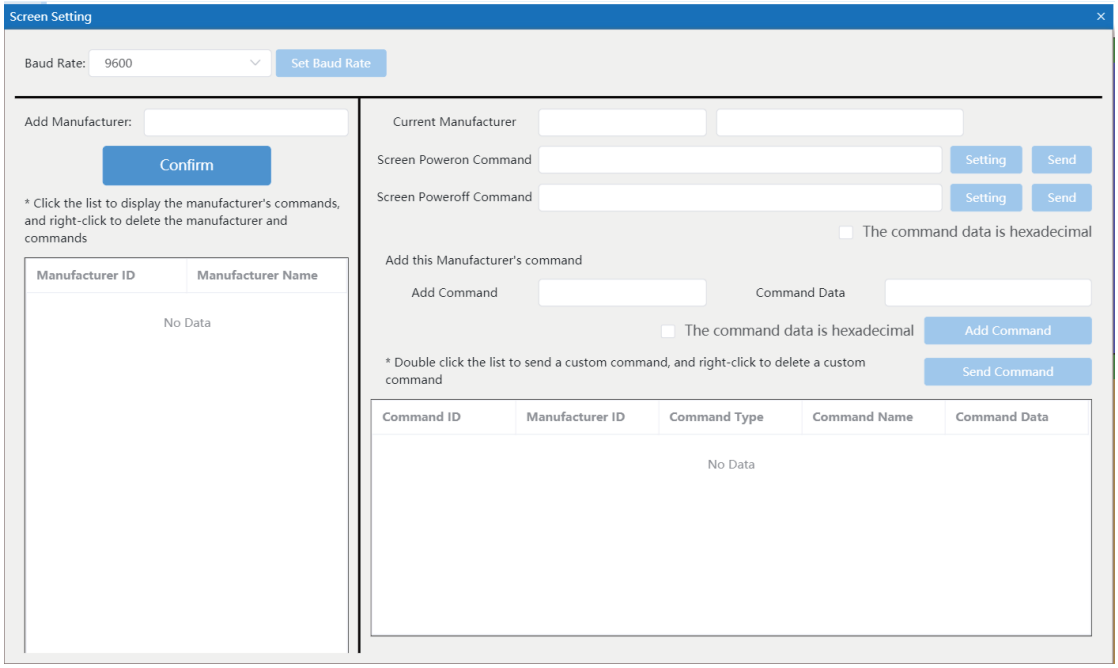
You can click “Export Version” to export the current upgrade version information.

■ Screen Setting Page

The system setting with the main control card (optional 2) supports serial port pass-through function, as shown in the figure below.



Click “Screen Setting” to enter the Screen Setting page, as shown in the figure below. You can add the command (ASCII/HEX) for the manufacture and select the baud rate, then click “Send” to send commands through the external serial port.



1. Add Manufacturer

Input the name in the input box of “Add Manufacturer”, select the Baud Rate that needs to be sent by the manufacturer, then click “Conform” to complete adding.

Note:

(1) The manufacturer cannot be added repeatedly.

(2) Any character with a length of 16 is supported.

2. Add Manufacturer Power On/Off Command

Follow the steps below to add manufacturer power on/off command.

Step 1. Select the manufacturer from the manufacturer list on the left.

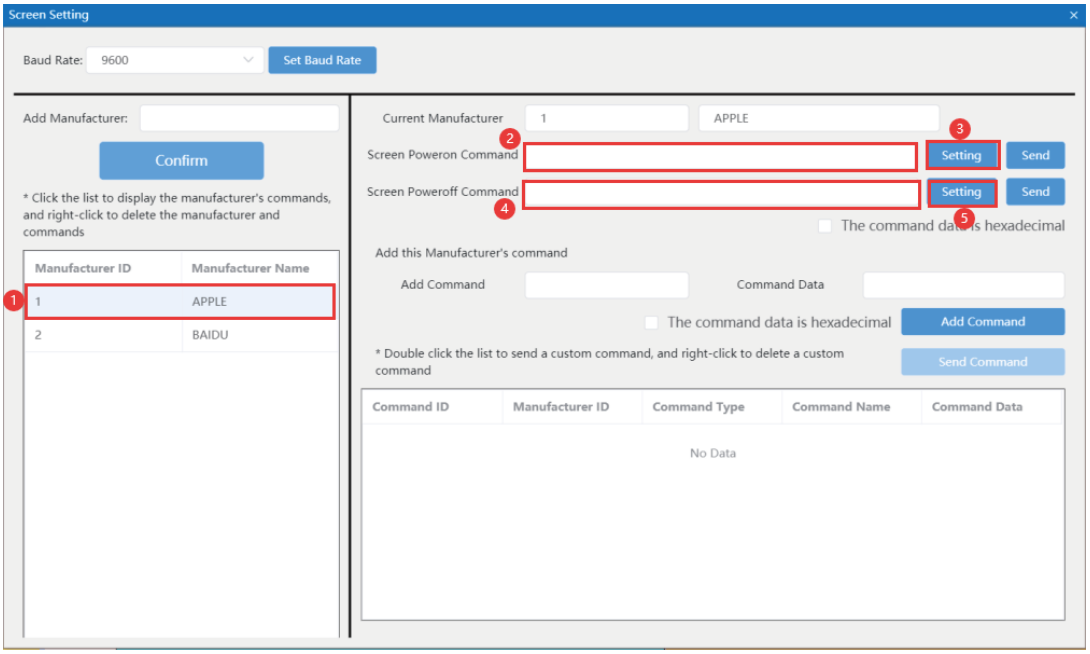
Step 2. Input the power on command.

Step 3. Click the corresponding “Setting” button to complete the setting.

Step 4. Input the power off command.

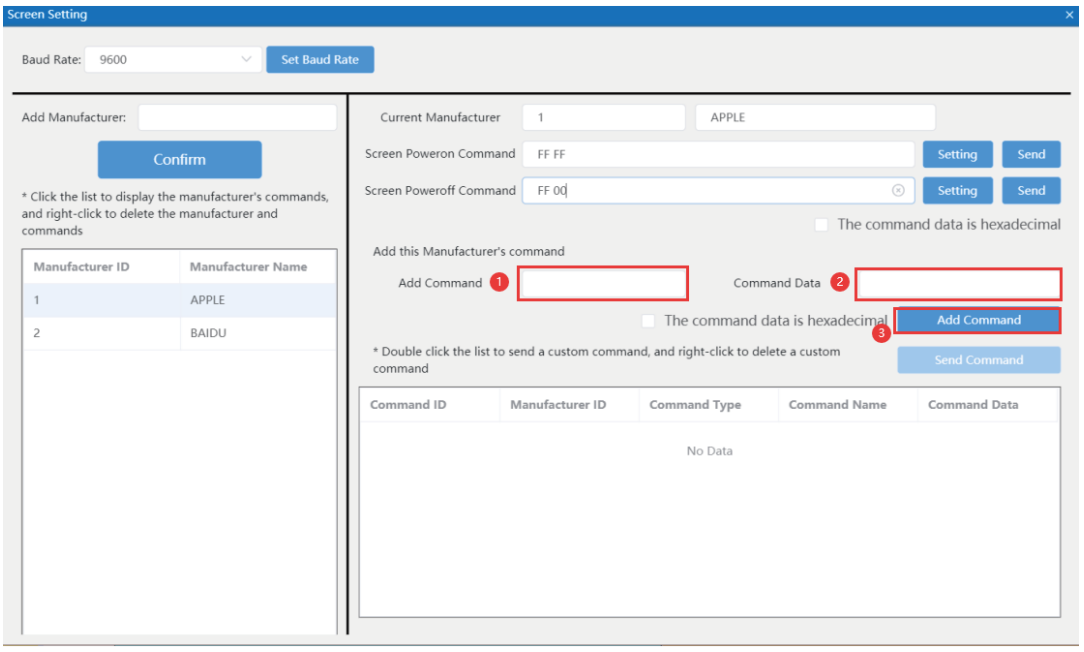
Step 5. Click the corresponding “Setting” button to complete the setting.

Note: If the option “The command data is hexadecimal” is checked, the command should be input in hexadecimal format , for example: f1 11 ff.



3. Add Manufacturer Other Commands

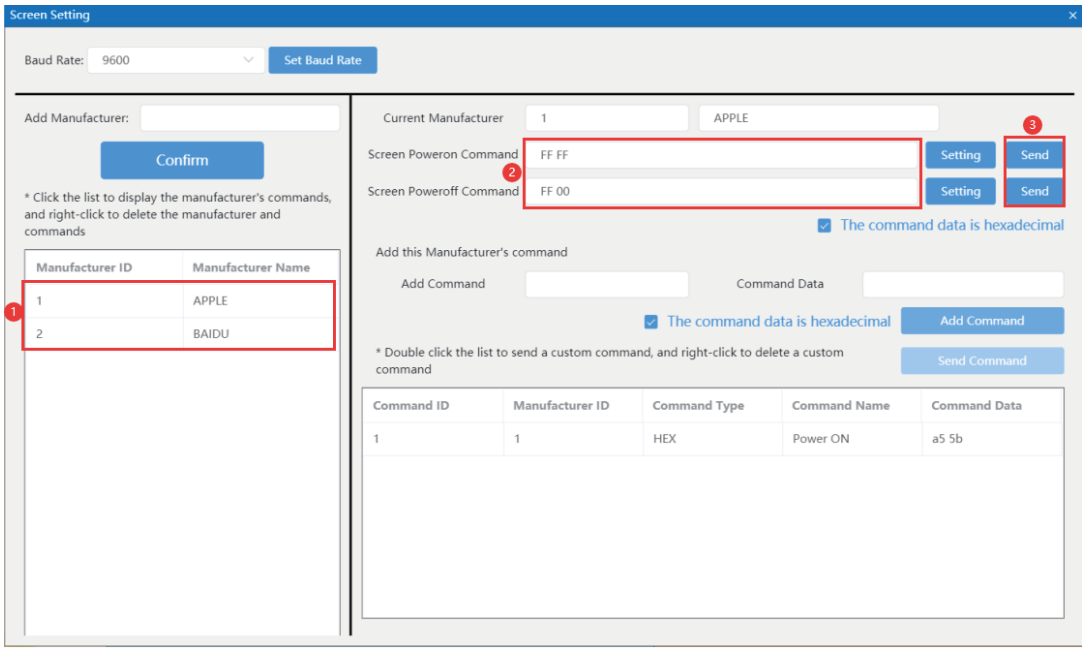
Input the name in the input box of “Add Command”, input the command data in the input box of “Command Data”, then click “Add Command” button to complete adding, as shown in the figure below.



4. Send Manufacturer Power On/Off Command

There are two methods to send manufacturer power on/off command.

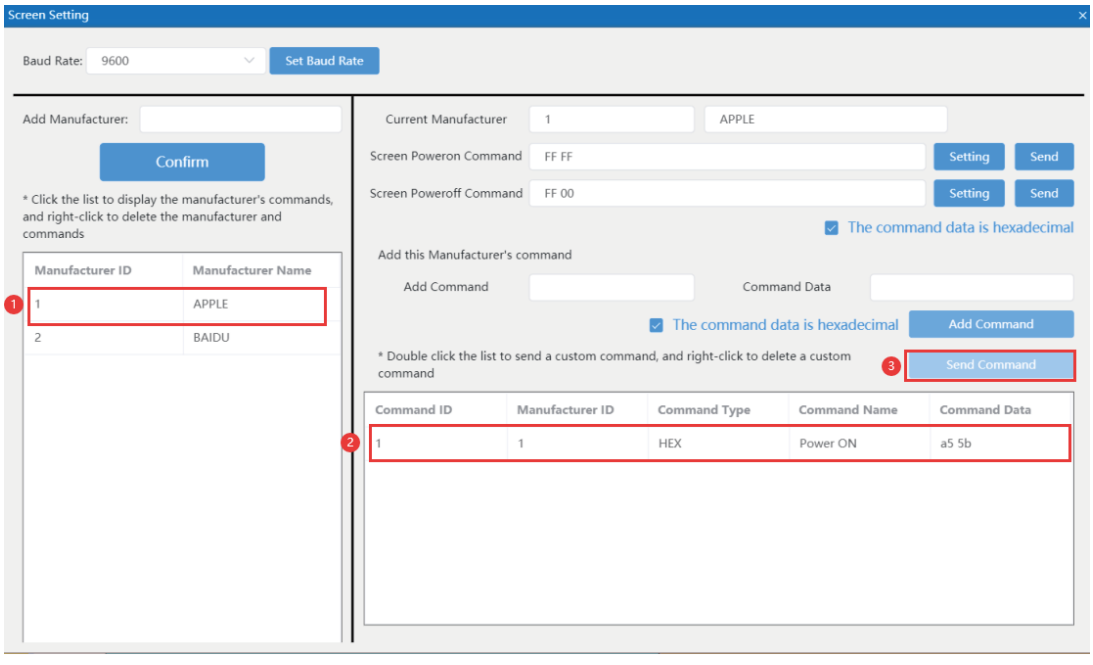
Method 1: Select the manufacturer from the manufacturer list on the left, and input the customized power on/off command in the “Screen Poweron Command” / “Screen Poweroff Command”, then click “Send” to send the command, as shown in the following figure.



Method 2: Click “Screen Poweron / Screen Poweroff” on the Main Function interface to send the manufacturer power on/off command that is set for the last time.

5. Send Manufacturer Other Commands

Select the manufacturer from the manufacturer list on the left, and click the command in the command list, then click “Send Command” button to send the command, or directly double-click the command in the command list to complete send, as shown in the figure below.



5.4 Web GUI Operation Guide

5.4.1 Connection & Login

The matrix can be controlled by Web GUI, allowing users to operate the matrix online. Follow the steps below to connect and log in.

Step 1. Get the current IP Address.

The default IP address is 192.168.0.100 (when the system is not connected to a router). You can get the current matrix IP address in the following two methods.

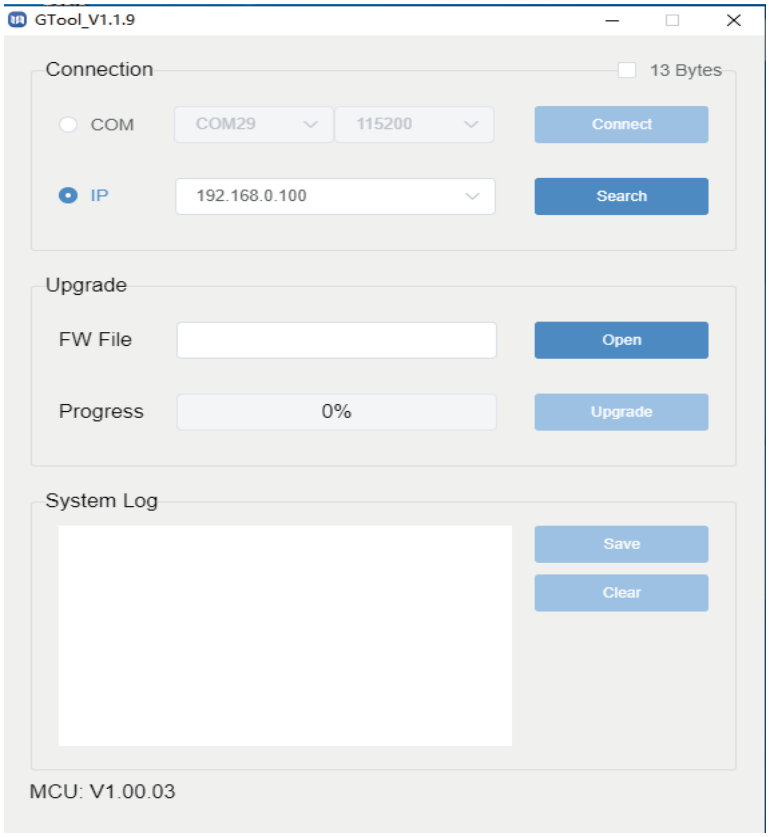
Method 1: Get the IP address via API control command. Connect the RS-232 port of the Matrix to a PC with the included RS-232 serial cable and USB to RS-232 serial cable, and set the IP address of the PC to be in the same network segment with the Matrix. Then send the ASCII command “r ipconfig!” through a Serial Command tool, then you’ll get the feedback information as shown below.

```
ip mode:dhcp
ip address:192.168.66.19
subnet mask:255.255.255.0
gateway:192.168.66.1
mac address:6c-df-fb-04-02-52
tcp/ip port:8000
telnet port:23
```

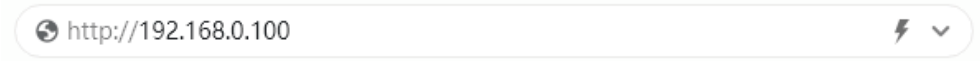
IP:192.168.66.19 in the above figure is the current IP Address of the Matrix (The IP address is variable, depending on what the specific machine returns).

For the details of API control, please refer to “9. API Control Command”.

Method 2: Get the IP address via the Host Computer. Connect the LAN port of the Matrix to a PC with an UTP cable, and set the IP address of the PC to be in the same network segment with the Matrix. Then open an upgrade software (e.g. GTool) on PC, and select “IP”, then click “Search” to search and check the current Matrix IP address, as shown in the figure below.

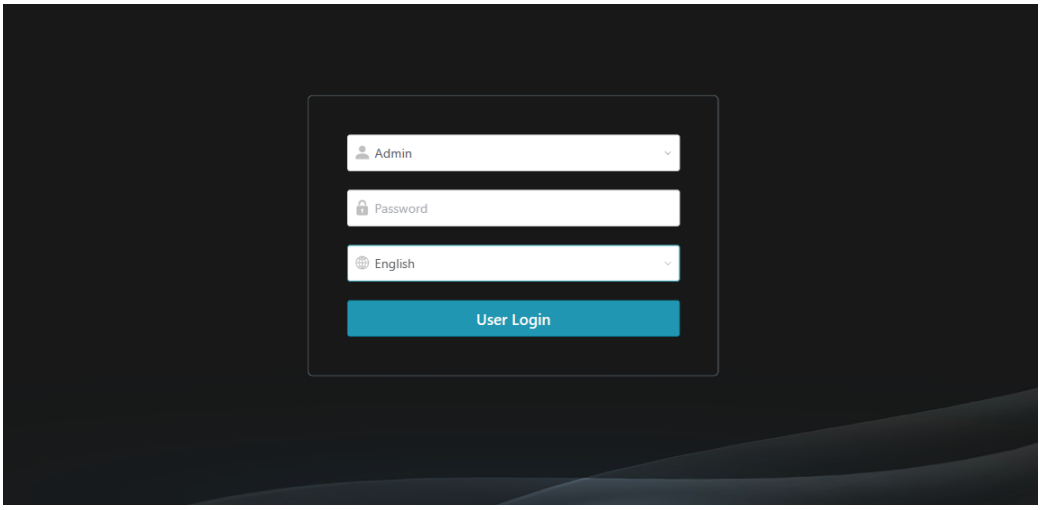


Step 2. Input the current IP address of matrix into your browser on the PC to enter the Web GUI login interface.



Step 3. In the login interface, select the username and input the password, as shown below. Select the desired language, then click “User Login”, or tap the “Enter” button to log in.

Username	**User**	**Admin**
Password	**user**	**admin**

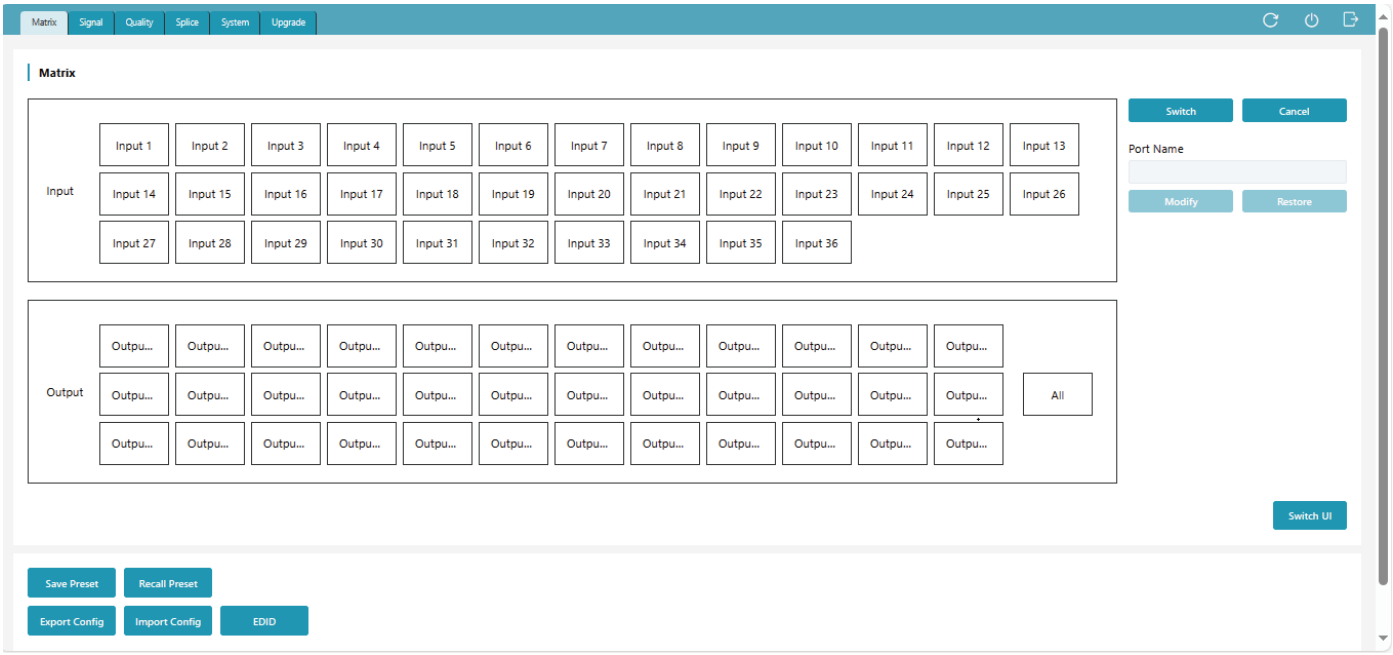


5.4.2 Web GUI Interface Instruction (Take the 36x36 Matrix as an example)

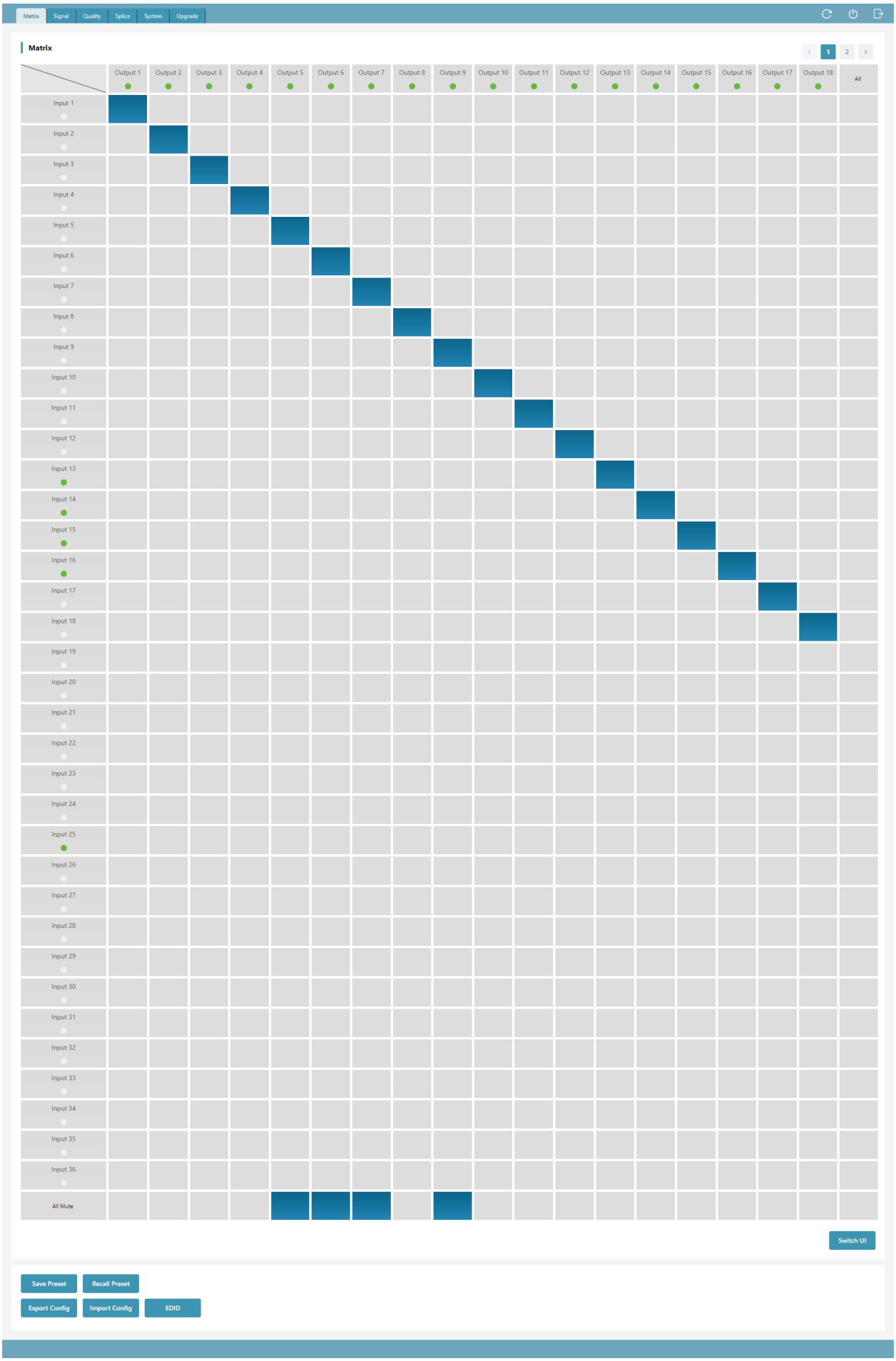
■ Matrix Switching Page

There are two UI styles of the Web GUI. You can click the “Switch UI” button to switch between UI 1 and UI 2.

Matrix Switching UI 2



Matrix Switching UI 1



1. Refresh Data & Reconnection

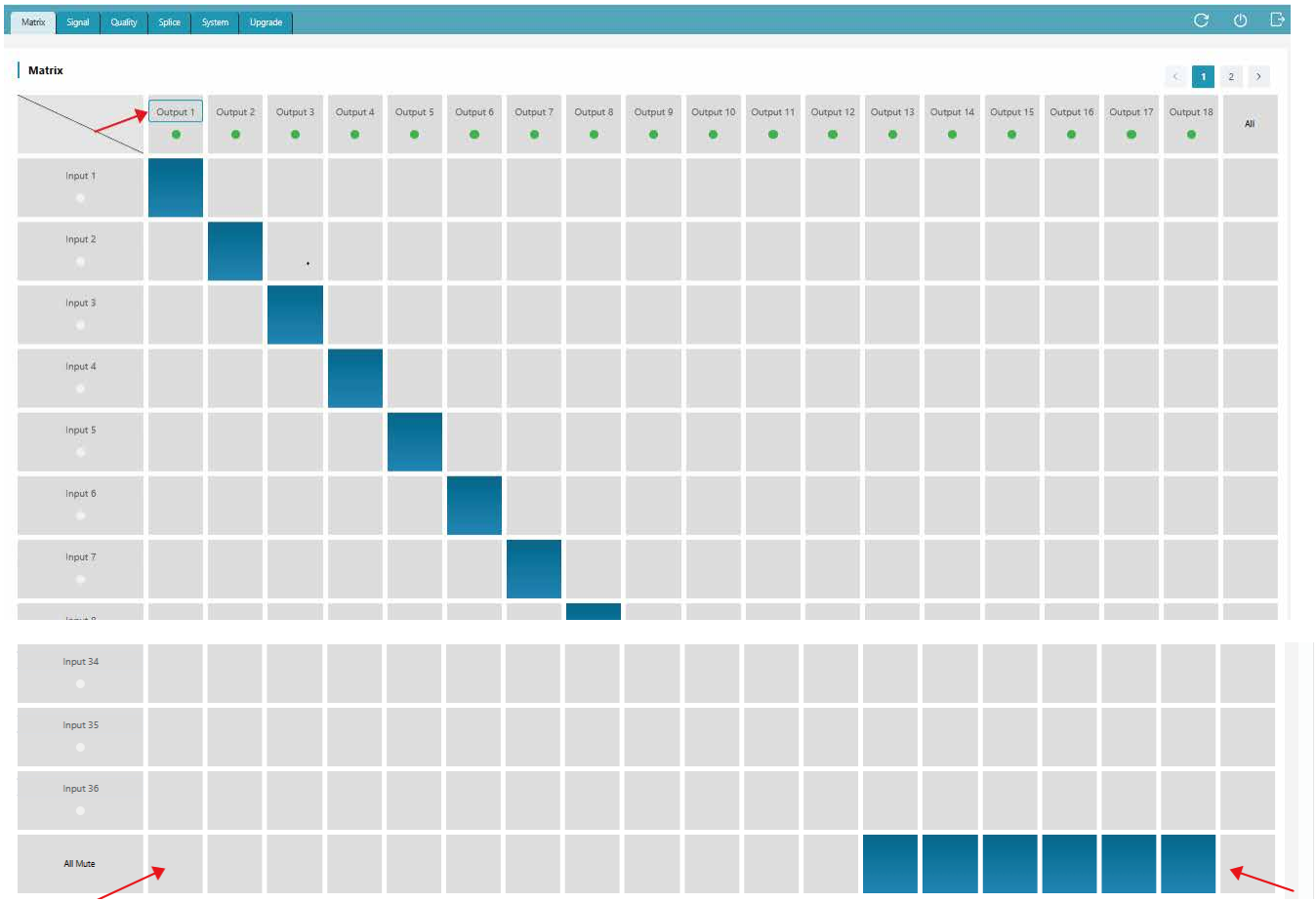


As shown in the figure above, icon ① is used to refresh the data of the current page; icon ② is used to power on the Matrix or set it to standby mode; icon ③ is used to logout and return to the login interface, then log in again.

2. Matrix Switching

The Matrix Switching page displays the names and statuses of all input and output ports. The green light under the name of the input/output port indicates that there are connected signal sources or display devices; The gray light indicates that no signal sources or display devices are connected. Besides, you can rename the input/output port, switch the matrix correspondence or turn off the output.

Matrix Switching UI 1

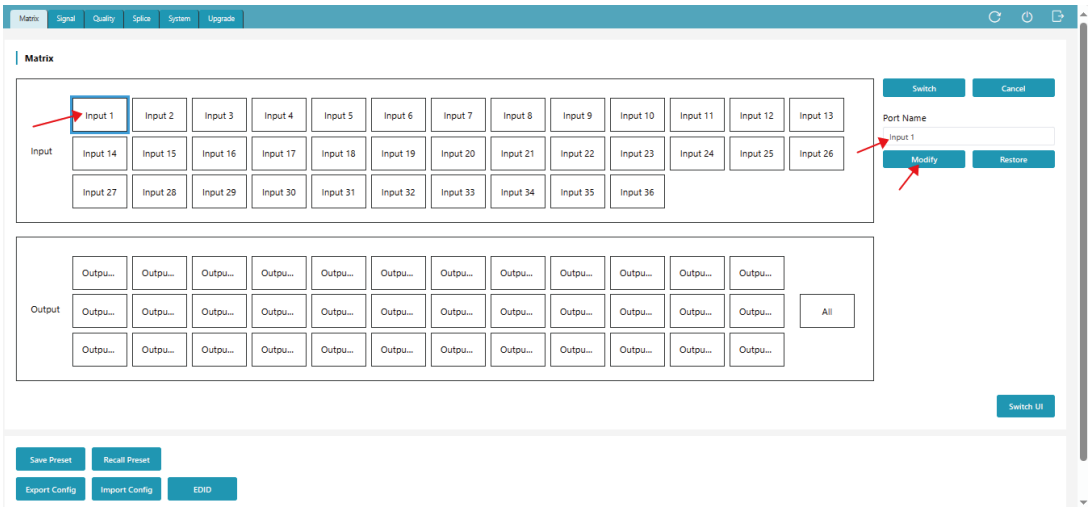


① Modify the name: Click the input/output port to rename it. (The name supports numbers, uppercase and lowercase letters and spaces, not all spaces. The maximum length is 32 English characters or 16 Chinese characters). And then click outside the input box to complete the name modification.

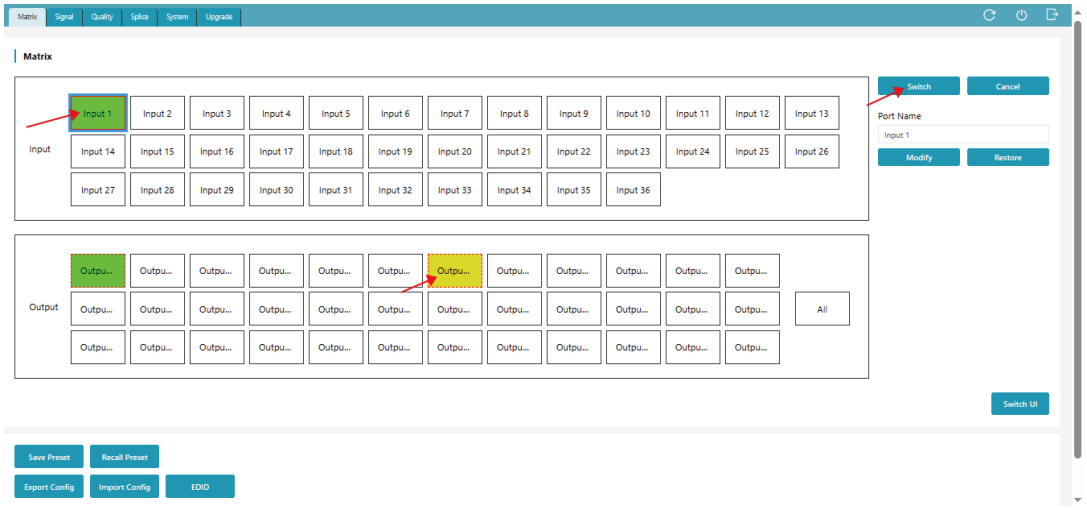
② Switch matrix correspondence: Click the grid corresponding to the input/output channel to set a single input and output switching; When "All" is selected, the same signal source can be output to all display devices.

③ Turn off the output: Click the grid of "AV Mute" corresponding to an output channel to turn off its audio and video output; When the grid of "AV Mute" corresponding to "All" is selected, the outputs of all output channels will be turned off.

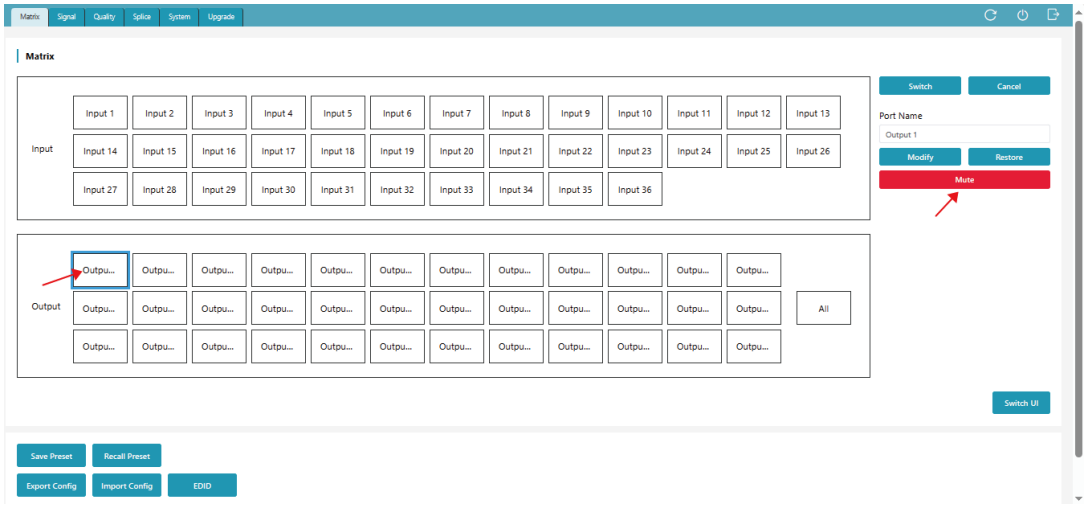
Matrix Switching UI 2

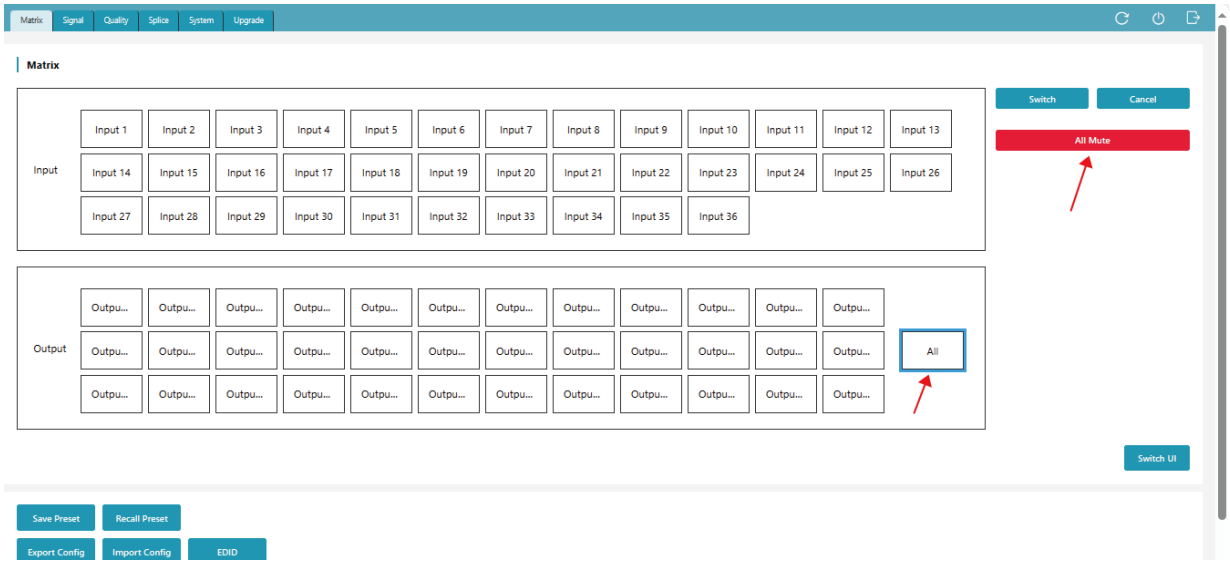


① Modify the name: As shown in the above figure, double-click the input/output port, then edit the name in the input box of “Port Name” (The name supports numbers, uppercase and lowercase letters and spaces, not all spaces. The maximum length is 32 English characters or 16 Chinese characters). And then click “Modify” to complete the name modification.



② Switch matrix correspondence: As shown in the above figure, click an input channel, and then click an output channel or click “All” (the selected output channel will turn to yellow), finally click "Switch" to take effect. After switching is completed, the output channel will turn to green.



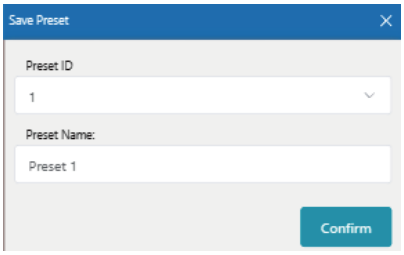


③ Turn off the output: As shown in the above figures, double-click an output port, then click “All Mute” to turn off the audio and video output of the selected output port; double-click “All”, then click “All Mute” to turn off the outputs of all output channels.

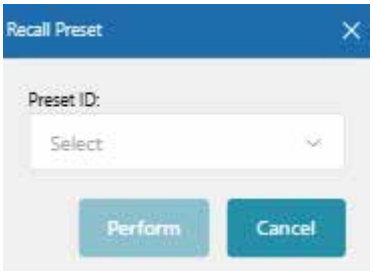
2. Preset and Configuration



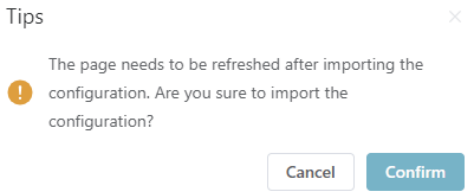
① Save Preset: Click the “Save Preset” button, and the following window will pop up. Select a preset ID, set a preset name or use the default name, then click “Confirm” to save the preset.

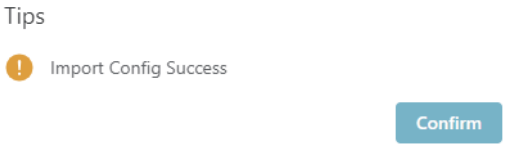


② Recall Preset: Click the “Recall Preset” button, and the following window will pop up. Select a preset ID, then click “Perform” to recall the preset.

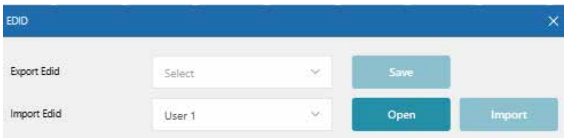


③ Import Config: Click the “Import Config” button, select the configuration file, it will prompt as shown in the lower left figure. Then click “Confirm” to import the configuration. After successful import, a prompt will appear, as shown in the lower right figure. After clicking “Confirm”, the system will automatically switch to the login interface.



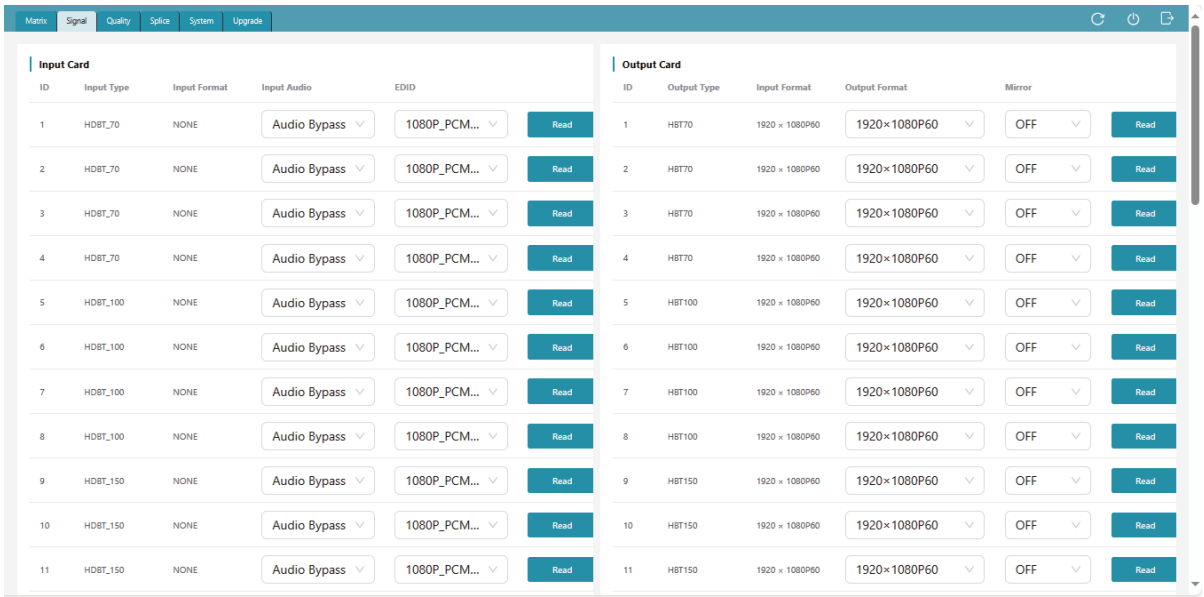


④ Export Config: Click the “Export Config” button, select the address to save the configuration, and then click "Confirm" to download the corresponding EDID file successfully.
⑤ Import/Export EDID: Click the “EDID” button, and the following window will pop up.

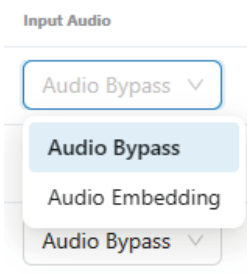


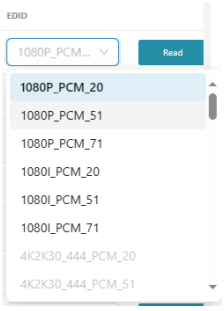
Export EDID: Select an input channel in the matrix interface, click the drop-down list of “Export EDID” to select an address, then click “Save” to download the corresponding EDID file.
Import EDID: Click the drop-down list of “Import EDID” to select an address (User1/User2), click “Open” to select an EDID file, then click “Import” to complete import.

■ Signal Setting Page



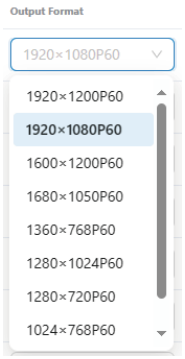
This page is mainly used to view and configure the relevant parameters of the I/O card.
The input card supports the configuration of audio source (bypass or embedding) and EDID.

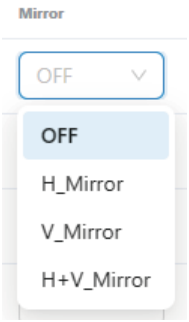




Notes:
(1) The 2K VGA input card does not support audio source switching, and is fixed to Audio Embedding.
(2) Both 2K SDI and 2K VGA input cards do not support EDID settings.
(3) The 2K VGA output card does not support copying the EDID of the VGA output port.
(4) The 2K SDI output card does not support copying the EDID of the SDI output port.

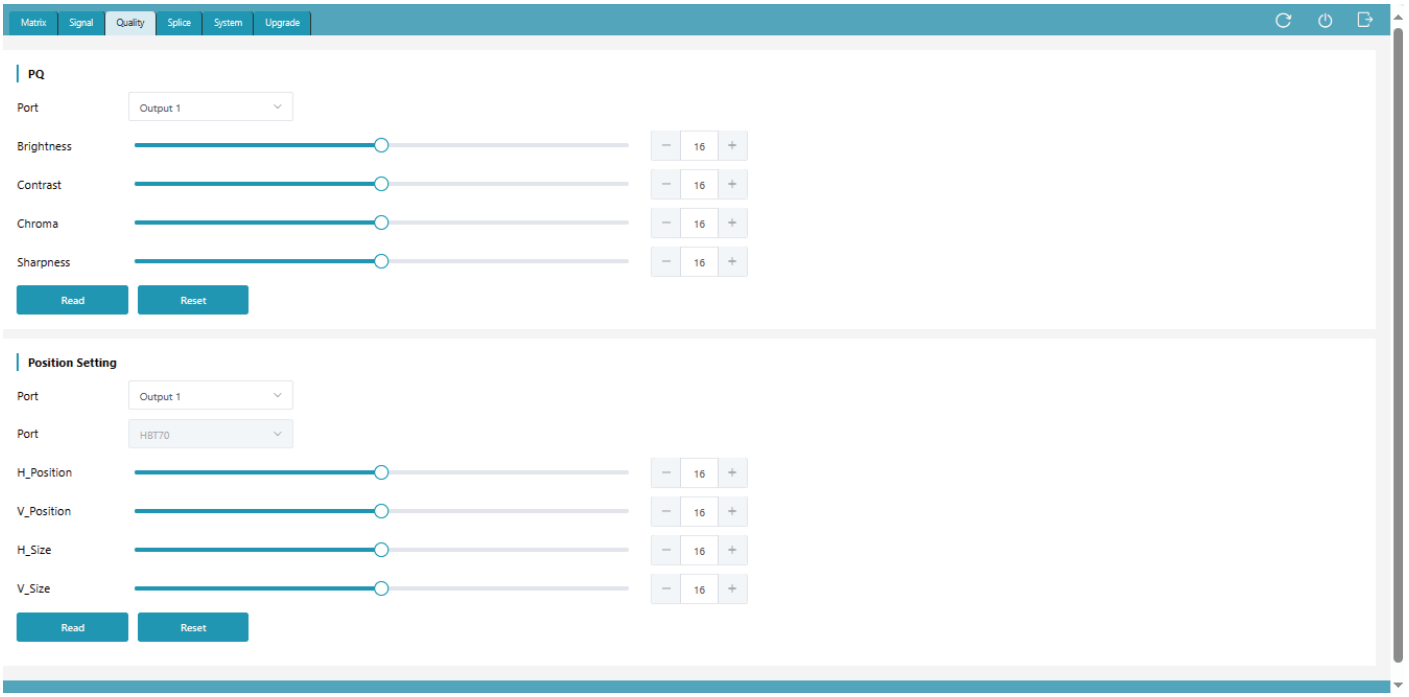
The output card supports the configuration of output resolution and mirroring.





Notes:
(1) The 2K HDMI-V output card, 2K SDI output card and 2K FIBER output card do not support mirroring.
(2) When the output resolution is set to CVBS/YPbPr, the 2K DVIU output card do not support mirroring.

■ Picture Quality Setting Page



1. Picture Quality Setting

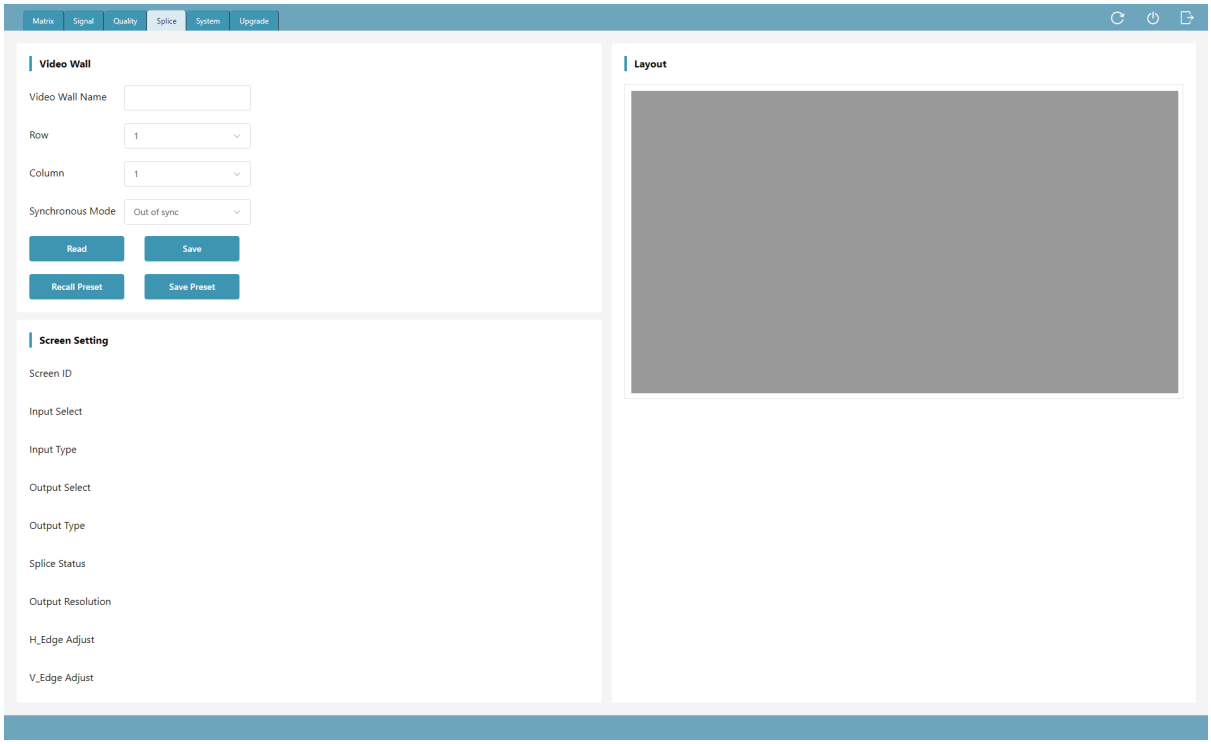
Click the drop-down list to select the output port, set the brightness, contrast, chroma and sharpness, then click “Read” to take effect. Finally, click the refresh icon to refresh the data.

2. Picture Position Setting

Click the drop-down list to select the output port and port type, set the H_Position, V_Position, H_Size and V_Size, then click “Read” to take effect. Finally, click the refresh icon to refresh the data.

Notes:
(1) Only output ports support picture quality setting and position setting, with a range of 0-32. If you click “Reset”, all values will be reset to 16.
(2) The 2K HDMI-V output card, 2K DVIU output card (when the output resolution is set to CVBS/YPbPr), 2K SDI output card and 2K FIBER output card do not support picture quality setting and position setting.

■ Video Wall Setting Page



1. Video Wall Creation

Follow the steps below to create a video wall.

Step 1. Input the video wall name (The maximum length is 32 English characters or 16 Chinese characters).

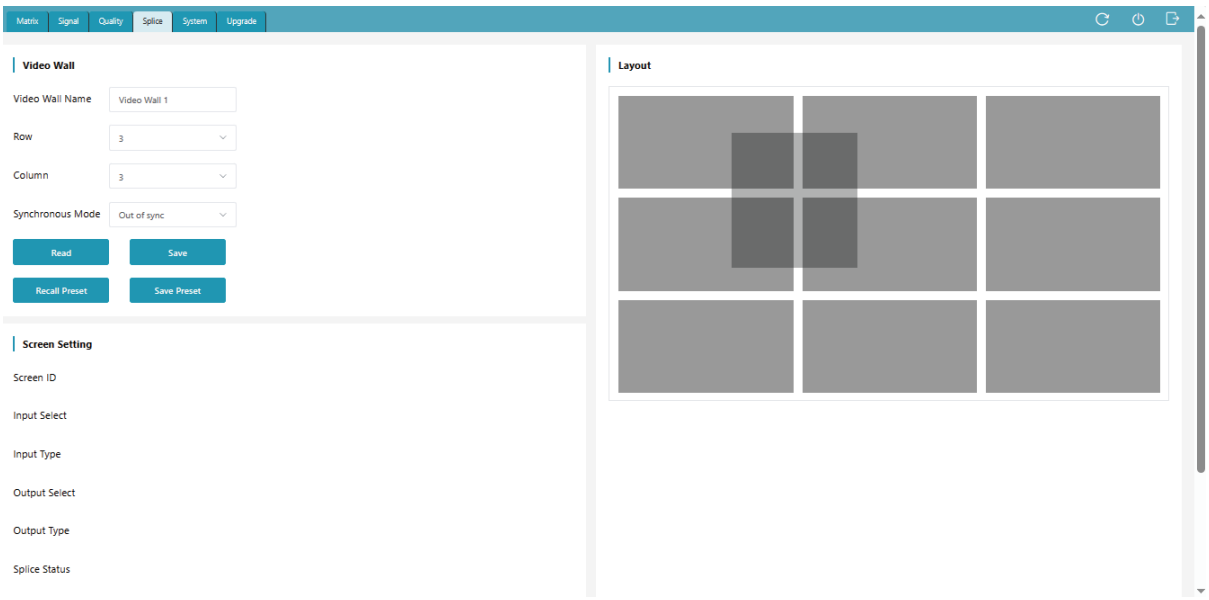
Step 2. Set the number of rows and columns of the video wall (ranging from 1 to 36). After the creation, parts with more than 36 screens will not be displayed.

Step 3. Click the drop-down list of “Synchronous Mode” to set the synchronous mode.

Step 4. Click the “Save” button, then the layout interface on the right side will display the corresponding windows.

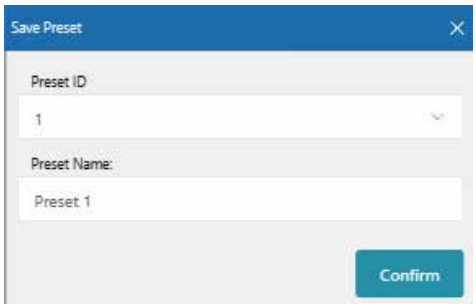
Step 5. Set the splicing. Hold down the left mouse button and drag to select the desired screens. The selected area is displayed as a gray curtain, and the screens covered by the gray curtain will be added to the current group, as shown in the following figure.

Note: If the screen covered by the grey curtain is already occupied by other groups at this time, there will be no response.

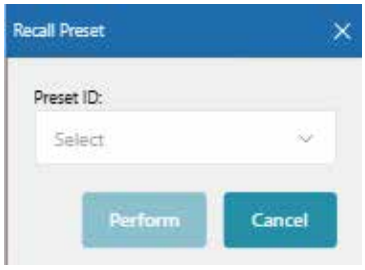


Step 6. After releasing the mouse, the selected screens will turn blue. Then click the right mouse button and select “Screen Splicing” from the settings menu to complete the splicing.
Note: The 2K DVIU output card (when the output resolution is set to CVBS/YPbPr), 2K SDI output card and 2K FIBER output card do not support splicing settings.

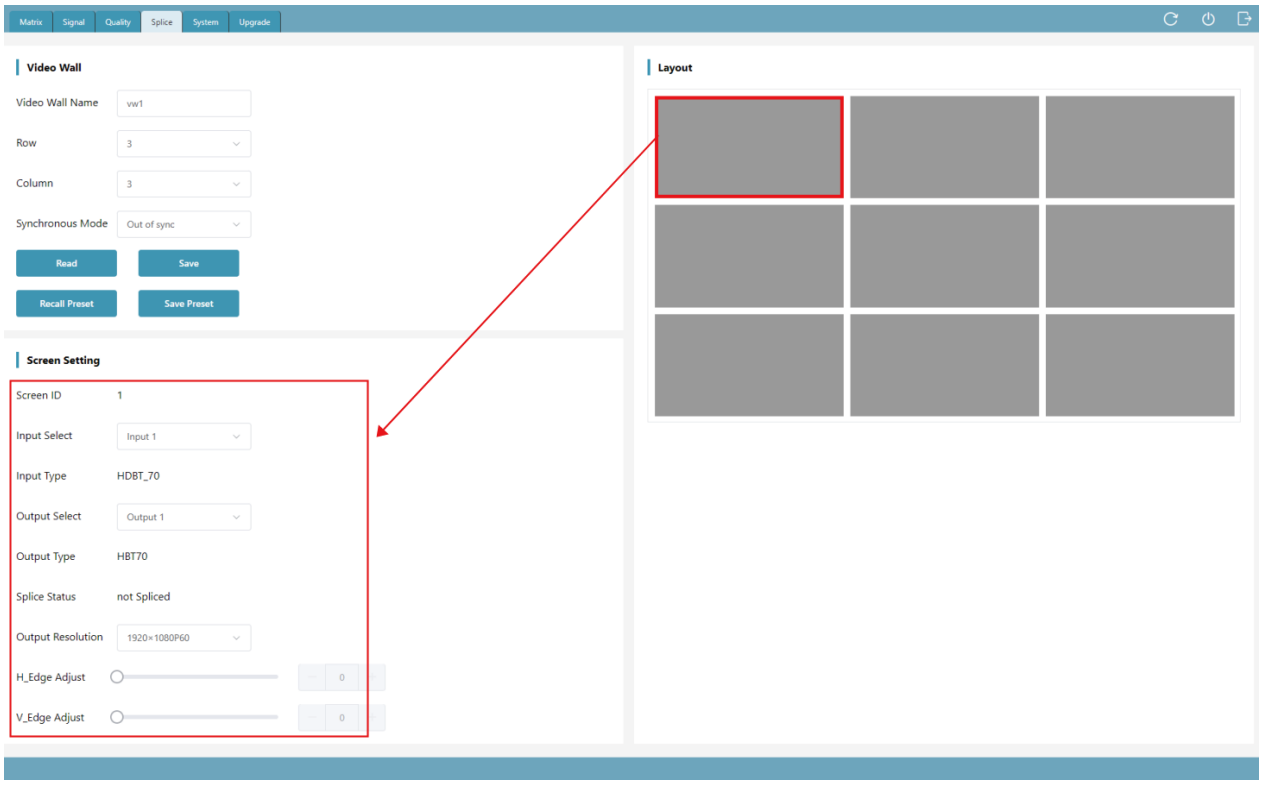
2. Save Preset: Click the “Save Preset” button, and the following window will pop up. Select a preset ID, set a preset name or use the default name, then click “Confirm” to save the preset.



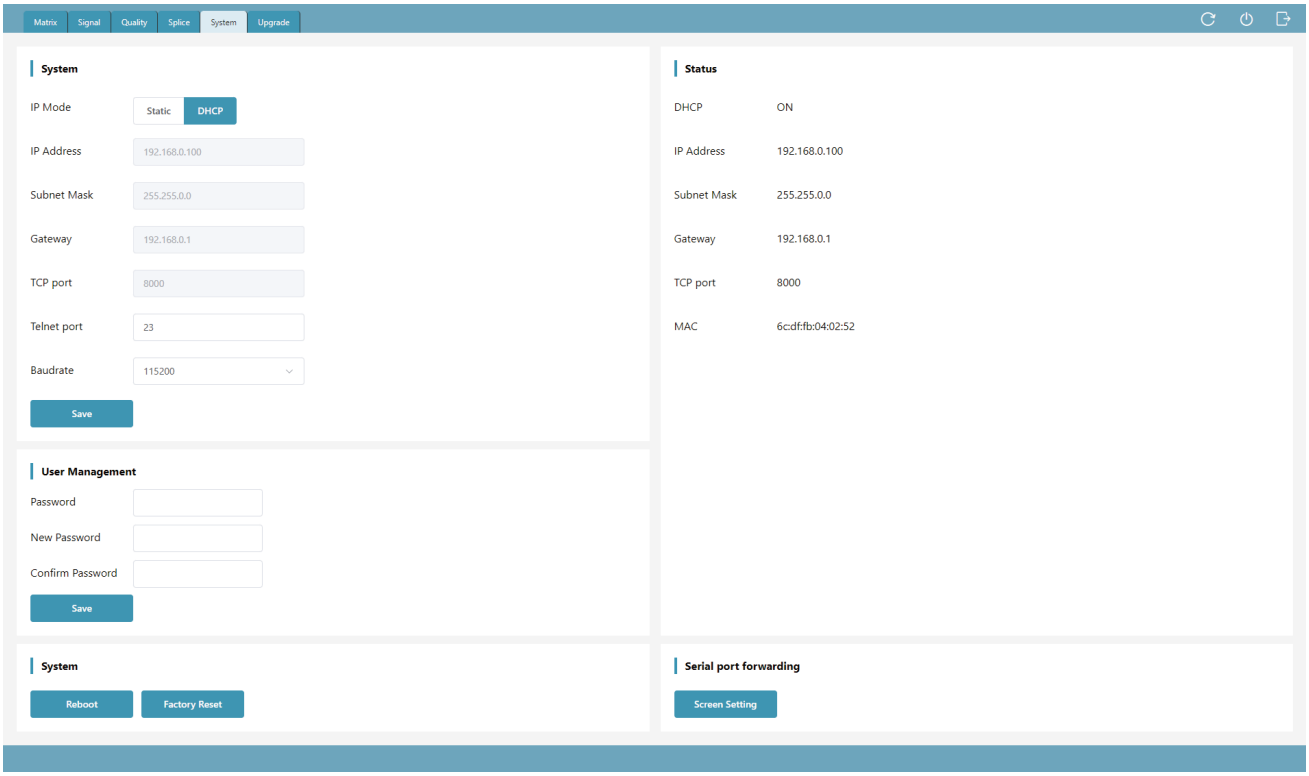
3. Recall Preset: Click the “Recall Preset” button, and the following window will pop up. Select a preset ID, then click “Perform” to recall the preset.



4. Screen Setting: You can click any screen to view the screen’s configuration information, or configure the corresponding input, output and other parameters, as shown in the figure below.
Note: When the screen is in splicing state, the corresponding output port can not be configured.



■ System Setting Page

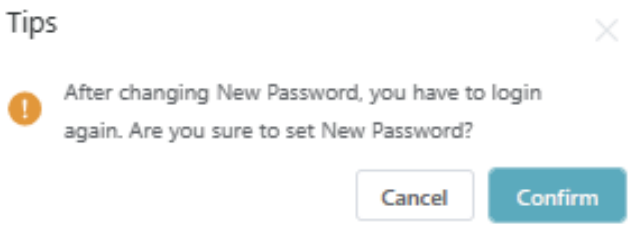


1. Modify Network Setting

If the IP Mode is set to “Static”, you can modify the IP Address, Subnet Mask, Gateway, TCP Port, Telnet Port and Baudrate as required, and click “Save” to take effect. Then the system will switch to the corresponding IP Address automatically.
If the IP Mode is set to “DHCP”, it will automatically search and switch to the IP Address assigned by the router.

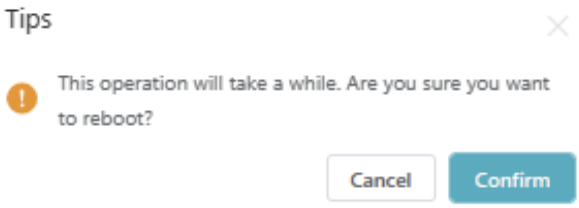
2. Modify User Password

You can modify the login password in User Management as required. Enter the correct Old Password, New Password and Confirm Password, then click “Save” to pop up a window as shown below. Click “Confirm” to take effect, then the system will switch to the login interface automatically, and you need to log in with the new password.

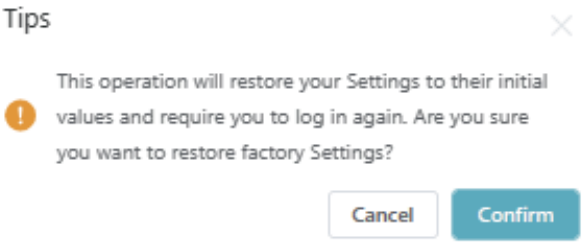


3. System Operation

You can click “Reboot” to pop up the window below, then click “Confirm” to reboot the system. After reboot, the system will automatically switch to the login page.



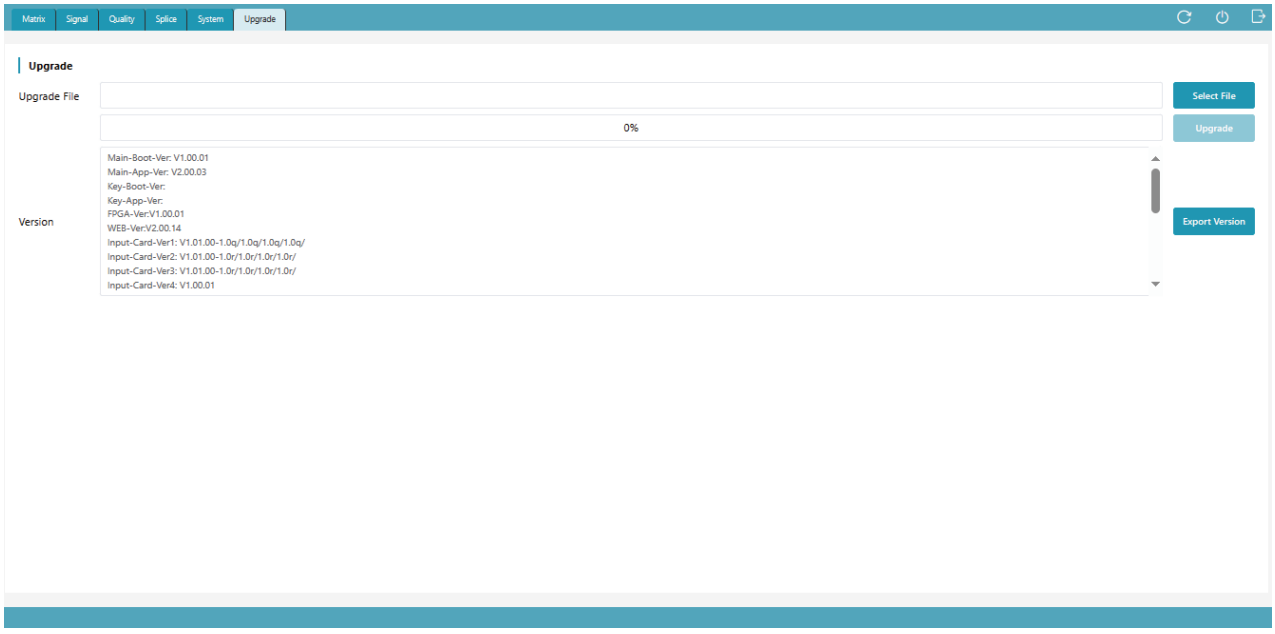
You can click “Factory Reset” to pop up the window below, then click “Confirm” to reset the device to factory defaults. After reset, the system will automatically switch to the login page.



4. Serial Port Pass-through

The system setting with the main control card (optional 2) supports serial port pass-through function. Click “Screen Setting” to enter the Screen Setting page, in which you can add the command (ASCII/HEX) for the manufacture and select the baud rate, then click “Send” to send commands through the external serial port.

■ System Upgrade Page

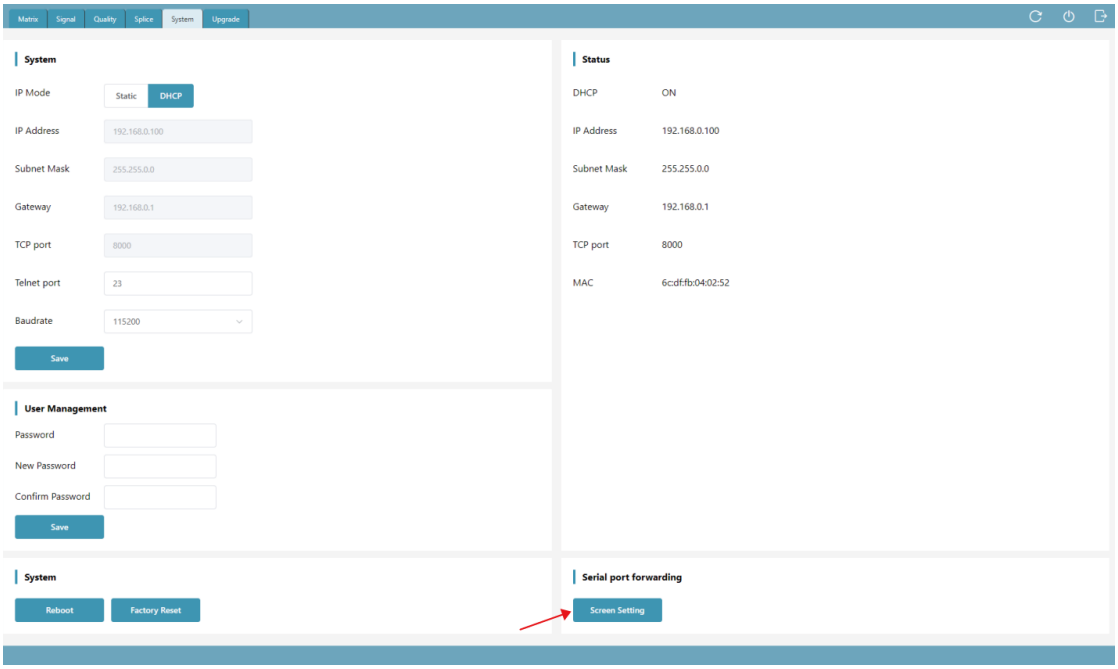


Click “Select File” to select the upgrade file, then click “Upgrade” to start the system upgrade. After the progress bar reaches 100%, the upgrade is successful, and the device will reboot automatically.

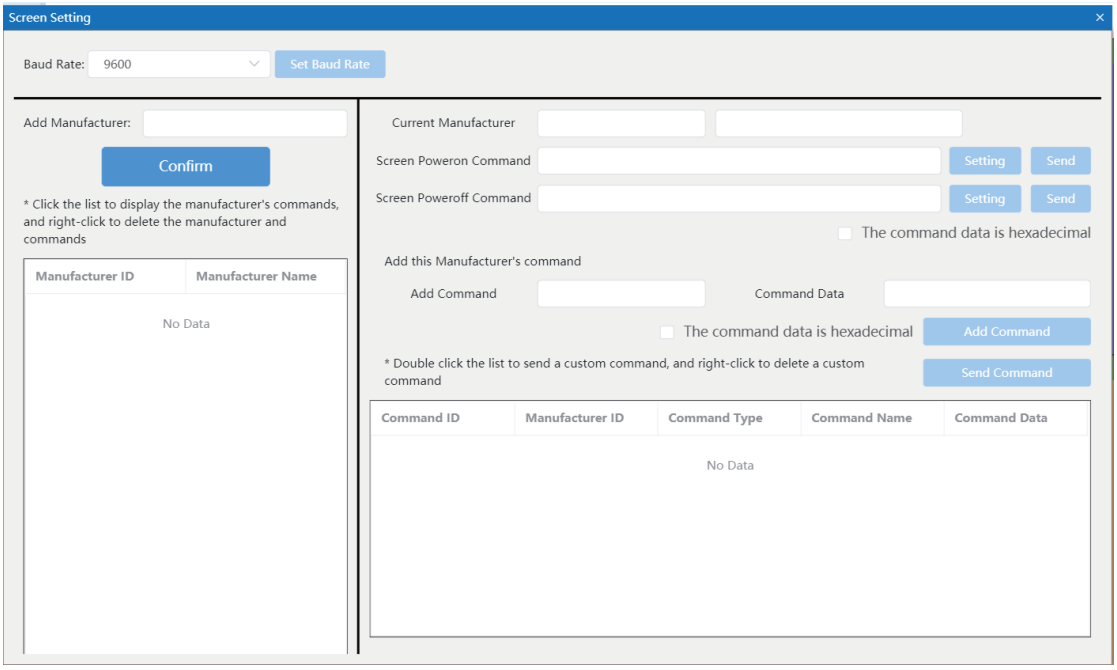
You can click “Export Version” to export the current upgrade version information.

■ Screen Setting Page

The system setting with the main control card (optional 2) supports serial port pass-through function, as shown in the figure below.



Click “Screen Setting” to enter the Screen Setting page, as shown in the figure below. You can add the command (ASCII/HEX) for the manufacture and select the baud rate, then click “Send” to send commands through the external serial port.



1. Add Manufacturer

Input the name in the input box of “Add Manufacturer”, select the Baud Rate that needs to be sent by the manufacturer, then click “Conform” to complete adding.

Note:

(1) The manufacturer cannot be added repeatedly.

(2) Any character with a length of 16 is supported.

2. Add Manufacturer Power On/Off Command

Follow the steps below to add manufacturer power on/off command.

Step 1. Select the manufacturer from the manufacturer list on the left.

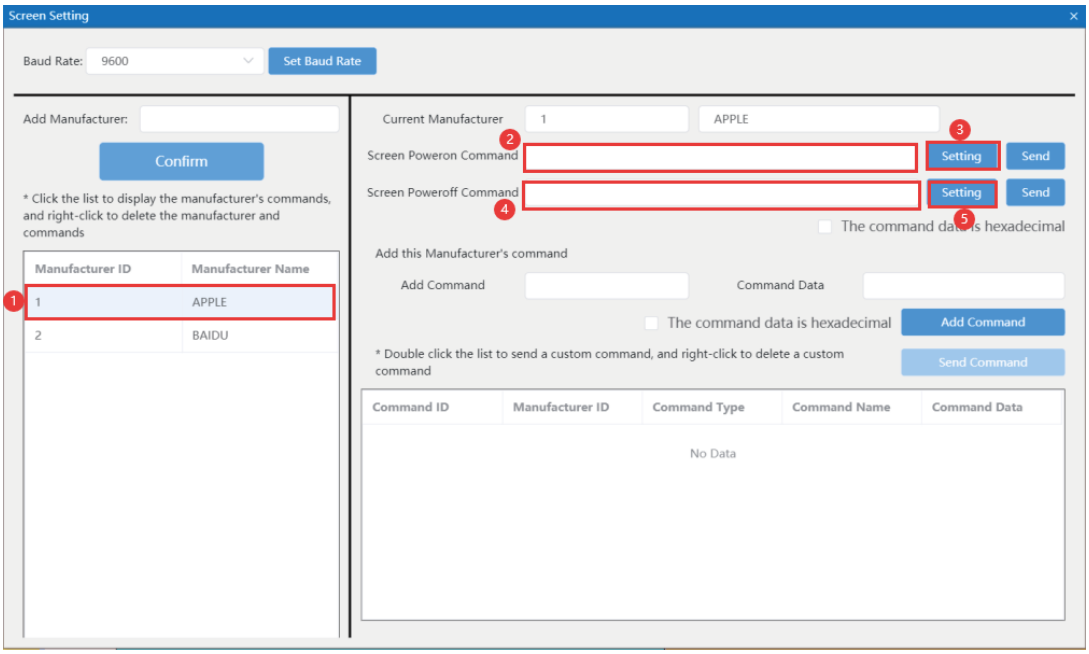
Step 2. Input the power on command.

Step 3. Click the corresponding “Setting” button to complete the setting.

Step 4. Input the power off command.

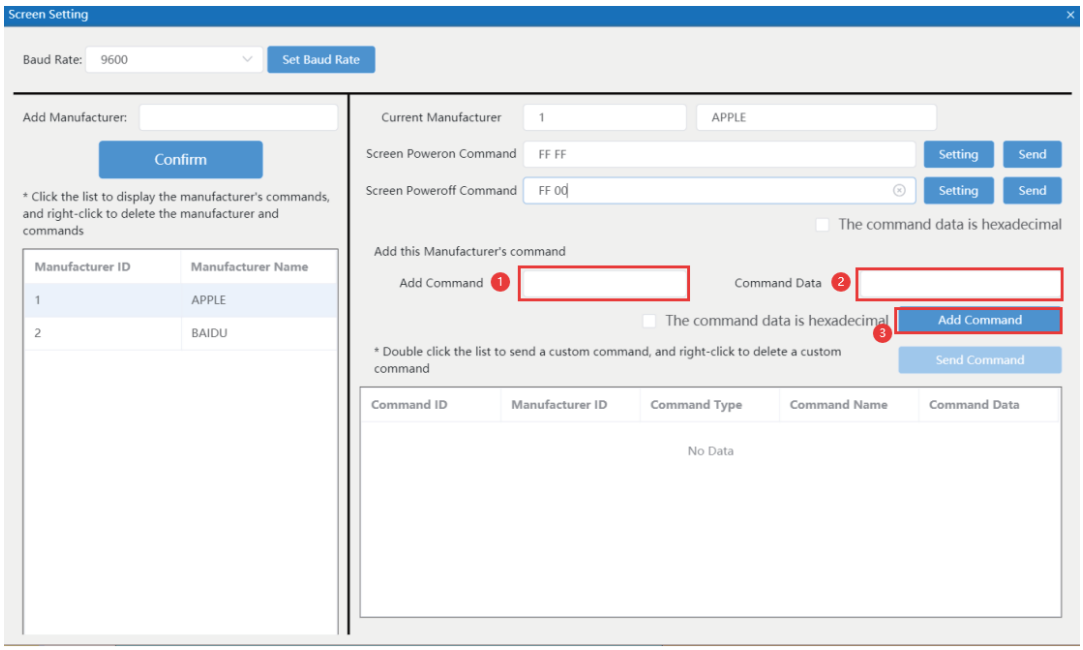
Step 5. Click the corresponding “Setting” button to complete the setting.

Note: If the option “The command data is hexadecimal” is checked, the command should be input in hexadecimal format , for example: f1 11 ff.



3. Add Manufacturer Other Commands

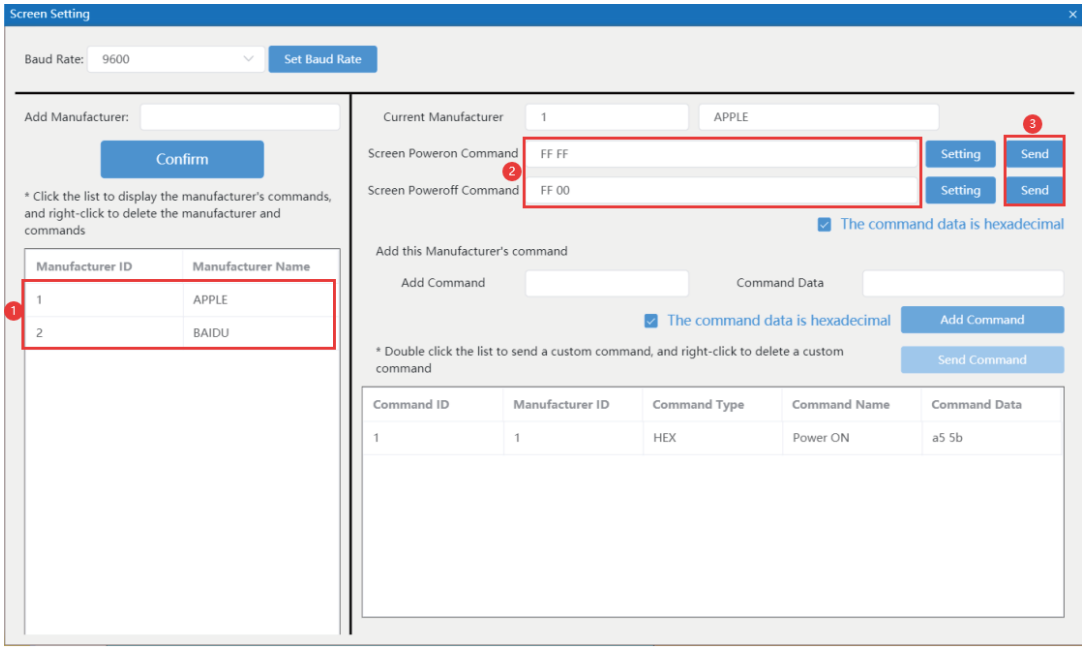
Input the name in the input box of “Add Command”, input the command data in the input box of “Command Data”, then click “Add Command” button to complete adding, as shown in the figure below.



4. Send Manufacturer Power On/Off Command

There are two methods to send manufacturer power on/off command.

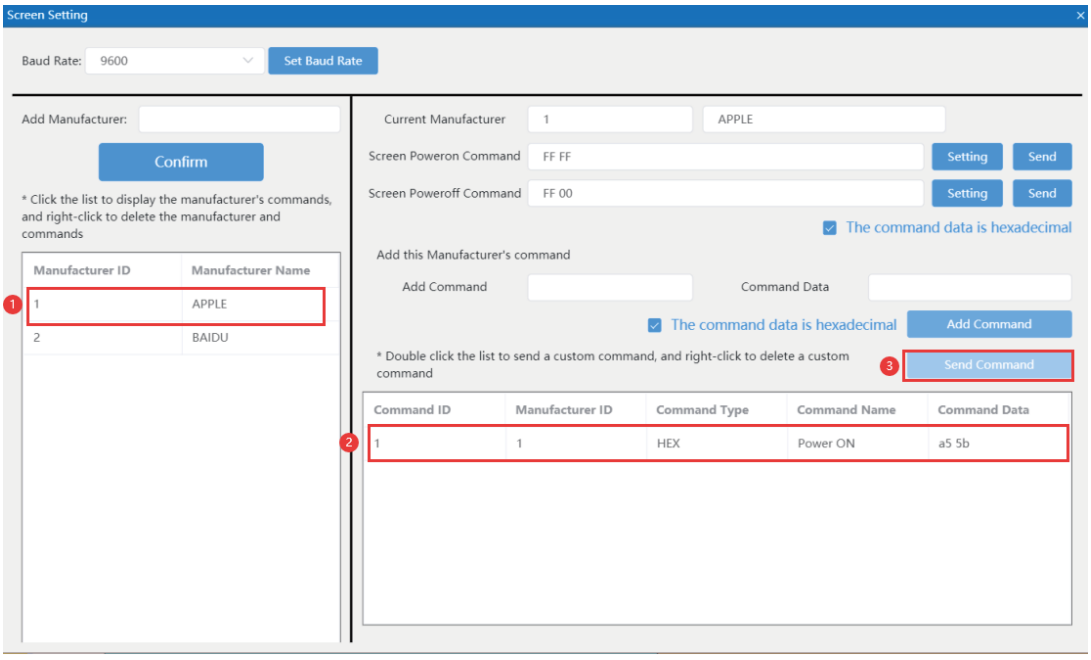
Method 1: Select the manufacturer from the manufacturer list on the left, and input the customized power on/off command in the “Screen Poweron Command” / “Screen Poweroff Command”, then click “Send” to send the command, as shown in the following figure.



Method 2: Click “Screen Poweron / Screen Poweroff” on the Main Function interface to send the manufacturer power on/off command that is set for the last time.

5. Send Manufacturer Other Commands

Select the manufacturer from the manufacturer list on the left, and click the command in the command list, then click “Send Command” button to send the command, or directly double-click the command in the command list to complete send, as shown in the figure below.



5.5. API Control
(Take the 16x16 Matrix as an example)

This Matrix supports API command control. Connect the RS-232 port or the LAN port of the Matrix to a PC, then open a command tool on PC to send ASCII commands to control the Matrix.

The ASCII command list about the product is shown as below.

ASCII Command				
Serial port protocol. Baud rate: 115200 (default), Data bits: 8bit, Stop bits: 1, Check bit: 0 TCP/IP protocol port: 8000 Telnet port:23				
x,y,z, XXX are parameters. Error Code describe: E00 -> unknown command E01 -> parameter out of range E02 -> input card does not support the EDID with this resolution				
Command Code	**Function Description**	**Example**	**Feedback**	**Default Setting**
Power				
s power z!	Power on/off the device,z=0~1 (z=0 power off, z=1 power on)	s power 1!	power on System Initializing... Initialization Finished! FW version x.xx.xx	power on
r power!	Get current power state	r power!	power on/power off	
s reboot!	Reboot the device	s reboot!	reboot... System Initializing... Initialization Finished! FW version x.xx.xx	
System Setup				
help!	List all commands	help!		
r type!	Get device model	r type!	VMP2-U4H	
r status!	Get device current status	r status!	Get the unit all status: power, beep, lock, in/ out connection, video/ audio crosspoint, edid, scaler, network status	
r fw version!	Get firmware version	r fw version!	ctl-boot:v0.00.00 ctl-app:v1.00.01 rs02:v1.13 key-boot:v1.00.01 key-app:v1.00.01 in board 1:v1.00.01-1.08/ 1.08/1.08/1.08 in board 2:v1.00.01-1.08/ 1.08/1.08/1.08 in board 3: in board 4: out board 1: out board 2: out board 3: out board 4:v1.00.02	

Command Code	Function Description	Example	Feedback	Default Setting
r inport x info!	Get the information of the x input port，x=0~16 (0=all input ports)	r inport 1 info!	get input 1 info: board is on line:1 board type:inboard_hdmi input index:1 input name:Input1 input 5v:0 edid:1080p,stereo audio 2.0 out resolution:0 mirror:0 audio mode:0 hdcp:0 input timing: hdmi:0 h_pixel:0 v_pixel:0 rate:0 scan:0 tmds:0 mcu version:V1.00.01-1.08 /1.08/1.08/1.08	
r outport x info!	Get the information of the x output port，x=0~16 (0=all input ports)	r outport 1 info!	get output 13 info: board is on line:1 board type:outboard_hdmi output index:13 output name:Output13 tv is on:1 edid: 0x00, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0x00, 0x52, 0x47, 0xce..... 0x00, 0x00, 0x00, 0x00, 0x00, 0x68 outResolution:1 hdcp:0 mute:1 mirror:0 inputTiming: hPixel:1920 vPixel:1080 rate:60 scan:1 tmds:148 mcu version:V1.00.02	
s input x name yyy!	Set input name x=1~16 yyy: name, length <= 16	s input 1 name xiaomi2!	set input 1 name:xiaomi2	
s output x name yyy!	Set output name x=1~16 yyy: name, length <= 16	s output 1 name xiaomiTV!	set output 1 name: xiaomiTV	

Command Code	Function Description	Example	Feedback	Default Setting
s reset!	Reset to factory defaults	s reset!	reset to factory defaults	Main control card: PTP; Delete the video wall; DHCP; 115200; The buzzer is on; Panel is not locked; LCD remians on 60s HDMI output card: 1. Output port name: Output1-16 2. u8Resolution: 1920x1080p60 3. MODE: HDMI 4. HDCP: ON <If supported> 5. Splicing: No splicing 6. Position :H: 16,16 7. Size: 0,0 8. Picture quality: 16,16,16 9. Mirror :0<No mirror> HDMI input card: 1. Audio :HDMI 2. Position: 16,16 3. Size: 0,0 4. EDID: Built-in V56
s beep z!	Enable/Disable buzzer function, z=0~1(z=0 beep off, z=1 beep on)	s beep 1!	beep on beep off	beep on
r beep!	Get buzzer state	r beep!	beep on / beep off	
s lock z!	Lock/Unlock front panel button, z=0~1 (z=0 lock off, z=1 lock on)	s lock 1!	panel button lock on panel button lock off	panel button lock off
r lock!	Get panel button lock state	r lock!	panel button lock on/off	
s save preset z!	Save switch state between all output ports and the input port to preset z， z=1~64	s save preset 1!	save to preset 1	
s recall preset z!	Call saved preset z scenarios，z=1~64	s recall preset 1!	recall from preset 1	
s clear preset z!	Clear stored preset z scenarios, z=1~64	s clear preset 1!	clear preset 1	
s lcd on time z!	Set LCD screen remain on time, z=0~4 (0: off; 1: always; 2: 30s; 3: 60s; 4: 5m)	s lcd on time 2!	lcd on 30 seconds	lcd on 60 seconds
r lcd mode!	Get the backlight status of lcd screen	r lcd mode!	lcd always on	

Command Code	Function Description	Example	Feedback	Default Setting
r preset z!	Get preset z information, z=1~64	r preset 2!	preset 2 data: beep:1 lock:0 lcd work time:60s baudrate:115200 output 1 source: input 1 output 2 source: input 1 output 3 source: input 1 output 4 source: input 1 output 5 source: input 1 output 6 source: input 1 output 7 source: input 1 output 8 source: input 1 output 9 source: input 1 output 10 source: input 1 output 11 source: input 1 output 12 source: input 1 output 13 source: input 1 output 14 source: input 1 output 15 source: input 1 output 16 source: input 1 video wall name:111 video wall row:4 video wall col:4 the input of screen: 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 the output of screen: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 mosaic id:1 mosaic row:3 mosaic col:3 mosaic screen: 1 2 3 5 6 7 9 10 11	
s baud rate x!	Set the baud rate of the external serial port, z= (1:115200,2:57600, 3:38400,4:19200,5:9600,6:4800)	s baud rate 1!	Baudrate:115200	115200
r baud rate!	Get the baud rate of the external serial port	r baud rate!	Baudrate:115200	
r activation!	Get the authorization status of the system	r activation!	activated permanently	activated permanently
Input and Output Setting				
s in x av out y,z,a, b...!	Set input x to output y, z, a, b..., x=1~16, y/z/a/b=0~16 (0=all output)	s in 1 av out 2,3,4,8!	input 1 -> output 2 3 4 8	ptp
r av out y!	Get output y signal status y=0~16 (0=all output)	r av out 0!	input 1 -> output 1 input 2 -> output 2 …… input 16 -> output 16	

Command Code	Function Description	Example	Feedback	Default Setting
r switch and mute!	Get all output switch and mute status	r switch and mute!	input 1 -> output 1 input 1 -> output 2 input 1 -> output 3 input 1 -> output 4 input 7 -> output 5 input 7 -> output 6 input 7 -> output 7 input 7 -> output 8 input 1 -> output 9 input 1 -> output 10 input 1 -> output 11 input 1 -> output 12 input 1 -> output 13 input 1 -> output 14 input 1 -> output 15 input 1 -> output 16 output 1 stream:off output 2 stream:off output 3 stream:off output 4 stream:off output 5 stream:off output 6 stream:off output 7 stream:off output 8 stream:off output 9 stream:off output 10 stream:off output 11 stream:off output 12 stream:off output 13 stream:off output 14 stream:off output 15 stream:off output 16 stream:off	
s ptp!	Set input and output to ptp mode	s ptp!	ptp	ptp
s input x audio mode y!	Set input x audio mode x: 0~16 (0=all input) y: 0-follow the video source, 1-insert	s input 1 audio mode 1!	set input 1 audio mode:insert	bypass
r input x audio mode!	Get input x audio mode x: 0~16 (0=all input)	r input 1 audio mode!	input 1 audio mode: bypass	
s output x mirror mode y!	Set output x mirror mode x: 0~16 (0=all output) y: 0~3, 0: OFF, 1: H_Mirror, 2: V_Mirror, 3: H+V_Mirror	s output 13 mirror mode 2!	set output 13 mirror mode: h+v_mirror	off
r output x mirror mode!	Get output mirror mode	r output 1 mirror mode!	output 1 mirror mode:off	
r output x picture info!	Get output x picture info x: 0~16 (0=all output)	r output 1 picture info!	output1 picture info: brightness=16 contrast=16 colortemp=16 sharpness=16	
s ir x!	Enable IR or not x: 0-disable 1-enable	s ir 1!	enable ir	disable
s output x out mode y!	When no signal in, set output x out mode x: 0~16 (0=all output) y: 0- ”NO SIGNAL” image 1- no output signal	s output 1 out mode 1!	output 1 out mode 1	0

Command Code	Function Description	Example	Feedback	Default Setting
s output x resolution y!	Set output x output format x: 0~16 (0=all output) y: resolution type, 2K DVIU: 0-1920x1200p@60, 1-1920x1080p@60, 2-1600x1200p@60, 3-1680x1050p@60, 4-1360x768p@60, 5-1280x1024p@60, 6-1280x720p@60, 7-1024x768p@60, 8-1920x1080p@30, 9-720x576_cvbs_ntsc, 10-720x480_cvbs_pal, 11-1920x1080_YPbPr, 12-1280x7200_YPbPr, 13-1920x1080p@50, 14-1920x1080p@25, 15-1920x1080p@24, 16-1280x800p@60, 17-1280x720p@50; 2K SDI: 0-1920x1080p@60, 1-1920x1080p@50, 2-1920x1080p@30, 3-1920x1080p@25, 4-1920x1080p@24, 5-1920x1080i@60, 6-1920x1080i@50, 7-1280x720p@60, 8-1280x720p@50, 9-1280x720p@30, 10-1280x720p@25, 11-720x480i@60, 12-720x576i@50; Other 2K cards: 0-1920x1200p@60, 1-1920x1080p@60, 2-1600x1200p@60, 3-1680x1050p@60, 4-1360x768p@60, 5-1280x1024p@60, 6-1280x720p@60, 7-1024x768p@60, 8-1920x1080p@30, 9-1920x1080p@50, 10-1920x1080p@25, 11-1920x1080p@24, 12-1280x800p@60, 13-1280x720p@50; 4K card: 0-4096x2160p@60, 1-4096x2160p@50, 2-3840x2160p@60, 3-3840x2160p@50, 4-3840x2160p@30, 5-1920x1080p@60, 6-1920x1080p@50, 7-1920x1080i@60, 8-1920x1080i@50, 9-1920x1200p@60, 10-1360x768p@60, 11-1280x800p@60, 12-1280x720p@60, 13-1280x720p@50, 14-1024x768p@60, 15-720x480i@60, 16-720x576i@50, 17-2560x1440p@60, 18-4096x2160p@30, 19-4096x2160p@25, 20-4096x2160p@24, 21-3840x2160p@25, 22-3840x2160p@24, 23-1920x1080p@30, 24-1920x1080p@25, 25-1920x1080p@24, 26-1600x1200p@60, 27-1680x1050p@60, 28-1280x1024p@60	s output 13 resolution 8!	set output 13 resolution: 1920x1080p@30	1920x1080@60

Command Code	Function Description	Example	Feedback	Default Setting
r output x resolution!	Get output x output format x: 0~16 (0=all output)	r output 1 resolution!	output 1 resolution: 1920x1200p@60	
r vw info!	Get video wall information	r vw info!	get video wall info: name:111 col:4 row:4 output: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 input: 1 1 1 1 7 7 7 7 1 1 1 1 1 1 1 1 screen is mosaiced: 0 0 0 0 2 2 2 2 0 0 0 0 0 0 0 0 mosaic total number is:1 mosaic Id:2 mosaic row:2 mosaic col:2 mosaic screen: 5 6 7 8	
create vw row x col y name z!	Create video wall x: the row of video wall, 1~16 y: the col of video wall, 1~16 z: the name of video wall, name length <= 32	create vw row 4 col 4 name video wall 1!	create video wall success	
s screen x source y!	Set input y to screen x (switch the signal source) x: the screen of video wall, 1 <= x && x <= row*col y: input source 1~16	s screen 1 source 1!	set screen 1 source: input 1	
s screen x output y!	Set output y to screen x (switch the screen output) x: the screen of video wall, 1 <= x && x <= row*col y: output 1~16	s screen 1 output 1!	set screen 1 output: 1	
s mosiac x col y row z!	Create mosaic x: mosaic id, 1~8 y: mosaic col, 1<= y <= video wall col z: mosaic row, 1<= z <= video wall row	s mosiac 1 col 2 row 2!	set mosaic success	
s mosaic x window y screen z!	Match the mosaic window with screen x: mosaic id, 1~8 y: mosaic window, 1<= y <= (mosaic col * mosaic row) z: screen id, 1<= z <= (video wall col * video wall row)	s mosaic 1 window 1 screen 8!	set mosaic window success	

Command Code	Function Description	Example	Feedback	Default Setting
delete mosaic x!	Delete mosaic x: mosaic id, 1~8	delete mosaic 1!	delete mosaic 1 success	
s sync mode x!	Set mosaic sync mode x: 0-no sync, 1-sync	s sync mode 1!	set sync mode 1	0
s hdmi y stream z!	Set output y stream on/off, y=0~16 (0=all output) z=0~1 (0: disable,1: enable)	s hdmi 1 stream 1 !	output 1 stream:on	enable
r hdmi y stream!	Get output y stream status, y=0~16 (0=all output)	r hdmi 1 stream!	output 1 stream:off	
EDID				
s edid in x from y!	Set input x EDID from default EDID y, x=0~16 (0=all input), y=1~36 1, 1080p,Stereo Audio 2.0 2, 1080p,Dolby/DTS 5.1 3, 1080p,HD Audio 7.1 4, 080i,Stereo Audio 2.0 5, 1080i,Dolby/DTS 5.1 6, 1080i,HD Audio 7.1 7, 4K2K30_444,Stereo Audio 2.0 8, 4K2K30_444,Dolby/DTS 5.1 9, 4K2K30_444,HD Audio 7.1 10, 4K2K60_420,Stereo Audio 2.0 11, 4K2K60_420,Dolby/DTS 5.1 12, 4K2K60_420,HD Audio 7.1 13, 4K2K60_444,Stereo Audio 2.0 14, 4K2K60_444,Dolby/DTS 5.1 15, 4K2K60_444,HD Audio 7.1 16, 4K2K60_444,Stereo Audio 2.0 HDR 17, 4K2K60_444,Dolby/DTS 5.1 HDR 18, 4K2K60_444,HD Audio 7.1 HDR 19, USER1 20, USER2 21, copy from hdmi output 1 22, copy from hdmi output 2 23, copy from hdmi output 3 24, copy from hdmi output 4 25, copy from hdmi output 5 26, copy from hdmi output 6 27, copy from hdmi output 7 28, copy from hdmi output 8 29, copy from hdmi output 9 30, copy from hdmi output 10 31, copy from hdmi output 11 32, copy from hdmi output 12 33, copy from hdmi output 13 34, copy from hdmi output 14 35, copy from hdmi output 15 36, copy from hdmi output 16	s edid in 1 from 1!	input 1 edid:1080p,stereo audio 2.0	1080p,Stereo Audio 2.0
r edid in x!	Get EDID status of the input x, x=0~16 (0=all input)	r edid in x!	input 1 edid: 1080p, stereo audio 2.0	

Command Code	Function Description	Example	Feedback	Default Setting
s edid userx yy!	Set user defined EDID x: 1~2 yy: EDID data	s edid user 1 00ffffffffffff...!	user1 edid setting ok!	
r edid userx!	Get user defined EDID x: 1~2	r edid user 1!	user1 edid data: 0x00, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0x00, 0x20, 0x83, 0x10..... 0x21, 0x00, 0x00, 0x9e 0x00, 0x21	
r edid data hdmi y!	Get the EDID data of TV connected to the hdmi output y port, y=1~16	r edid data hdmi 1!	edid : 00 ff ff ff ff ff ff 00 ……	
Network Setting				
r ipconfig!	Get the current IP configuration	r ipconfig!	ip mode:dhcp ip address:192.168.0.200 subnet mask:255.255.255.0 gateway:192.168.0.1 mac address:ff-ff-ff-ff-ff-ff tcp/ip port=8000 telnet port=23	
r mac addr!	Get network MAC address	r mac addr!	mac address:ff-ff-ff-ff-ff-ff	
s ip mode z!	Set network IP mode to static IP or DHCP, z=0~1 (z=0 Static, z=1 DHCP)	s ip mode 1!	set ip mode:dhcp (please use "s net reboot!" command to apply new config!)	dhcp
r ip mode!	Get network IP mode	r ip mode!	ip mode:dhcp	
s ip addr xxx.xxx.xxx.xxx!	Set network IP address	s ip addr 192.168.8.180!	set ip address:192.168.8.180 (please use "s net reboot!" command to apply new config!)	
r ip addr!	Get network IP address	r ip addr!	ip address:192.168.8.180	
s subnet xxx.xxx.xxx.xxx!	Set network subnet mask	s subnet 255.255.255.0!	set subnet mask:255.255.255.0 (please use "s net reboot!" command to apply new config!)	
r subnet!	Get network subnet mask	r subnet!	subnet mask:255.255.255.0	
s gateway xxx.xxx.xxx.xxx!	Set network gateway	s gateway 192.168.8.1!	set gateway:192.168.8.1 (please use "s net reboot!" command to apply new config!)	
r gateway!	Get network gateway	r gateway!	Gateway:192.168.1.1	
s tcp/ip port x!	Set network TCP/IP port (x=1~65535)	s tcp/ip port 8000!	Set tcp/ip port:8000	8000
r tcp/ip port!	Get network TCP/IP port	r tcp/ip port!	tcp/ip port:8000	
s telnet port x!	Set network telnet port (x=1~65535)	s telnet port 23!	set telnet port:23	23
r telnet port!	Get network telnet port	r telnet port!	telnet port:23	

Command Code	Function Description	Example	Feedback	Default Setting
s net reboot!	Reboot network modules	s net reboot!	network reboot ... search for ip,please wait ...! search for ip,please wait ...! ip mode:dhcp ip address:192.168.0.200 subnet mask:255.255.255.0 gateway:192.168.0.1 mac address:ff-ff-ff-ff-ff-ff tcp/ip port=8000 telnet port=23	

6. Application Example
(Take the 16x16 Matrix as an example)

