

Embedded Multi-Screen Controller

User's Manual

V2.0.0

Cybersecurity Recommendations

Mandatory actions to be taken for basic device network security:

1. Use Strong Passwords

Please refer to the following suggestions to set passwords:

- The length should not be less than 8 characters.
- Include at least two types of characters; character types include upper and lower case letters, numbers and symbols.
- Do not contain the account name or the account name in reverse order.
- Do not use continuous characters, such as 123, abc, etc.
- Do not use overlapped characters, such as 111, aaa, etc.

2. Update Firmware and Client Software in Time

- According to the standard procedure in Tech-industry, we recommend to keep your device (such as NVR, DVR, IP camera, etc.) firmware up-to-date to ensure the system is equipped with the latest security patches and fixes. When the device is connected to the public network, it is recommended to enable the “auto-check for updates” function to obtain timely information of firmware updates released by the manufacturer.
- We suggest that you download and use the latest version of client software.

"Nice to have" recommendations to improve your device network security:

1. Physical Protection

We suggest that you perform physical protection to device, especially storage devices. For example, place the device in a special computer room and cabinet, and implement well-done access control permission and key management to prevent unauthorized personnel from carrying out physical contacts such as damaging hardware, unauthorized connection of removable device (such as USB flash disk, serial port), etc.

2. Change Passwords Regularly

We suggest that you change passwords regularly to reduce the risk of being guessed or cracked.

3. Set and Update Passwords Reset Information Timely

The device supports password reset function. Please set up related information for password reset in time, including the end user's mailbox and password protection questions. If the information changes, please modify it in time. When setting password protection questions, it is suggested not to use those that can be easily guessed.

4. Enable Account Lock

The account lock feature is enabled by default, and we recommend you to keep it on to guarantee the account security. If an attacker attempts to log in with the wrong password several times, the corresponding account and the source IP address will be locked.

5. Change Default HTTP and Other Service Ports

We suggest you to change default HTTP and other service ports into any set of numbers between 1024–65535, reducing the risk of outsiders being able to guess which ports you are using.

6. Enable HTTPS

We suggest you to enable HTTPS, so that you visit Web service through a secure communication channel.

7. MAC Address Binding

We recommend you to bind the IP and MAC address of the gateway to the device, thus reducing the risk of ARP spoofing.

8. Assign Accounts and Privileges Reasonably

According to business and management requirements, reasonably add users and assign a minimum set of permissions to them.

9. Disable Unnecessary Services and Choose Secure Modes

If not needed, it is recommended to turn off some services such as SNMP, SMTP, UPnP, etc., to reduce risks.

If necessary, it is highly recommended that you use safe modes, including but not limited to the following services:

- SNMP: Choose SNMP v3, and set up strong encryption passwords and authentication passwords.
- SMTP: Choose TLS to access mailbox server.
- FTP: Choose SFTP, and set up strong passwords.
- AP hotspot: Choose WPA2-PSK encryption mode, and set up strong passwords.

10. Audio and Video Encrypted Transmission

If your audio and video data contents are very important or sensitive, we recommend that you use encrypted transmission function, to reduce the risk of audio and video data being stolen during transmission.

Reminder: encrypted transmission will cause some loss in transmission efficiency.

11. Secure Auditing

- Check online users: we suggest that you check online users regularly to see if the device is logged in without authorization.
- Check device log: By viewing the logs, you can know the IP addresses that were used to log in to your devices and their key operations.

12. Network Log

Due to the limited storage capacity of the device, the stored log is limited. If you need to save the log for a long time, it is recommended that you enable the network log function to ensure that the critical logs are synchronized to the network log server for tracing.

13. Construct a Safe Network Environment

In order to better ensure the safety of device and reduce potential cyber risks, we recommend:

- Disable the port mapping function of the router to avoid direct access to the intranet devices from external network.
- The network should be partitioned and isolated according to the actual network needs. If there are no communication requirements between two sub networks, it is suggested to use VLAN, network GAP and other technologies to partition the network, so as to achieve the network isolation effect.
- Establish the 802.1x access authentication system to reduce the risk of unauthorized access to private networks.
- Enable IP/MAC address filtering function to limit the range of hosts allowed to access the device.

General

This User's Manual (hereinafter referred to as the "Manual") introduces functions, installations, operations, and maintenance of the Embedded Multi-Screen Controller (hereinafter referred to as the "Controller").

Safety Instructions

The following categorized signal words with defined meaning might appear in the Manual.

Signal Words	Meaning
 CAUTION	Indicates a potential risk which, if not avoided, could result in property damage, data loss, lower performance, or unpredictable result.
 NOTE	Provides additional information as the emphasis and supplement to the text.

Revision History

No.	Version	Revision Content	Release Date
1	V1.0.0	First Release.	December 20, 2017
2	V1.1.0	Eight channel fine pixel LED sending card.	June 15, 2018
3	V2.0.0	Revised DSCON3000-M base line.	October 15, 2018

Privacy Protection Notice

As the device user or data controller, you might collect personal data of other such as face, fingerprints, car plate number, Email address, phone number, GPS and so on. You need to be in compliance with the local privacy protection laws and regulations to protect the legitimate rights and interests of other people by implementing measures include but not limited to: providing clear and visible identification to inform data subject the existence of surveillance area and providing related contact.

About the Manual

- The Manual is for reference only. If there is inconsistency between the Manual and the actual product, the actual product shall prevail.
- We are not liable for any loss caused by the operations that do not comply with the Manual.
- The Manual would be updated according to the latest laws and regulations of related regions. For detailed information, see the paper manual, CD-ROM, QR code or our official website. If there is inconsistency between paper manual and the electronic version, the electronic version shall prevail.

- All the designs and software are subject to change without prior written notice. The product updates might cause some differences between the actual product and the Manual. Please contact the customer service for the latest program and supplementary documentation.
- There still might be deviation in technical data, functions and operations description, or errors in print. If there is any doubt or dispute, please refer to our final explanation.
- Upgrade the reader software or try other mainstream reader software if the Manual (in PDF format) cannot be opened.
- All trademarks, registered trademarks and the company names in the Manual are the properties of their respective owners.
- Please visit our website, contact the supplier or customer service if there is any problem occurred when using the device.
- If there is any uncertainty or controversy, please refer to our final explanation.

Important Safeguards and Warnings

This Chapter describes the contents covering proper handling of the Device, hazard prevention, and prevention of property damage. Read these contents carefully before using the Device, comply with them when using, and keep it well for future reference.

Operation Requirement

- Do not place or install the Device in a place exposed to sunlight or near the heat source.
- Keep the Device away from dampness, dust or soot.
- Keep the Device installed horizontally on the stable place to prevent it from falling.
- Do not drop or splash liquid onto the Device, and make sure there is no object filled with liquid on the Device to prevent liquid from flowing into the Device.
- Install the Device in a well-ventilated place, and do not block the ventilation of the Device.
- Operate the device within the rated range of power input and output.
- Do not disassemble the Device.
- Transport, use and store the Device under the allowed humidity and temperature conditions.

Electrical Safety

- Improper battery use might result in fire, explosion, or inflammation.
- When replacing battery, make sure the same model is used.
- Use the recommended power cables in the region and conform to the rated power specification.
- Use the power adapter provided with the Device; otherwise, it might result in people injury and device damage.
- The power source shall conform to the requirement of the Safety Extra Low Voltage (SELV) standard, and supply power with rated voltage which conforms to Limited power Source requirement according to IEC60950-1. Please note that the power supply requirement is subject to the device label.
- Connect the device (I-type structure) to the power socket with protective earthing.
- The appliance coupler is a disconnection device. When using the coupler, keep the angle for easy operation

Table of Contents

Cybersecurity Recommendations	II
Foreword	IV
Important Safeguards and Warnings	VI
1 Overview	1
1.1 Brief Introduction	1
1.2 Parameter	1
1.3 Functions.....	2
1.3.1 Features	3
1.3.2 Structure	3
1.3.3 Hardware.....	4
1.3.4 Software	4
1.4 Introducing Boards	5
1.5 Device and Ports	6
1.5.1 Main Device Cabinet	6
1.5.2 Motherboard	7
1.6 Function Boards	7
1.6.1 VI0401HD-DC3000 DVI Capture Card	8
1.6.2 VI3201FB-DC3000 CVBS Capture Card.....	8
1.6.3 VI0201UH-DC3000 HDMI Ultra High Definition Capture Card	9
1.6.4 VI0801HH-DC3000 Capture Card	10
1.6.5 VI0401HS-DC3000 3G-SDI Capture Card	10
1.6.6 VO0801HH-DS3000 HDMI Output Card	11
1.6.7 VO0401HS-DC3000 3G-SDI Output Card	11
1.6.8 LSC0801HN LED Sending Card	12
2 Unpacking the Box and Wiring.....	13
2.1 Checking after Unpacking	13
2.2 Installation Key Points	13
2.3 Wiring	14
3 WEB Operations	15
3.1 Network Connection	15
3.2 Logging in the WEB.....	15
3.3 Screen.....	17
3.3.1 Adding Screens	17
3.3.2 Signal Configuration	18
3.3.3 Adding Devices	22
3.3.4 Scheme Management	22
3.3.5 Window Management	23
3.3.6 Block/Window Splitting	24
3.3.7 Refreshing the Video Wall	26
3.3.8 Eagle-Eye Map.....	26
3.3.9 Screen Management.....	27

3.3.10 Advanced Functions	33
3.4 Setting	39
3.4.1 System Configuration	39
3.4.2 Network Setting.....	50
3.4.3 Event Management	55
3.4.4 Signal Management	55
3.4.5 Display Management	65
3.4.6 Scalability Configuration.....	82
3.5 Information	83
3.5.1 About the Controller	83
3.5.2 Help.....	87
3.6 Exit	87
4 DSS Operations	88
5 FAQ	89
5.1 FAQ	89
5.2 Operations and Maintenance	90

1.1 Brief Introduction

The Controller, the latest multi-screen image processing equipment, is based on the Advanced Telecommunications Computing Architecture (ATCA). With several patented technologies, the Controller enables more than one video screens to be zoomed in, zoomed out or overlaid; and enables more than one videos to be displayed in real time on multiple screens.

The Controller is designed for video processing that requires high performance, reliability, and scalability. It is applicable to fields like education, scientific research, government announcement, publishing, administrative management, exhibition, surveillance, and appliance sale.

Figure 1-1 Appearance



1.2 Parameter

Parameters	Name	Description
Model		Embedded Multi-Screen Controller
System configuration	Main processor	Intel X86 Braswell processor
	Operating methods	Controlled by Web interface through browsers.
	Card slot	Supports four function boards.
	System minimum configuration	Outputs images and signals of four channels.
	System maximum configuration	Inputs and outputs 1080p images and signals of 32 channels.
Video parameters	Video output	8 HDMI ports. 8 RJ-45 ports.
	Numbers of video screens output	At most 32 video screens.
	Numbers of video channels output	At most 32 videos channels.
	Video resolution	1024×768@60Hz–1080p@60Hz, 24-bit true color.
	DVI input	Four DVI-I ports on a single board.
	Resolution of videos captured by DVI	1080P@60Hz, downward compatible.
	VGA input	Four DVI-I ports on a single board.
	Resolution of videos captured by VGA	1080P@60Hz, downward compatible.
	HDMI ultra high	Two HDMI ports on a single board.

Parameters	Name	Description
	definition input	
	Resolution of videos captured by HDMI	4K2K@30Hz, downward compatible.
	HDMI high definition input	Eight HDMI ports on a single board, and these ports can gather signals from eight HDMI/DVI signal sources.
	Resolution of videos captured by HDMI	1080P@60Hz, downward compatible; can gather 1080I signals.
	3G-SDI input	Four BNC ports on a single board.
	Resolution of videos captured by SDI	1080P@30Hz, downward compatible; and the transmission rate is 1.485 G.
	CVBS input	Two DVI-D ports on a single board. Need to be connected to braided wires. Every port has 16 channels.
	Resolution of videos captured by CVBS	D1, 960H.
Ports	USB port	One USB2.0 port and two USB3.0 ports.
	Ethernet port	Two RJ-45 ports, automatically adapt to 10M/100M/1000M Ethernet Networking interfaces.
	RS-232	Two RJ-45 ports to control external matrices and display screens.
	RS-232	One DB-9 port, for programs debugging and central control.
	RS-485	One RS-485 port, reserved.
Normal specification	Power supply	115V–230V, 47Hz–63Hz, redundant power supply (optional)
	Power consumption	Minimum configuration is 90W. Full configuration is 360W.
	Working environment	–10℃ to +55℃
	Working humidity	10%–90%
	Barometric pressure	86kpa–106kpa
	Dimension	19 inches standard industrial cabinet.
	Weight	Full equipment about 12.5kg.
	Installation method	Rack installation; Desk-top installation
	Working hours	7×24h

1.3 Functions

The Field-programmable gate array (FPGA) and PCI Express are used in the Controller, which enables all capture cards and output cards share the same slots. Signal sources can be input through different input modes (VGA, DVI, HDMI, SDI, CVBS, and more) and be output through DVI, HDMI, and RJ45 modes.

The Controller is compatible with various common resolutions ($\leq 4k$) under the VESA standard, and the Controller enables users to set custom resolution for fine pixel LEDs. The Controller

has multiple image processing functions like ultra high definition data acquisition, dynamic background image display, OSD overlay, and virtual LED. It has various management functions like multi-level user rights, preset, tour, log, maintenance, smart temperature control, giving alarms for malfunctions, and redundant power supply.

1.3.1 Features

- Supports bandwidth of 32 channels of 1080P signal.
- It receives various analog and digital signals (VGA, RGB, YPbPr, DVI, HDMI, and data rate) at the same time.
- The highest resolution of video signals that the Controller outputs is 1920×1200@60Hz (meets the VESA standard). Users can customize uncommon resolution settings to 1080P at most.
- The Controller can divide, zoom in, zoom out, roam, and superimpose multiple screens.
- The Controller can do fixed splitting to blocks and windows, and lock or unlock windows.
- The input and output video signals can be superimposed through OSD method.
- Video signals can be displayed on virtual LED screen of the Controller.
- When video signals are displayed on full screen, and different screens display the same signals synchronously.
- Video signals from 32 channels can be displayed on a single screen. And network signals from 32 channels can be displayed.
- Video signals can be copied, and one video signal can be displayed on two windows.
- Video signals can be displayed through peer-to-peer computing in Background image form.
- Video signals can be reviewed.
- Monitors can be turned on or off at any time, and they can also be turned on or off at fixed time.
- Several display areas can be controlled at the same time.
- Matrices can be controlled collaboratively.
- The Controller can be controlled through serial ports of the third platform's central control systems.
- The Controller can be controlled through various clients like DSS and SmartPSS.
- Supports SVAC/MPEG4/H.264/MJPEG/H265 video standard.
- The three output ports on the motherboard can decode and display 1080P@30 network signals from at most 16 channels; and can decode and display 4K (3840×2160) network signals from four channels.
- The decode board can output five channels of network signal with 1080P@25.

1.3.2 Structure

- The Controller has 19 inches standard industrial cabinet, which makes the installation more convenient.
- Advanced Telecommunications Computing Architecture (ATCA) is adopted to enhance the Controller's reliability and serviceability.
- The Controller has more than one sets of fans, smart temperature regulation device, and special structure to ensure the temperature balance inside the cabinet.

- The redundant power supply ensures the continuity of the Controller's work and the security of the data.
- The Controller has blade capture card.

1.3.3 Hardware

- The Intel X86 processor.
- X4 PCI-E gen2 cards and the 12V DC power supply.
- Hot swapping buttons on the capture card and the indicators help users know the scalability of the system and the state of the capture card.
- Ports on the capture card like USB, serial ports, Ethernet Networking interfaces, HDMI, BNC and DVI provide more functions and make it more convenient for users and technicians to operate and debug the Controller.
- Every capture card works independently so that every part of the system takes load evenly.
- Double high speed non-blocking backplane enables the Controller to transmit large capacity of audio and video data.

1.3.4 Software

The embedded Linux operating system is safe, reliable, steady, efficient, and easy to develop and maintain.

Network Functions

- Two 1000Mbps Ethernet ports.
- Supports TCP/IP, TCP, UDP, RTP and RTSP.
- The Controller can acquire system logs remotely.
- Analog videos and digital videos can be displayed on screens in turn through remote management softwares. In addition, the Controller can be controlled through keyboards.
- Users can acquire and configure parameters remotely. Specifically, the Controller can be rebooted remotely, and parameters can be exported and imported remotely, too.

Video Management

- High definition and standard definition video matrix are used so that after streaming videos are digitized, therefore there is no need to decode and compress streaming videos. As a result, the image quality decline is avoided.
- Users can select to play high definition videos or standard definition videos.
- Users can customize schemes, and save and maintain them.
- Switch matrix of digital video with different specifications are formed according to different the combinations of printed circuit boards.
- HDMI and DVI-I interfaces are applicable to the video capture card. The highest resolution of videos the Controller captured is 4K (4096×2048).
- Operators are allowed to cyclically play images from video source materials, set preset positions, and switch images in batch.

- Users can customize the groups of video signals to make the management of signal sources more convenient.

More functions

- Complete operation, alarm, malfunction and log records make users and technicians maintain the Controller more easily.
- User rights management makes the Controller more user-friendly.
- The system can be upgraded both locally and remotely so that the system can meet the ever changing market requirements.
- More than one users can log in the system through different clients so that users can regulate and manage the layout of videos on the screen anytime anywhere.
- Programmers can do secondary development to the Controller because the software development kit (SDK) is provided.
- The Controller can be controlled by both DSS platform and PSS platform.
- Users can restore the Controller to factory settings by only pressing one button.

1.4 Introducing Boards

Table 1-1 About the printed Circuit Boards

No.	Name	Mode	Categorization	Descriptions of interfaces	Notes
1	Main device	Splicing controller	Main device of the Controller	• One main device cabinet, and four function boards. • One motherboard. • One built-in power adapter.	Standard accessory (redundant power supply is optional)
2	Input Module	VI0401H D-DC3000	DVI capture card	There are four DVI-I video input ports, and these ports can input DVI, VGA, and HDMI signals.	Optional
3		VI3201F B-DC3000	CVBS capture card	There are two DVI-D video input ports, and these ports can input CVBS signals from 32 channels by connecting braided wires.	Optional
4		VI0201U H-DC3000	HDMI ultra high definition capture card	There are two HDMI video input ports, and these ports can input HDMI V1.4 signals.	Optional
5		VI0801H H-DC3000	HDMI capture card	There are eight HDMI video input ports, and these ports can input DVI and HDMI signals.	Optional

No.	Name	Model	Categorization	Descriptions of interfaces	Notes
6		VI0401H S-DC3000	3G-SDI capture card	- There are four 3G-SDI video input ports. - There are four 3G-SDI video loop output ports.	Optional
7		VO0801 HH-DC3000	HDMI output card	There are eight HDMI output ports.	Optional
8	Output module	VO0401 HS-DC3000	3G-SDI capture card	- There are four 3G-SDI video output ports. - There are four copy output ports.	Optional
9		LSC0801 HN	LED sending card	There are eight RJ45 output ports.	Optional

1.5 Device and Ports

1.5.1 Main Device Cabinet

The 19-inch main device cabinet of the Controller includes slots for different boards, power supply ports, and smart temperature controlling fans. See Figure 1-2.

Figure 1-2 Appearance of the main device cabinet



- The front panel, displays the working state of the Controller.

Table 1-2 Details about the front panel

	
	It is the on/off button of the Controller. When the Controller is plugged in, the button turns blue.
	It is the power supply indicator light. When the Controller is not plugged in, the indicator light is out; after the Controller is plugged in, the indicator light stays red.
	It is the system state light. If the Controller works normally after it is booted, the light stays yellow.

- See at the back of the device cabinet, the air inlet is on the left, and the air outlet is on the right. The air inlet is with dust-proof net, clean it every two months.
- There's one set of smart temperature control fans, and users can use hot swapping.

- There are four slots of port boards on the function boards, and every slot is marked with numbers so that the rear port board can be installed more easily.
- Slots of port boards on the motherboard are marked with “M”.
- With dual power modules, and 220V power modules can be used.

1.5.2 Motherboard

1.5.2.1 Descriptions of ports

Figure 1-3 Motherboard

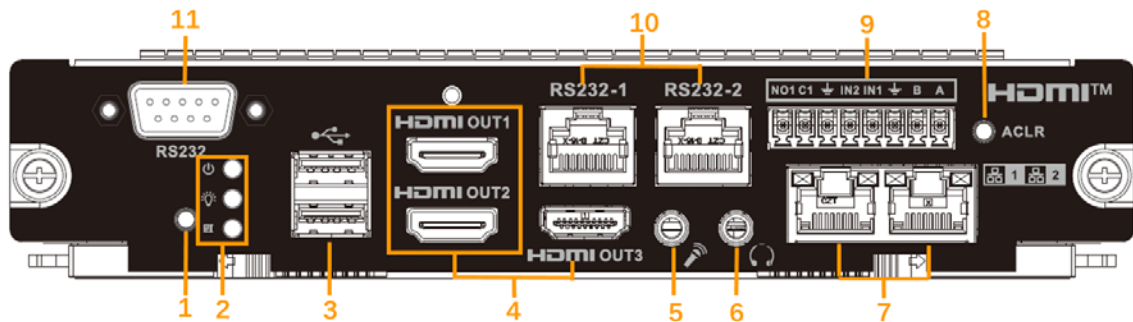


Table 1-3 Ports and buttons on the motherboard

No	Name	No	Name	No	Name
1	Button for restoring to the factory settings	2	Power indicator light on the motherboard System state light. PCI-E state light	3	USB port
4	HDMI output port	5	Voice communication input port (reserved)	6	Voice communication output port
7	Ethernet port	8	Alarm clearance button	9	Two alarm input ports, one alarm output port, and an RS-485 port (reserved)
10	RS-232 port for screen control	11	RS-232 serial port	—	—

1.5.2.2 Features

- Any two of the three HDMI output ports on the motherboard can be configured to output 4K (3840×2160) signals; and any one of the three output ports can output signals whose resolution are ≤1080P.
- Signals of the three HDMI output ports can not be integrated to form new signals, and signals of one or two of the three HDMI output ports can not be integrated to form new signals.

1.6 Function Boards

Blade-shaped module is used to design the boards. The boards have functions like inputting and outputting analog and digital images, and image processing.

1.6.1 VI0401HD-DC3000 DVI Capture Card

Figure 1-4 DVI capture card



Description

- There are four DVI-I video input ports, and these ports can input DVI, VGA, and HDMI signals.
- There are four operating indicators.
- High speed data connector includes x4 PCI-E gen2, 12V DC power supply.

Function

- Inputs videos whose resolutions are $\leq 1080P$ and meet VESA standard. Specifically, the resolutions are 1920×1080@60Hz, 1680×1050@60Hz, 1440×900@60Hz, 1400×1050@60Hz, 1366×768@60Hz, 1280×1024@60Hz, 1280×960@60Hz, 1280×800@60Hz, 1280×720@60Hz, 1152×864@60Hz, 1024×768@60Hz, and 800×600@60Hz.
- VI0401HD DVI capture card can remove black bars of videos captured through VGA connectors.
- VI0401HD DVI capture card can regulate brightness, contrast, and saturability.
- Time and titles in OSD channel can be superimposed, and positions where they can be superimposed can be configured.
- VI0401HD DVI capture card can see through fogs.
- The indicator keeps on, and the port flickers normally.



Output modes of the ATI video card include 1680×1050, 1440×900, 1280×1024, 1280×960, 1280×800, 1280×768, 1024×768, 1152×864, and 800×600. Video signals captured through DVI channels might have black bars. The occurrence of black bars is related to the setting of output sources. Specifically, because the "Using GPU zoom" function is selected. To remove black bars, do the following procedures:

Click the right button on the computer desktop, select **Screen Resolution > Advanced Settings > Catalyst Control Center > ATI Catalyst Control Center > My Digital Flat Panel > Attribute (Digital Flat Panel) > Using GPU Zoom**, and then do not select the function.

1.6.2 VI3201FB-DC3000 CVBS Capture Card

Figure 1-5 CVBS capture card



Description

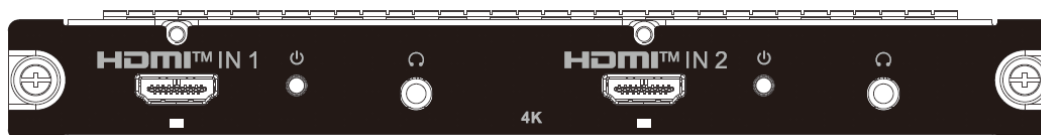
- The CVBS capture card needs to be connected by braided wires, and it can input video signals from 32 channels.
- There are two RS-485 ports (temporarily reserved).
- There are two operating indicators.
- High speed data connector includes x4 PCI-E gen2, and 12V DC power supply.

Function

- Resolutions of signals the CVBS can input: CIF, D1, and 960H.
- Specifications of videos input and output by each channel can be retrieved individually.

1.6.3 VI0201UH-DC3000 HDMI Ultra High Definition Capture Card

Figure 1-6 HDMI ultra high definition capture card



Description

- There are two HDMI video input ports, and these ports can input HDMI signals.
- There are two operating indicators.
- There are two audio loop output ports.
- High speed data connector includes x4 PCI-E gen2, and 12V DC power supply.

Function

- Inputs videos whose resolutions are $\leq 4K \times 2K$ and meet VESA standard. Specifically, the resolutions are 4096 $\times$ 2160@24fps, 3840 $\times$ 2160@30Hz, 2560 $\times$ 1600@30Hz, 2048 $\times$ 1536@30Hz, 1920 $\times$ 1080@60Hz, 1680 $\times$ 1050@60Hz, 1440 $\times$ 900@60Hz, 366 $\times$ 768@60Hz, 1280 $\times$ 1024@60Hz, 280 $\times$ 960@60Hz, 1280 $\times$ 800@60Hz, 1280 $\times$ 720@60Hz, 1152 $\times$ 864@60Hz, 1024 $\times$ 768@60Hz, and 800 $\times$ 600@60Hz.
- You can customize non-standard resolution
- Time and titles in OSD channel can be superimposed.
- The indicator keeps on, and the port flickers normally.

1.6.4 VI0801HH-DC3000 Capture Card

Figure 1-7 HDMI capture Card



Description

- There are eight HDMI video input ports, and these ports can input DVI and HDMI signals.
- There are eight operating indicators.
- High speed data connector includes x4 PCI-E gen2, and 12V DC power supply.

Function

- Inputs videos whose resolutions are $\leq 1080P$ and meet VESA standard. Specifically, the resolutions are 1920×1080@60Hz, 1680×1050@60Hz, 1440×900@60Hz, 1400×1050@60Hz, 1366×768@60Hz, 1280×1024@60Hz, 1280×960@60Hz, 1280×800@60Hz, 1280×720@60Hz, 1152×864@60Hz, 1024×768@60Hz, and 800×600@60Hz. 1080I@60Hz, 1080I@50Hz
- Time and titles in OSD channel can be superimposed, and positions where they can be superimposed can be configured.
- The indicator keeps on, and the port flickers normally.

1.6.5 VI0401HS-DC3000 3G-SDI Capture Card

Figure 1-8 3G-SDI capture card



Description

- There are four 3G-SDI video input ports, and four 3G-SDI video loop output ports.
- From left to right, port 1, 3, 5 and 7 are input ports; port 2, 4, 6, and 8 are output ports.
- There are two RS-485 ports.
- There are four operating indicators.
- High speed data connector includes x4 PCI-E gen2, and 12V DC power supply.



- The two RS-485 ports are used to control SDI speed domes. COM1 should be connected to input ports 1, 2, 3, and 4; COM2 should be connected to input ports 5, 6, 7, and 8.
- Port A and B of cameras should be connected to A and B of RS-485.

Function

- Specifications of videos input and output by each channel can be retrieved individually. The specifications that can be retrieved include resolution, frame rate, and image quality.
- Conforms to SMPTE 24M standard, and the network speed can reach 2.97Gbit/s.
- The 3G-SDI capture card can input and output signals of 1080P@60/50//25, 1080i@60/50, and 720P60/50/30/25.

1.6.6 VO0801HH-DS3000 HDMI Output Card

Figure 1-9 HDMI output card



Description

- There are eight HDMI output ports that comply with DVI 1.0 and HDMI 1.3.
- There are eight operating indicators.
- High speed data connector includes x4 PCI-E gen2, and 12V DC power supply.

Functions

- Outputs videos whose resolutions are $\leq 1920 \times 1080$ @60Hz and meet VESA standard.
- Currently only cameras with multiple output functions and cameras whose resolutions are 1080P and bellow are applicable to the Controller.
- Each output port displays videos from 32 channels.

1.6.7 VO0401HS-DC3000 3G-SDI Output Card

Figure 1-10 3G-SDI output card



Description

- There are four 3G-SDI video output ports, and four copy output ports.
- From left to right, port 1, 3, 5 and 7 are input ports; port 2, 4, 6, and 8 are output ports.
- There are four operating indicators.
- High speed data connector includes x4 PCI-E gen2, and 12V DC power supply.

Functions

- Specifications of videos input and output by each channel can be retrieved individually. The specifications that can be retrieved include resolution, frame rate, and image quality.
- Complys with SMPTE 24M standard, and the network speed can reach 2.97Gbit/s.
- The output card can output signals of 1080P@60/50/30Hz and 720P@60Hz.

1.6.8 LSC0801HN LED Sending Card

Figure 1-11 LSC0801HN LED sending card



Description

- There are eight RJ-485 ports, and comply to the RGMII standard.
- There are eight operating indicators, and eight data indicators.
- High speed data connector includes x4 PCI-E gen2, and 12V DC power supply.

Functions

- A single Ethernet Networking interface can load at most 648000 pixel points. A single capture card can load 5.2 million pixels.
- You can set custom resolution for the output video signals of the single Ethernet Networking interface, the maximum width is 3840, and the maximum height is 3840 (can load at most 648000 pixel points).

2 Unpacking the Box and Wiring

2.1 Checking after Unpacking

Step 1 When you get this Controller, check if there is visible damage to its appearance. Protective materials on the packaging of the Controller can prevent most damage during transportation.

Step 2 After unpacking the packaging, check if the components are complete against the packing list. Remove the protective film on the Controller if there are no problems after checking.

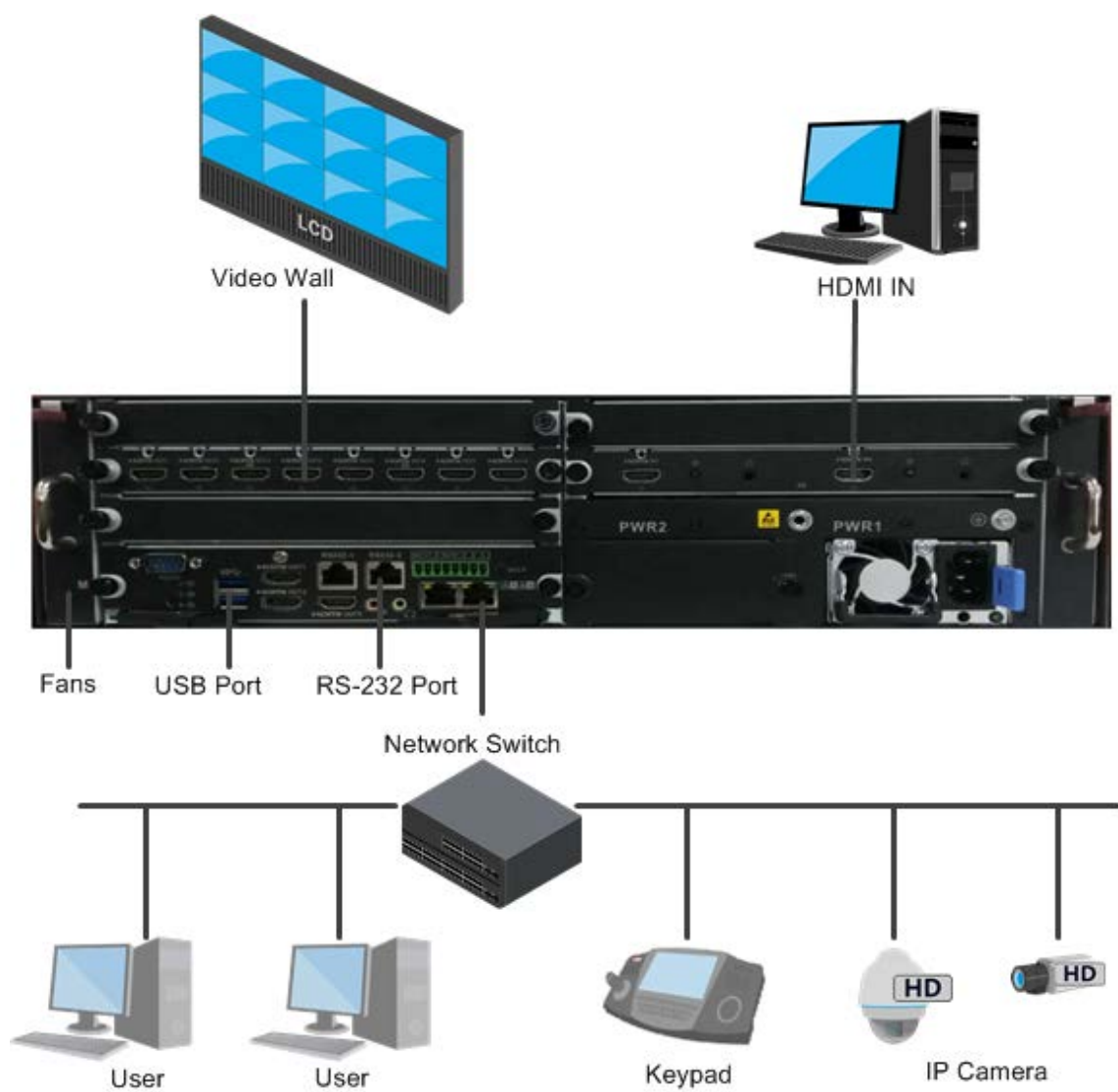
Step 3 Open the industrial cabinet, and check if data cables, power lines, the connection of the motherboard and port board are loose.

Information about the Controller like the serial number is written on the label pasted on the side of the industrial cabinet. You need to provide information on the label when you call the after sales service center. Keep the label properly, or we might not be able to provide effective services.

2.2 Installation Key Points

- Before adding new boards, detach the protecting cover on the back panel port.
- After plug the Controller in, if the buzzer buzzes, power line of one of the two power modules might not be plugged well. Press the black button beside the power module to stop the warning buzzer.

2.3 Wiring



3.1 Network Connection

Step 1 Make sure that the Controller and PC are connected to the network correctly.



When any of the ports on the Controller motherboard is connected to the Ethernet port, and the corresponding Ethernet port flickers with green light, the Controller is correctly connected to the network.

Step 2 Set IP address, subnet mask, and gateway for the PC and Controller. For network settings of the Controller, see “3.4.2 Network Setting”. (If there is no router in the network, assign IP addresses in the same network segment; if there is router, set the corresponding gateway and subnet mask.)

Step 3 Use ping `***.***.***.***` (IP address of the Controller) to check if the network is correctly connected.

Step 4 Select **Tool > Internet Options > Custom Level** in the IE Browser, and then select **Enable** or **Prompt** for the ActiveX controls and Plug-in options.



Frequently used browsers like Firefox and chrome can be used.

Step 5 Open the IE Browser, enter the IP address of the Controller into the address bar.

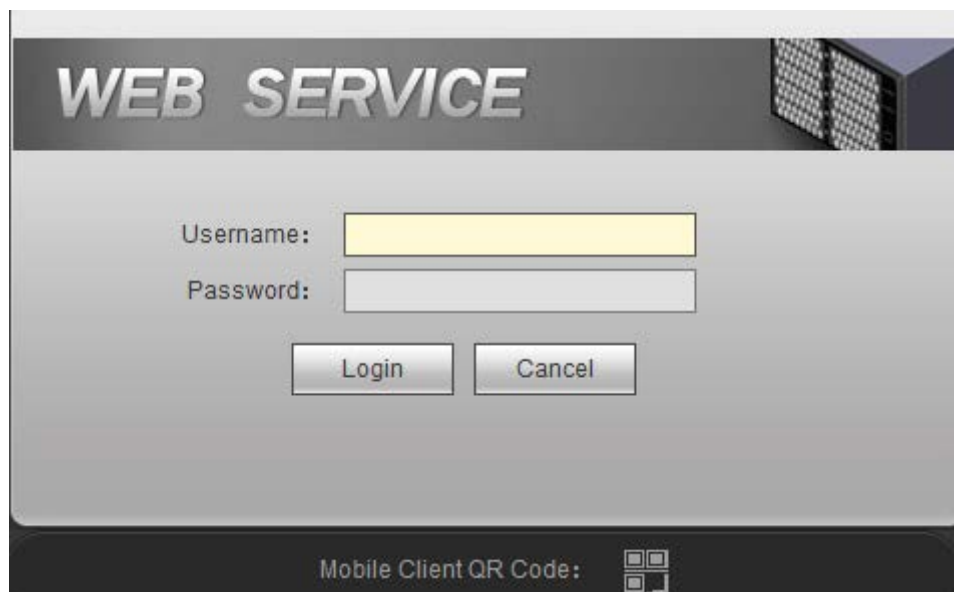
Step 6 Install controls according to web page prompts.

3.2 Logging in the WEB

Step 1 Enter IP address (for example, the IP address might be 192.168.4.111) of the Controller into the address bar. Specifically, enter `http://192.168.4.111` into the address bar, and then press **Enter**.

After the Controller is connected to the network, the web page is as follows. See Figure 3-1.

Figure 3-1 Login interface



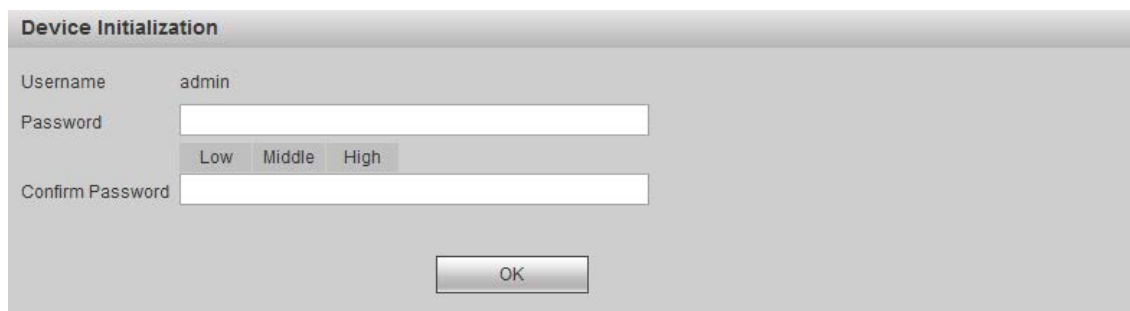
Clear cache of the IE browser the first time you log in the web after the browser is upgraded.

Step 2 Enter your user name and password, and click **Login**.



The default user name and password are “admin” and “admin 1234” respectively. The “Administrator modifies passwords” message box pops up. See Figure 3-2.

Figure 3-2 Administrator modifies passwords



Step 3 Modify the administrator password



Passwords can be space characters of 8 to 32 characters, specifically, the passwords can be the combination of uppercase letters, lowercase letters, and special characters (“’”, “””, “.”, “:”, and “&” are not included) The passwords must at least contain two kinds of characters. Make sure that the new password and the one you entered to confirm the password are the same. Set passwords of high security level according to the password strength.

Step 4 Click **OK** to finish the modification of the administrator password.



If the Controller is connected to the platform, the password of the Controller needs to be modified, too.

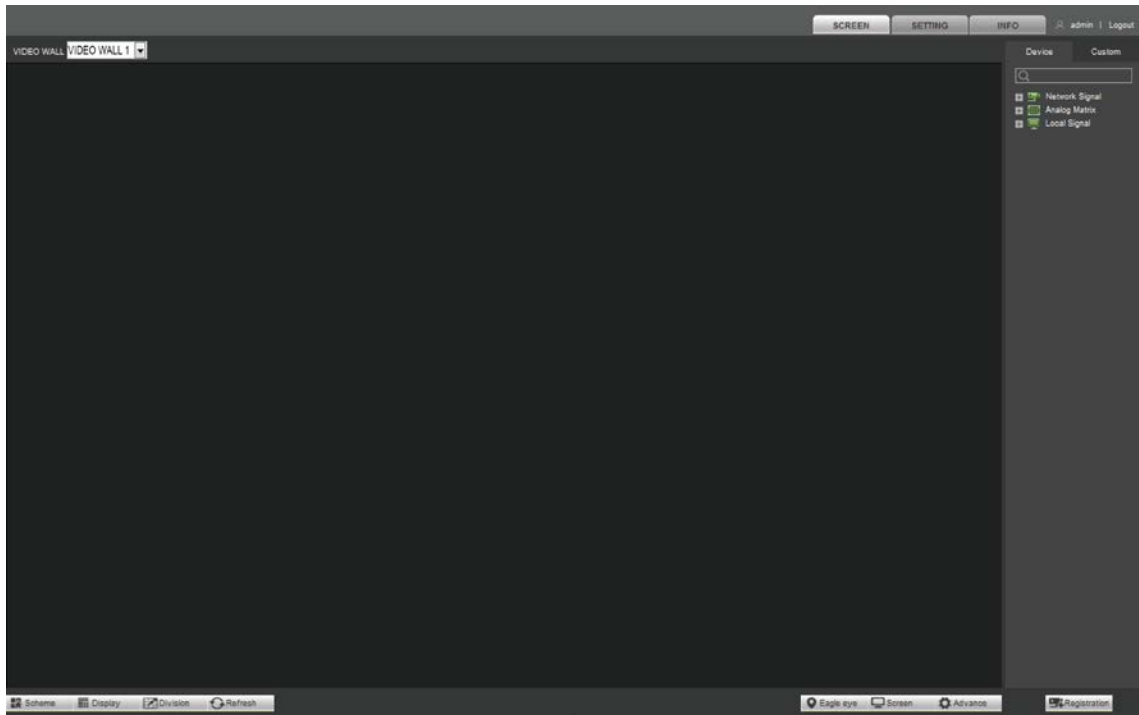
The login interface is displayed again.

Step 5 Enter your user name and password, and then click **Log in**.

3.3 Screen

Click **Screen**, and then the interface is displayed as follows. See Figure 3-3.

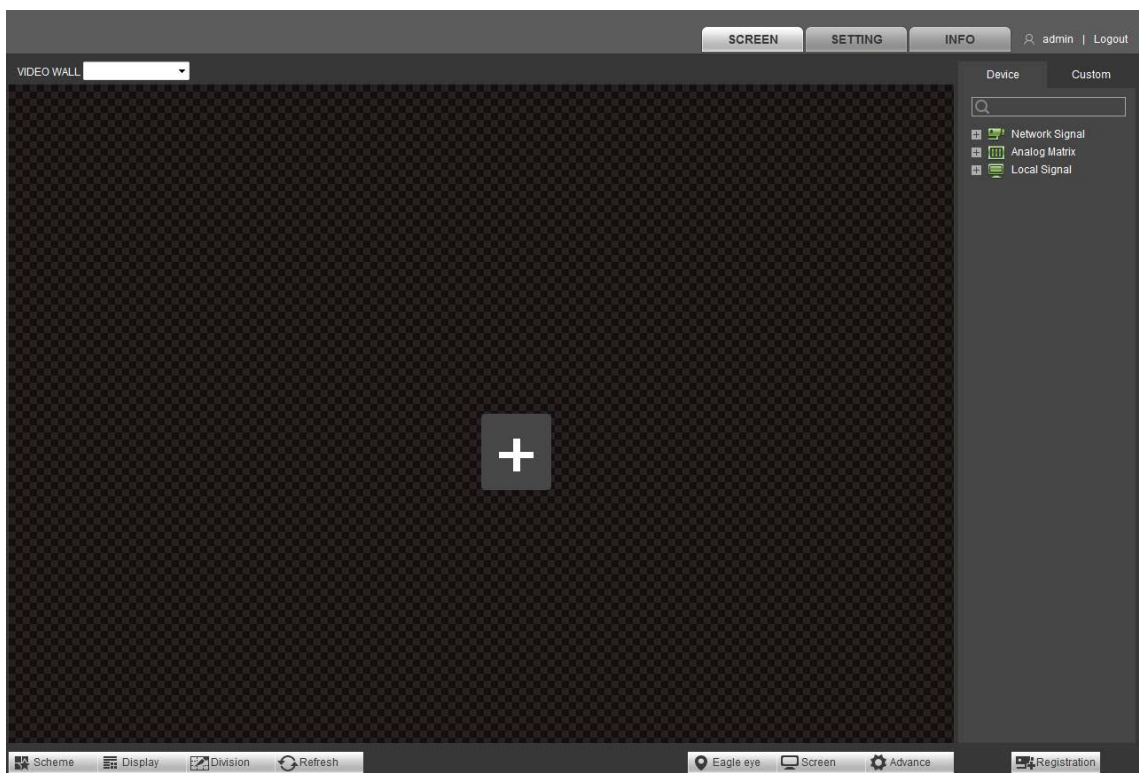
Figure 3-3 Screen



3.3.1 Adding Screens

The first time you log in, you need to add screens. See Figure 3-4.

Figure 3-4 Add screens



Click , the **Screen Configuration** interface is displayed. For details about the screen configuration, see “3.4.5.1 Video Wall”.

3.3.2 Signal Configuration

3.3.2.1 Device Tree

All current signal sources are displayed on the device tree.

- Network signal: network signals are network device signal sources displayed in “Adding Devices”. For details, see “3.4.4.2 Registration”.
- Analog matrix: analog matrices are matrix signal sources displayed in “Matrix Management”. For details, see “3.4.4.1 Matrix”.
- Local signal: local signal displays local sources. For details, see “3.4.4.3 Local”.

3.3.2.2 Customization

Customization is displayed in groups added to the Signal Groups. For details about adding groups and signal sources, see “3.4.4.4 Signal Groups”.

3.3.2.3 Play Signals on the Video Wall

You can watch corresponding videos on the video wall, if signals are input to the windows of the video wall.

- To make the video wall only display videos of a single window, click the corresponding signal source in the “Device Tree” or “Customization”.
- To open the freeform windows, click the corresponding signal source in the “Device Tree” or “Customization”, and then press the left mouse button to draw a rectangle.
- To make the video wall only display videos of a single window, select the corresponding signal source in the “Device Tree” or “Customization”, drag the signal source, and then drop it onto the blank area of the main screen.
- Open or close the signal windows by clicking the left mouse button, and then double-click signal sources in the “Device Tree” or “Customization”.



You can copy signals from several channels. If the quantity of channels you have copied exceeds the specified quantity, the system will remind you “Exceed the Specified quantity”.

- One signal can be used at most twice in one block.
- One signal can be used at most eight times in one block.
- You can copy at most signals from 12 channels to a capture card.

3.3.2.4 About Signals Being Played in Order

To cyclically play signals in a certain window, drag signal sources or signal groups that you set to that window. Set intervals and data rates according to your actual requirements.

Step 1 Select windows whose signals need to be played in order.

Step 2 Press the left mouse button in the “Device Tree” or “Customization”, and drag the signal source to the designated window. Repeat these actions to add more signal sources. All signal sources in this window will be displayed at the bottom part of the interface. See Figure 3-5.



- Only when you press the left mouse button, and drag the signal source to designated windows, the signal source will be displayed in the videos-played-in-order list. If you have selected a window before single clicking or double clicking signal sources, or before you drag signal sources to blank space of the screen or to empty windows without signals, signal sources will not be displayed in the videos-played-in-order list.
- If you drag a group of signals in the “Customization” to a designated window, the original signal source lists in the window will be replaced by this group of signals.

Figure 3-5 Signal display

Channel List		Advance				
No.	IP	Channel Name	Tour Time Interval : 10	(10~120)s	Stream Type Main Stream	Operation
1		Slot01-01	10		Preview	⌕ ⬆ ⬇
2		Slot01-02	10		Preview	⌕ ⬆ ⬇
3		Slot01-03	10		Preview	⌕ ⬆ ⬇

Step 3 Set signal source parameters in the videos played in order list. For details, see Table 3-1.

Table 3-1 Description of the play in order list

Parameter	Description
No.	Displays the quantity of signal sources and the order of videos played. At most 16 signal sources can be added into the play in order list.
IP	Displays IP addresses of signal sources.
Channel names	Displays channel names of signal sources.
Play in order intervals	Displays intervals between the time when a signal source starts to be displayed on the video wall and the time when the next signal source starts to be displayed on the video wall. The intervals can be 10s to 120s.
Data rate types	Used to set data rate types for signal sources. • When signal sources are “network signal”, you can set data rate types as “main stream” or “sub stream”. • When signal sources are “analog matrix” or “local signal”, data rate types can only be set as “preview stream”.
Operations	You can manage the signal sources in the list through the following operations. • Click , you can delete signal sources. If you delete all the signal sources in the list, the window will display “no signal”. • Click , you can set the order of signals that are to be played. • Double click one of the signal sources in the list, and the signal source will be displayed on the video wall.

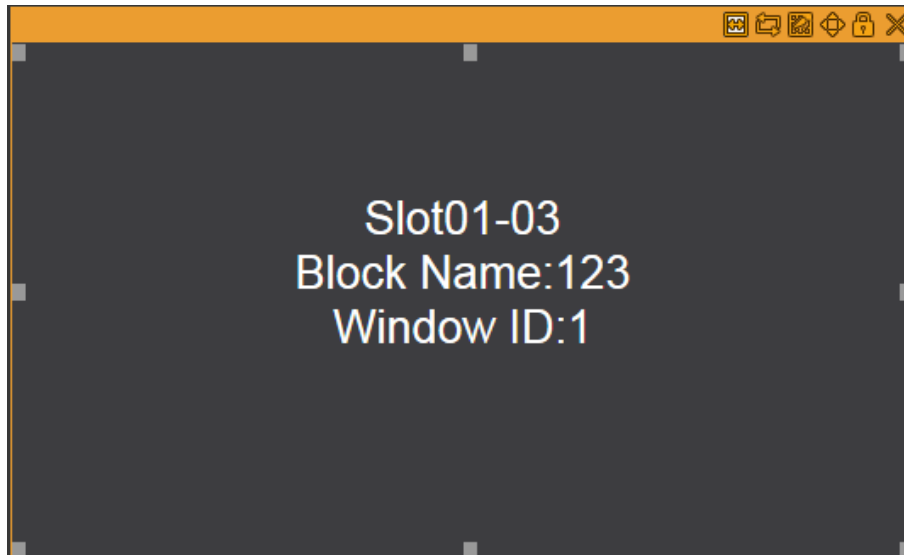
Step 4 Click , signals in this window will be played in order.



Click the icon again, signals being played in order will be stopped.

3.3.2.5 Adjust Windows

Figure 3-6 Adjust windows



Conference mode

Click , images on the windows are displayed according to the proportion of 1:1 of the captured images



- Only local signals can be played in the conference mode.
- Click , you can cancel the conference mode.

Signals played in order

Click , signals start to be played in order. The icon becomes . Click , signals being played in order will stop.

Roaming

Click , the system enters roaming state, and you can adjust positions and sizes of windows.

- In roaming state, press the left mouse button and move the pointer, the selected window will move in the same direction of the pointer. Release the mouse button, and the window is moved to the intended position.
- In roaming state, click the window, drag any direction control point, you can change the size of the window.



Roaming needs to be operated in the  locking mode. If windows display , you can not change positions and sizes of windows.

Paste



Click ,  appears.

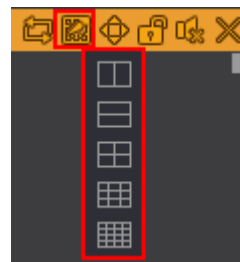
Click , the signal window will cover all screens that the windows are on.

Split



Click ,  appears.

Click , the windows will be split into patterns like



Lock

Click , you can lock the window, the icon turns to .

After windows are locked, you can not adjust their positions and sizes.

Close

Click , you can close the window.

3.3.2.6 Signal Switching

You can switch signal sources for every window.

Step 1 Select windows that you want to input signals in.

Step 2 Double click signal sources in the **Device Tree** or **Customization**.

3.3.3 Adding Devices

Click  **Registration**, the **Registration** interface is displayed. For details about the screen configuration, see “3.4.4.2 Registration”.

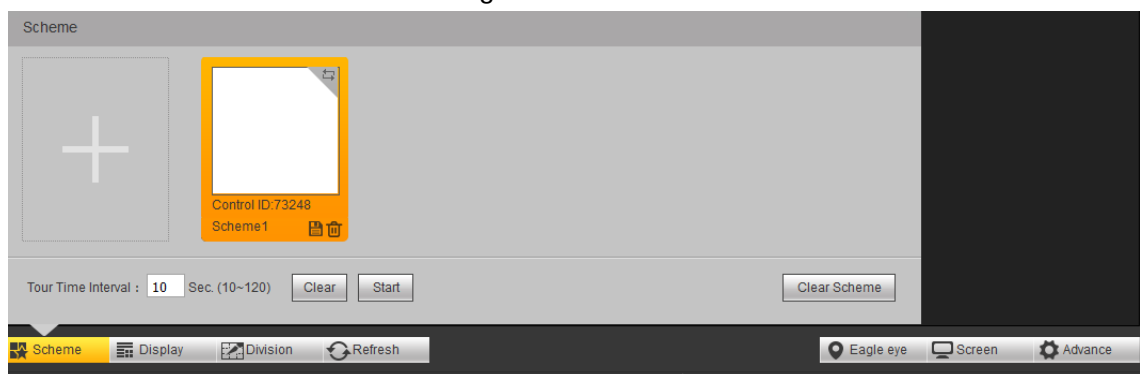
3.3.4 Scheme Management

Save the layout of the video wall as one of the preset schemes, and then you can set configurations to make several preset schemes played in order.

Step 1 Click  **Scheme**.

The system displays the **Scheme** interface. See Figure 3-7.

Figure 3-7 Scheme

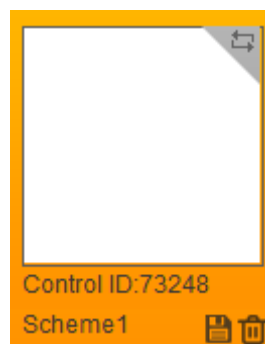


Step 2 Click .

Step 3 Click  to save the scheme.

See Figure 3-8.

Figure 3-8 The saved scheme



Step 4 Reset configurations for the current layout, and take Step 2 again to add more preset schemes.



Click **Clear Scheme**, you can delete all preset schemes.

Step 5 Set play in order intervals.

Step 6 Click  in the top right corner of every preset scheme, and you can add this scheme to the play in order list.

 The icon turns to a number that represents the order that the scheme in the play-in-order list. See Figure 3-9.



After you have double clicked **Control numbers** and the name of a scheme, you can modify the number and name of the scheme.

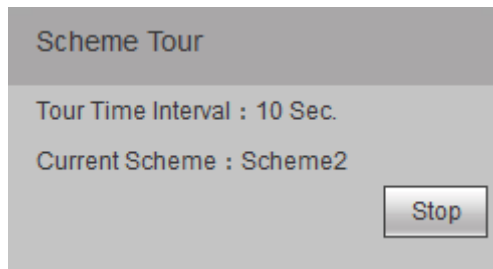
Figure 3-9 Set orders for video signals



Step 7 Click **Start**.

The system starts to play video signals in order according to the preset schemes that you configured. Information about video signals being played is displayed in the bottom right corner. See Figure 3-10.

Figure 3-10 Scheme tour

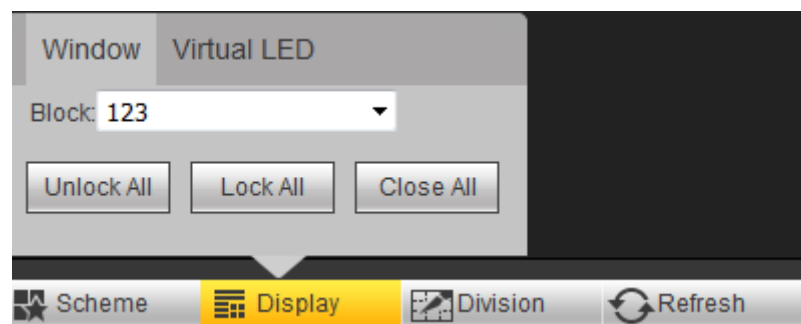


- Click **Stop** to stop playing video signals with preset schemes.
- When video signals with preset schemes are played, actions on the **Screen** interface can not be conducted.
- The numbers are used to differentiate schemes in the central control.

3.3.5 Window Management

When the window you want to see is covered by other windows, or you want to bring the window you want to see to front, click  **Display**, the interface is shown in Figure 3-11.

Figure 3-11 Window lists



- Select the window names you want to see, you can bring the window to front.
- Click **Unlock All**, you can unlock all windows to adjust positions and sizes of the windows.

- Click **Lock All**, you can lock all windows, and then you can not adjust positions and sizes of the windows.
- Click **Close All**, you can close all windows.
- You can also unlock and lock a single window, and you can click “x” to close a single window.

3.3.6 Block/Window Splitting

You can split blocks and windows according to your requirements.

Block Splitting

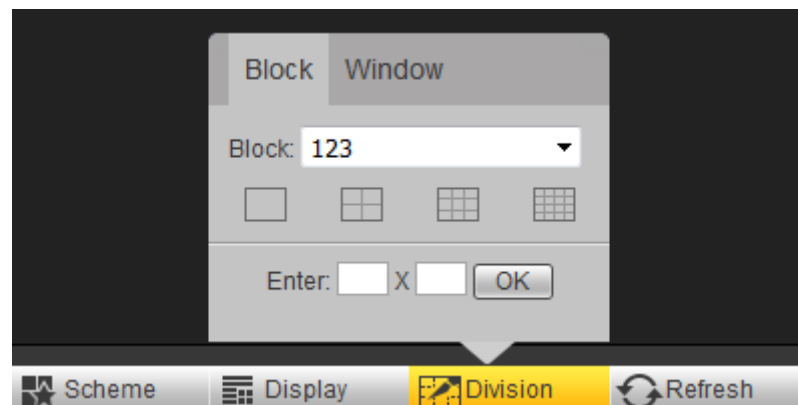
When splitting blocks, the original open windows of blocks will be automatically deleted, and then new open windows will be opened according to the window number you selected. After blocks are split, the original open windows will be closed but the original signals will be reserved.

- If the quantity of original open windows is less than the quantity of the blocks, the superfluous windows will display “No Signal” after the block is split.
- If the quantity of original open windows open windows is more than the quantity of the blocks, windows exceed the quantity of the blocks will be closed.

Step 1 Click **Division > Block**.

The **Block** interface is displayed. See Figure 3-12.

Figure 3-12 Block



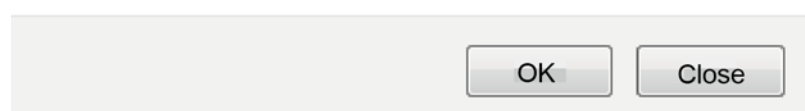
Step 2 Select fixed splitting , or you enter the numbers (for example, “3×3” means the block will be split into 9 blocks).

Step 3 Click **OK**.

The prompt box is displayed. See Figure 3-13.

Figure 3-13 Prompt box

Block split will clear the current scene, are you sure to split block?



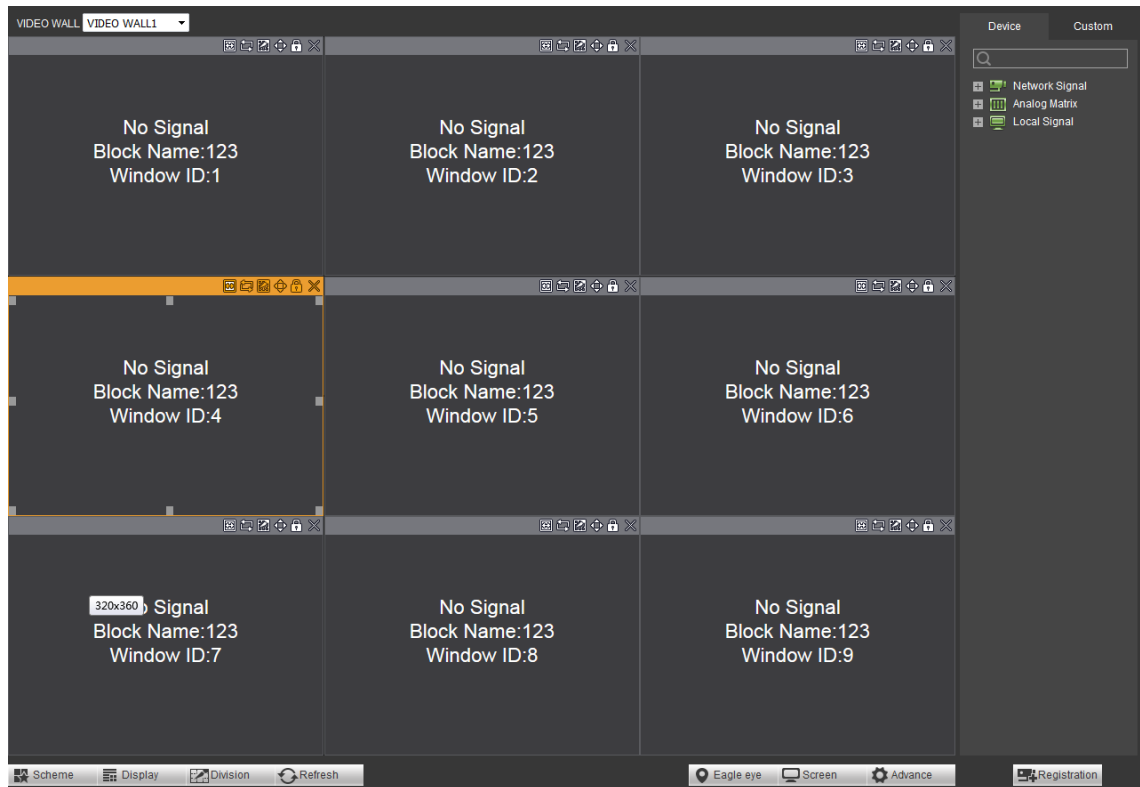
Step 4 Click **OK**.

After splitting, the blocks are displayed. See Figure 3-14.



After splitting the blocks, the windows are locked. If you want to adjust positions and sizes of the windows, click  to unlock.

Figure 3-14 Block Splitting



Window splitting

Window splitting means splitting the selected windows according to your requirements. Several signals can be displayed in the same window.

Step 1 Select the window that you want to split.

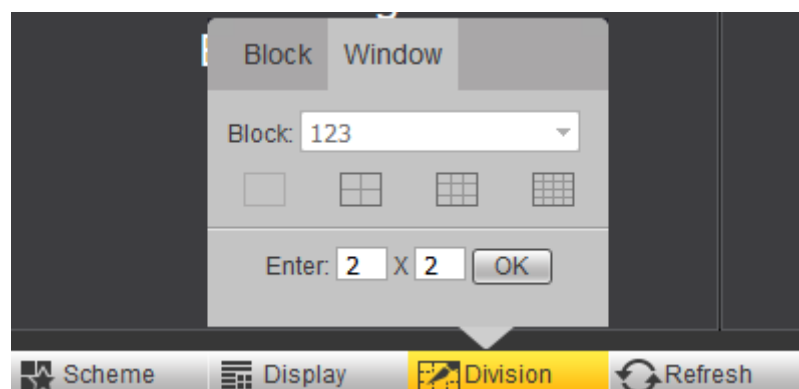


Splitting a window that is playing video signals in order is not recommended.

Step 2 Select **Division > Window**.

The **Window** interface is displayed. See Figure 3-15.

Figure 3-15 Window splitting



Step 3 Select fixed splitting , or enter the numbers (for example, "3×3" means the block will be split into 9 blocks).

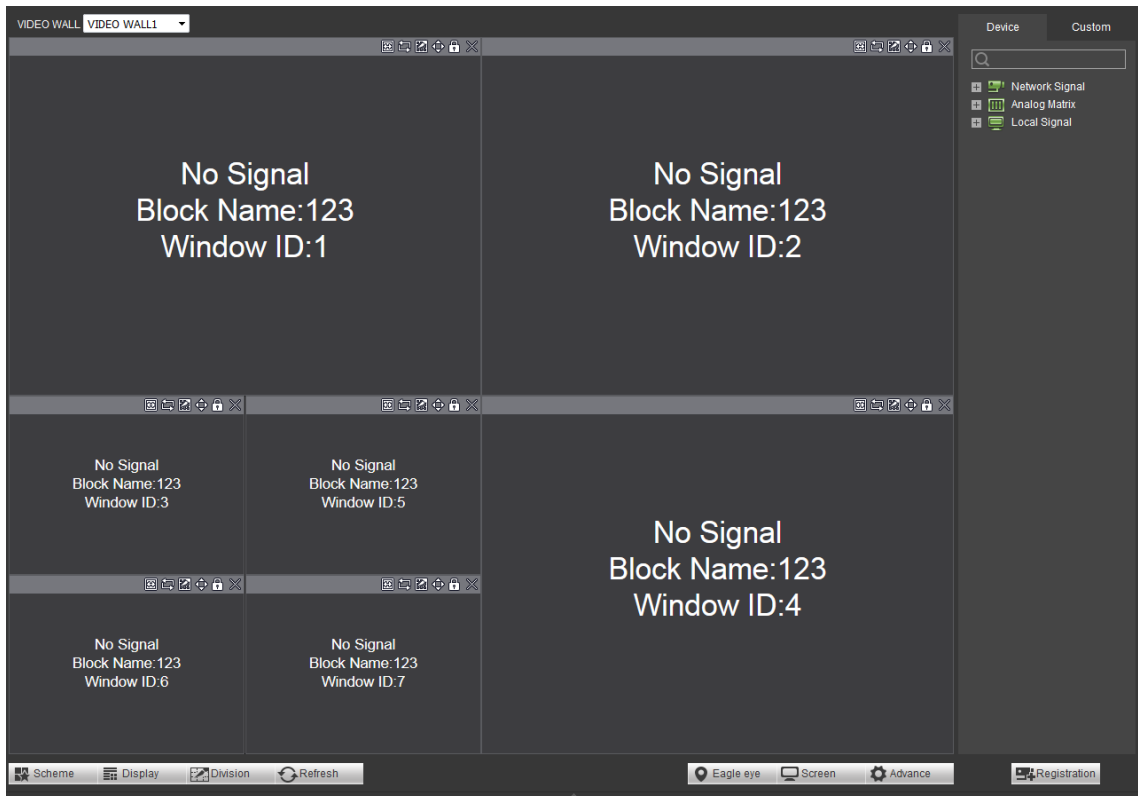
Step 4 Click **OK**.

After splitting, the windows are displayed. See Figure 3-16.

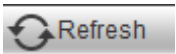


After windows are split, the original signals will be displayed in the first window, and **No Signal** will be displayed in other windows.

Figure 3-16 Window splitting



3.3.7 Refreshing the Video Wall

Click , you can refresh the configuration of the video.

3.3.8 Eagle-Eye Map

Eagle-eye map, also called thumbnail map, is used to adjust display size and display range of the main window on the web screen.

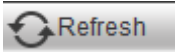
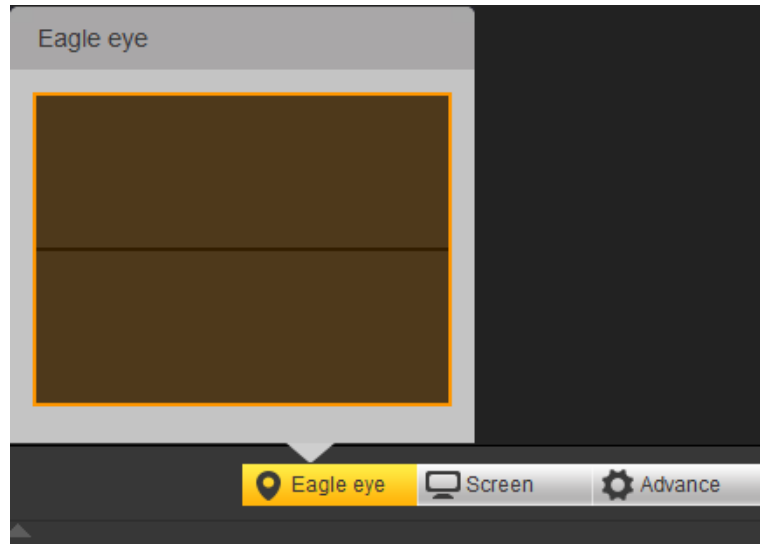
Click , interface like Figure 3-17 will be displayed.

Figure 3-17 Eagle-Eye Map



Adjust the size of the rectangle in the eagle map by mouse or by using the scroll wheel to change the display range of the main window. Drag the rectangle in the eagle map you can change the area that is displayed in the main window.

3.3.9 Screen Management

You can control the open and close of screens, set back light mode for screens, modify parameters of screens, select input signals for screens, and set signal modes for the screens.

3.3.9.1 Opening and Closing Screens

After you have connected the Controller to serial ports on the screen, you can open and close screens.

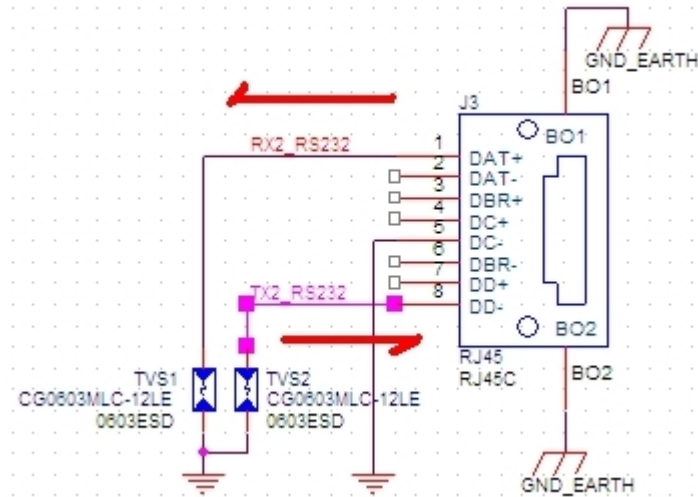
You have to connect screens to RJ-45 serial ports on the motherboard, and then you can control the open and close of the screen. Wiring instructions are as follows.

Port 1 is RXD, Port 8 is TXD, and Port 5 is GND.

Instructions of other lines:

- On the Liquid Crystal Display, Port 2 is for receiving data, Port 3 is for sending data, and Port 5 is connected to the ground wire.
- In the RJ-45 serial port of the motherboard, Port 1 is for receiving data, Port 5 is connected to the ground wire, and Port 8 is for sending data. See Figure 3-188.

Figure 3-18 RJ-45 serial port wiring

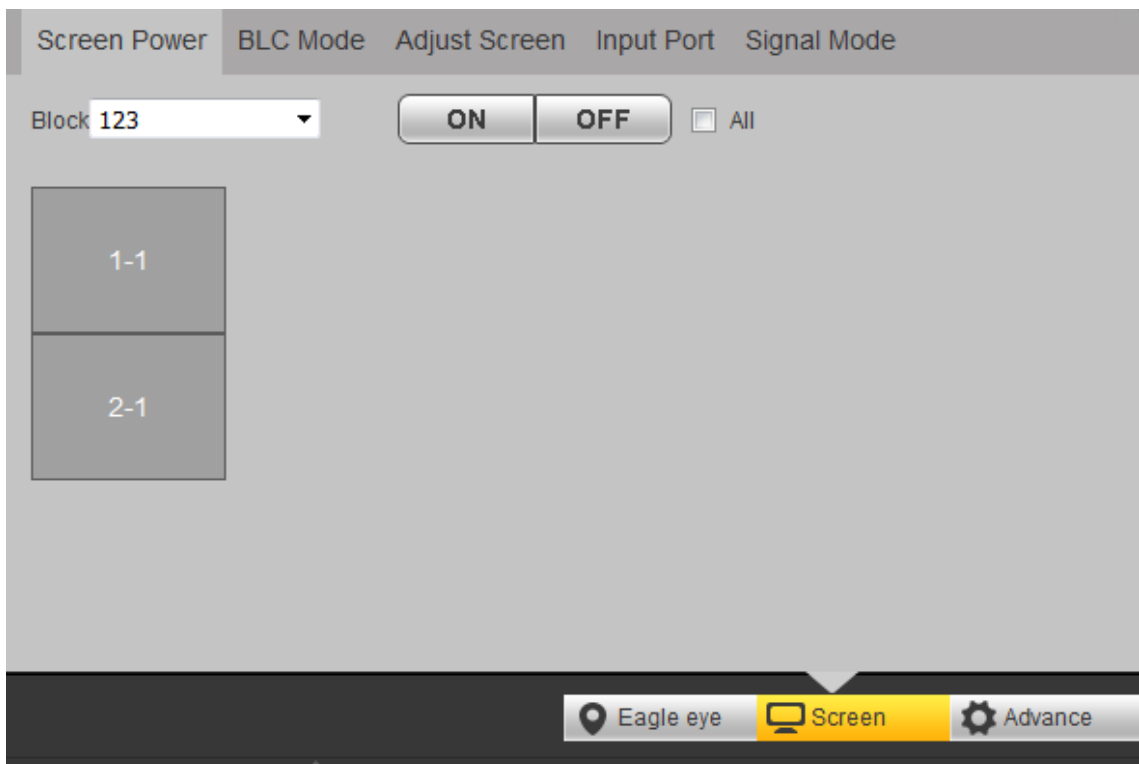


As a result, Port 1 on the Controller should be connected to Port 3 on the Liquid Crystal Display, Port 8 on the Controller should be connected to Port 2 on the Liquid Crystal Display, and Port 5 on the Controller be connected to Port 5 on the Liquid Crystal Display. You need to cut off the other lines. Port 1 or Port 8 should be connected to one of the three RJ-45 serial ports, and the other should be connected to the Liquid Crystal Display.

After you have finished wiring of RJ-45 serial port, you can control the Open and Close of Screens in interface displayed in Figure 3-199. Detailed instructions are as follows.

Step 1 Click  **Screen**, select **Screen Power**, interface in Figure 3-19 will be displayed.

Figure 3-19 Screen power



Step 2 Select the block that you want to control in the block drop-down list.

Step 3 Select one or all blocks in the drop-down list.



Click **All Blocks**, and then all screens will be selected.

Step 4 Click **ON** or **OFF** to turn on or turn off all the screens at the same time.

3.3.9.2 BLC Mode

Set back light mode for screens according to your requirements. Screens will give out corresponding lights. Back light mode includes energy saving mode, standard mode, and highlight mode.



- Only certain types of screens have this function.
- Depending on different screen configuration protocols, the screen modes you can select are different. Switching mode and standard mode have the same effect. Energy saving mode, standard mode and highlight mode have back light with different brightness.

Step 1 Click **BLC Mode**, and then the interfaces in Figure 3-20 or Figure 3-21 are displayed.

Figure 3-20 BLC mode (1)

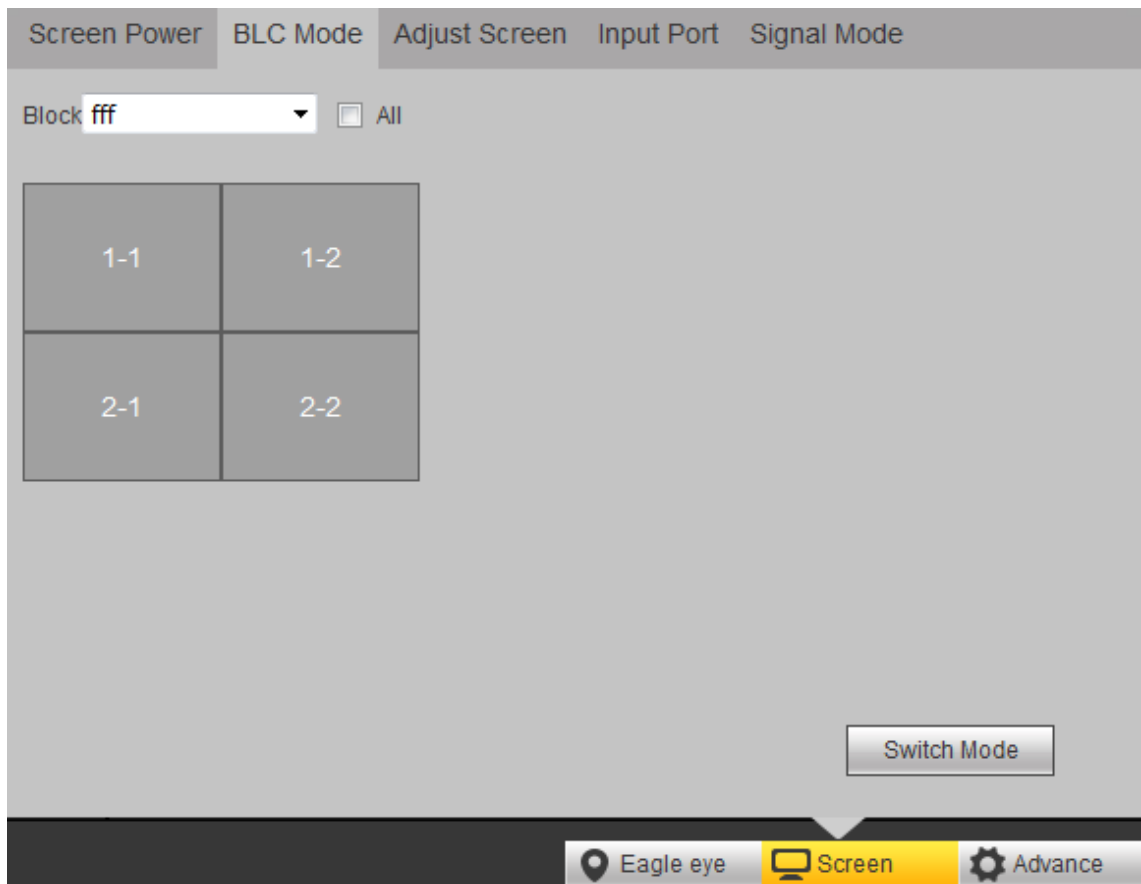
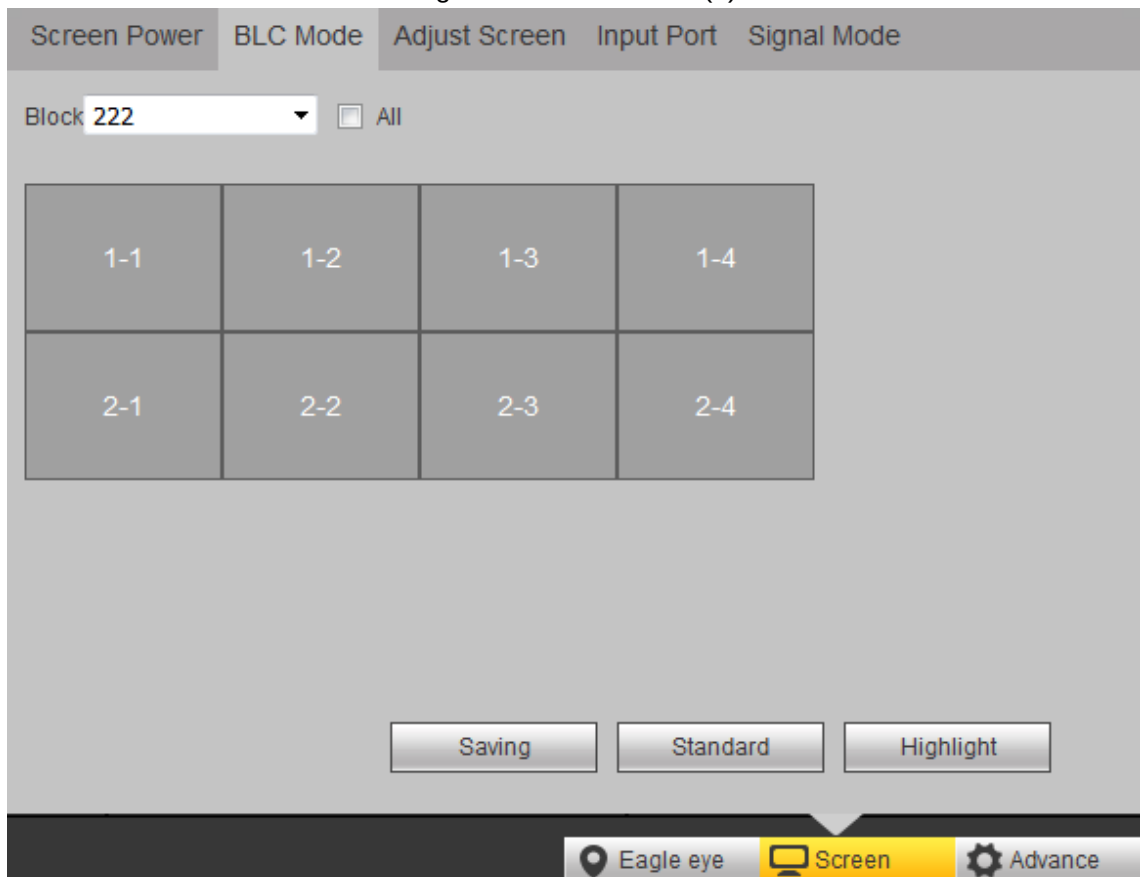


Figure 3-21 BLC mode (2)



Step 2 Select one or more than one screens, and select the required modes.



Click **All**, you can select all blocks.

Step 3 Select a mode according to your requirement.

3.3.9.3 Screen Adjustment

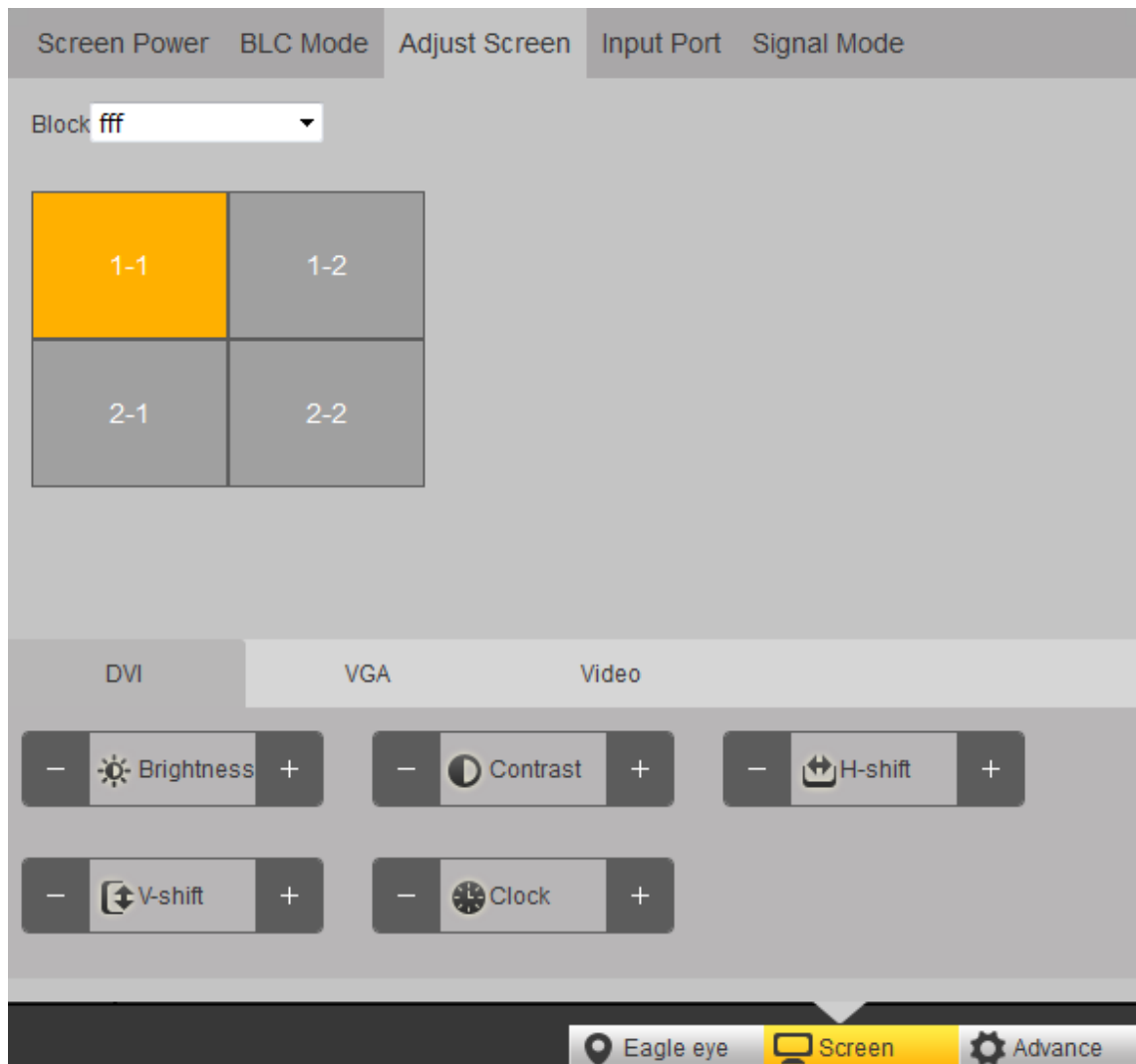
You can set parameters like brightness and contrast for screens that display DVI and VGA signals.



Only certain types of screens have this function.

Click **Adjust Screen**, and then the interface is displayed as follows. See Figure 3-22.

Figure 3-22 Screen Adjustment



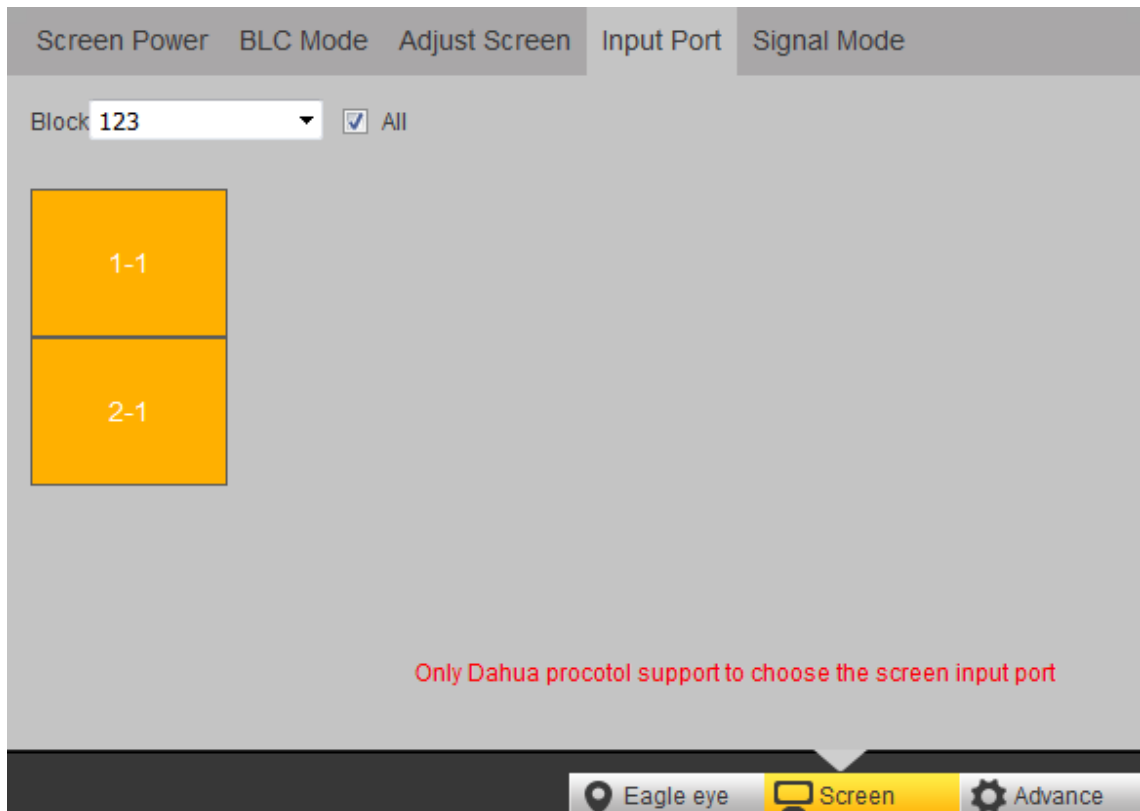
You can adjust screen parameters for screens display DVI, VGA, and Video signals. For actual adjustable parameters, refer to the real hardware. Click “+” or “-” to adjust parameters.

3.3.9.4 Selecting Screen Input Sources

You can select input signal source types for screens.

Step 1 Click **Input Port**, and then the interface is displayed as follows. See Figure 3-23.

Figure 3-23 Input Port



Step 2 Select “DVI”, “HDMI”, “VGA”, “Video1”, “Video 2”, and “YPbPr” according to your requirements.



Click **All**, you can select all blocks.

Step 3 Select a mode according to your requirement.

3.3.9.5 Signal Mode

Installation personnel will select corresponding screen signal modes depending on your requirements. In some cases, the augmented mode will improve the synchronization.

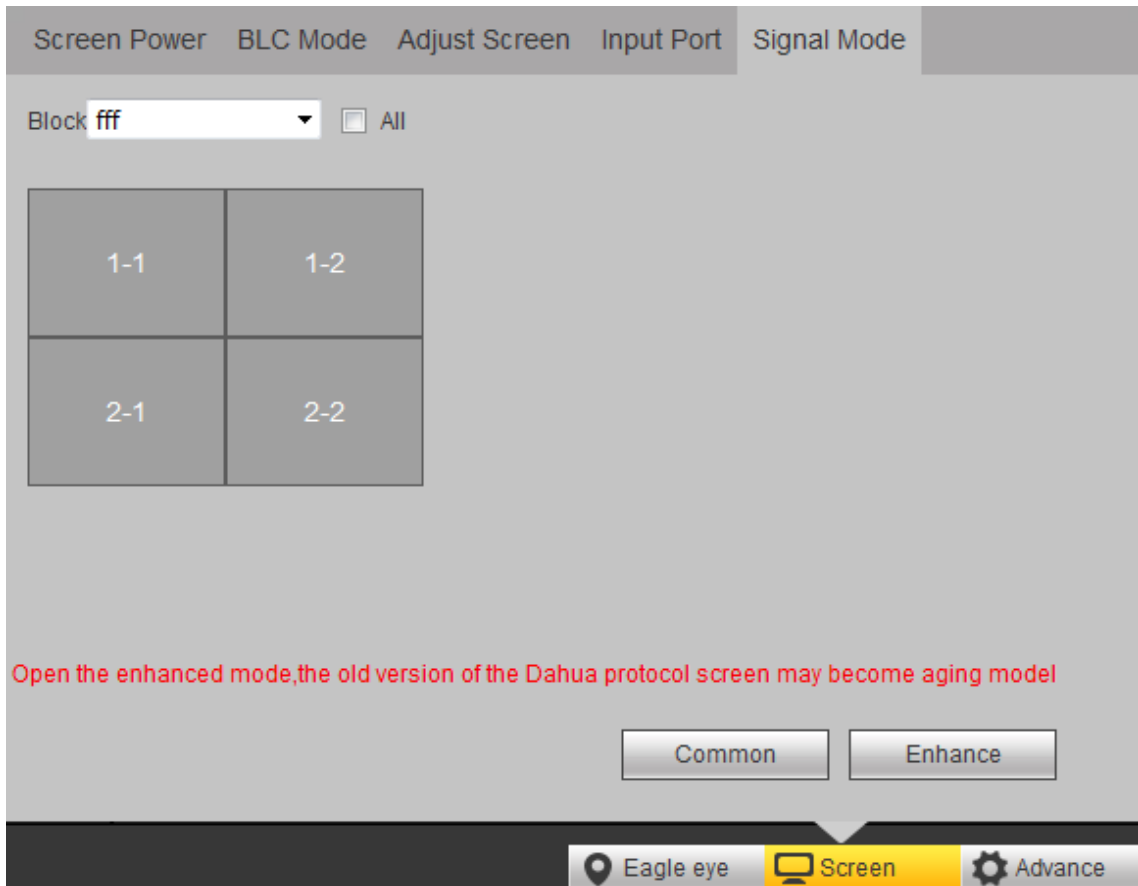


Only certain types of screens have this function.

Step 1 Click **Signal Mode**.

The interface is displayed as follows. See Figure 3-24.

Figure 3-24 Signal mode



Step 2 Select one or more than one screens.



Click **All**, you can select all the blocks.

Step 3 Select common mode or augmented mode according to your requirement.



Image quality in augmented mode will be better.

3.3.10 Advanced Functions

You can set advanced functions like controlling PTZ, configuring virtual LED and OSD overlay, set digital zoom, set decoding strategies, adjust signal parameters, and display screen numbers.

3.3.10.1 Controlling PTZ

You can control rotating directions (up, down, left, right, top left, bottom left, top right, and top right), focusing, zomming, and aperture adjusting of PTZ devices.



- You can control the PTZ devices remotely through network and RS-485 serial ports.
- Make sure that the wiring is correct when connecting RS-485 serial port cables to PTZ devices. Set revelant parameters on the “Parameter Setting” interface.

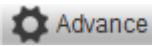
Select the window where signals are displayed, click  > , and the Controlling PTZ interface is displayed. See Figure 3-25.

Figure 3-25 Controlling PTZ



Select appropriate steps according to your requirement in the drop-down list. Select a direction, and then click and hold the left mouse button, the order with of rotating steps and direction is sent to PTZ devices. Release the mouse button to stop the PTZ control.

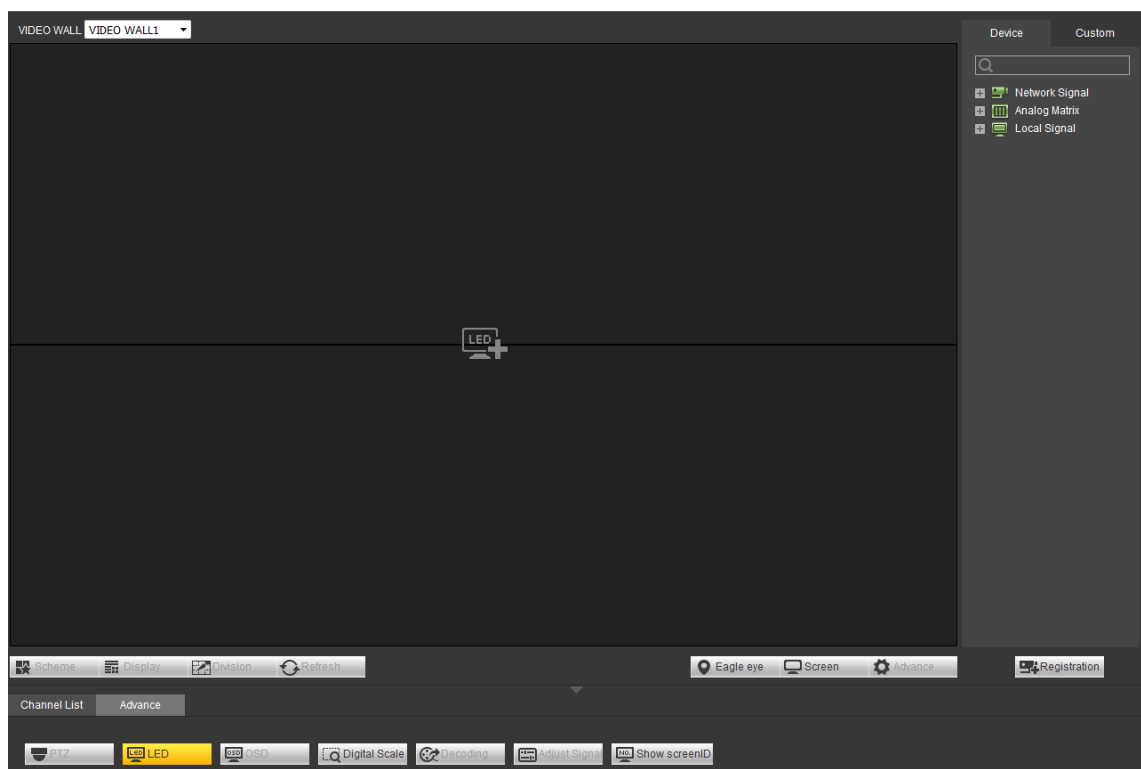
3.3.10.2 Virtual LED

Select a certain range on the video wall by customization, enter characters of any style, and the characters will be displayed in the form of scrolling text on the LED screen.

Step 1 Click .

Interface like Figure 3-26 will be displayed.

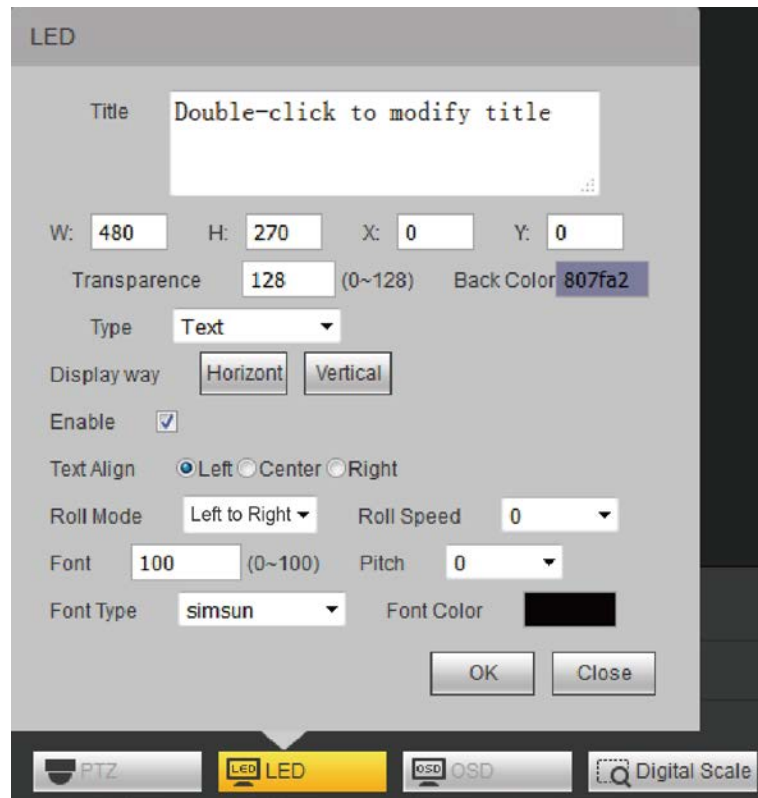
Figure 3-26 Open the Virtual LED



Step 2 Click .

The **Virtual LED** interface is displayed. See Figure 3-27.

Figure 3-27 Virtual LED(1)



Step 3 Configure parameters. For detailed parameters, see Table 3-2.

Table 3-2 Parameters of Virtual LED

Parameter	Description
Titles	Enter titles that will be displayed on the virtual LED (video wall).
W/H	Enter the width and height of the virtual LED background.
X/Y	Enter the coordinate of the Virtual LED.
Transparency	Set transparency for the LED, and the range can be 0–128.
Back color	Set LED back color. You can enter six RGB values, or you can click the color area to select.
Type	You can set title types. For example, you can set title types as “text” or “time”.
Display way	Set modes for titles to be played on the virtual LED. You can select Horizontal or Vertical .
Enable	Determine whether the virtual LED titles are to be displayed on the video wall. - Select checkbox, click OK, and them the virtual LED titles will be displayed on the video wall. - Deselect the checkbox, click OK, and the virtual LED titles will be displayed on windows in the web, but the titles will not be displayed on the video wall.
Text align	Used to set the alignment of LED titles when they are displayed on the virtual LED background. The alignment types can be “Left”, “Center” and “Right”.

Parameter	Description
Roll mode	Set rolling mode for titles on the virtual LED. You can select “From left to right” or “From right to left”.
Roll speed	Set roll speed for titles on the virtual LED. The speed can be 0–5.  If the speed is zero, then the titles are static texts.
Font	Used to set character size for the virtual LED titles, and the character size range can be 0–100.
Pitch	Used to set character spacing of the virtual LED titles, and the character spacing range can be 0–5.
Font type	Used to set typefaces for virtual LED titles, and you can set the typefaces as “simsum” or “FZHTFW”.
Font color	Used to set colors for the virtual LED titles. You can enter six RGB values, or you can click the color area to select.

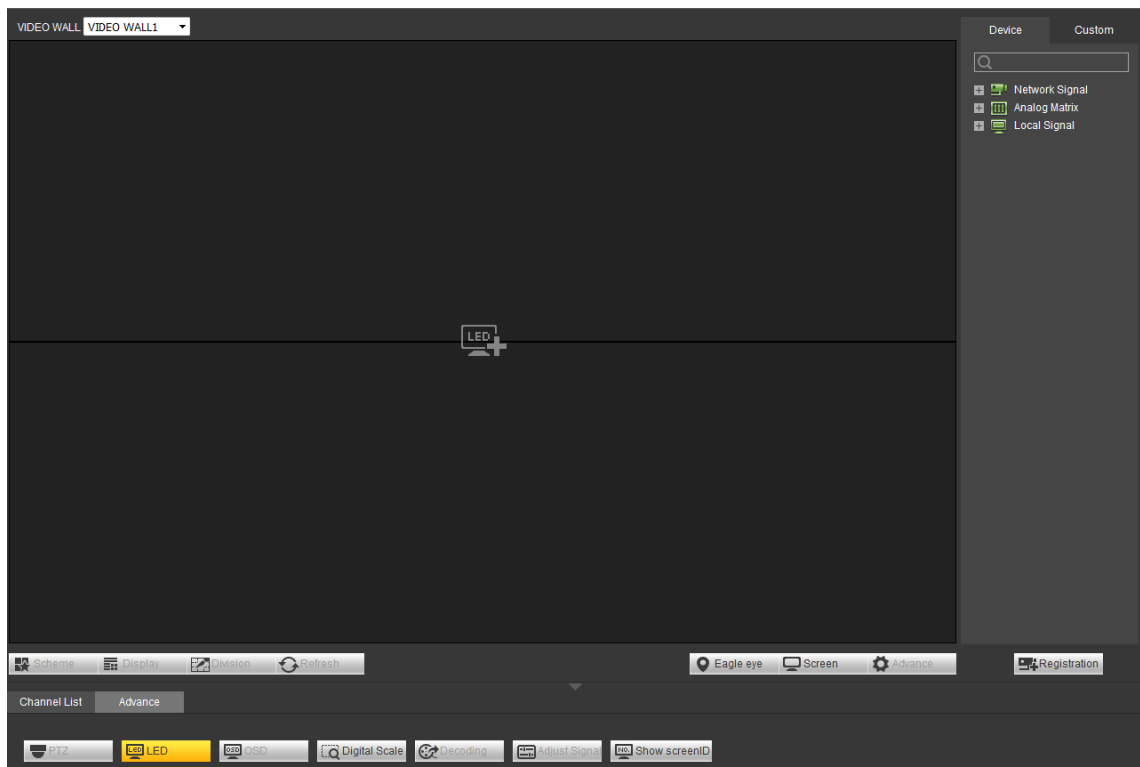
Step 4 Click **OK**.

Titles are displayed on the Virtual LED. See Figure 3-28.



- Move the cursor to the virtual LED, press the left mouse and move the mouse, you can move the virtual LED to other positions.
- Click the virtual LED, drag any direction control point, you can change the size of the virtual LED.

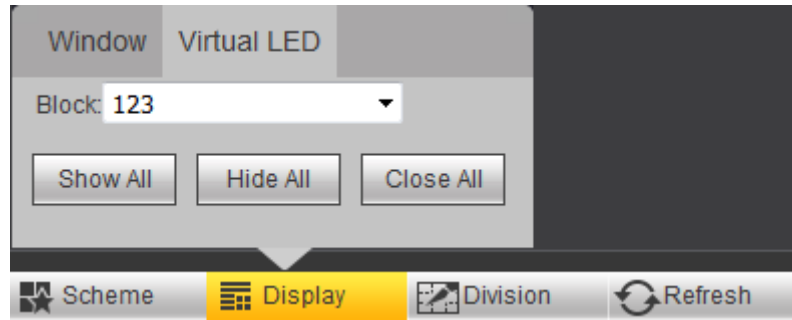
Figure 3-28 Design sketch



Step 5 Select  **Display** > **Virtual LED**

Interface like Figure 3-29 will be displayed.

Figure 3-29 Virtual LED (2)



- Click **Show All**, all virtual LEDs can be displayed on the screen.
- Select **Hide All**, all virtual LEDs displayed on the screen can be closed.
- Click **Close All**, all virtual LEDs will be deleted.
- You can select checkbox to enable a single virtual LED, or you can click “x” to delete a single virtual LED.

3.3.10.3 OSD Overlay

You can customize OSD overlay effect for the local signals. You need to superimpose items like time titles and channel titles so that they can be displayed in the video.

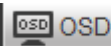
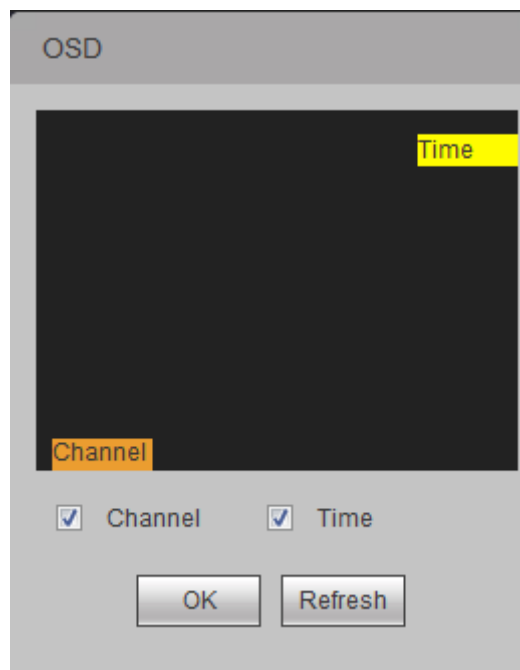
Select local signal (only local signals have this function) windows, click , interface like Figure 3-30 will be displayed.

Figure 3-30 OSD overlay



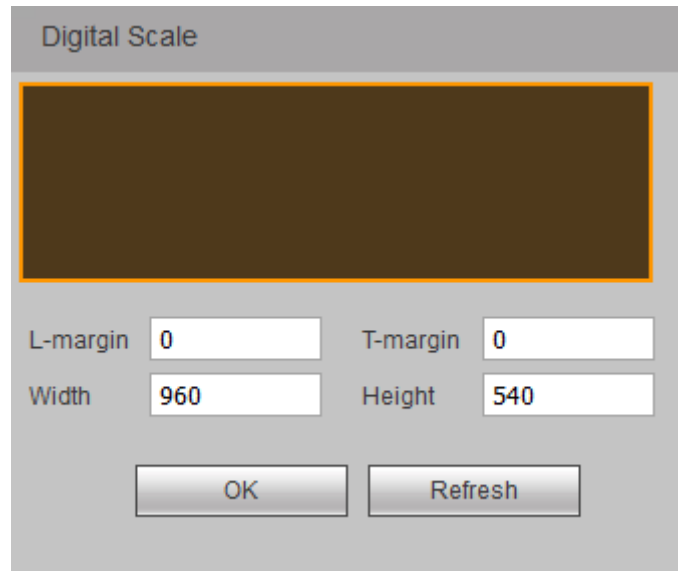
You can superimpose channels titles and time titles according to your requirements. The titles can be dragged to any position.

3.3.10.4 Digital Zoom

You can use mouse and its scroll wheel to zoom in part of an image on the video wall. Images on the video wall are network signals and local signals.

Select windows where signals are in, click  Digital Scale, interface like Figure 3-31 will be displayed.

Figure 3-31 Digital zoom



You can adjust the position and size of image displaying area in windows.



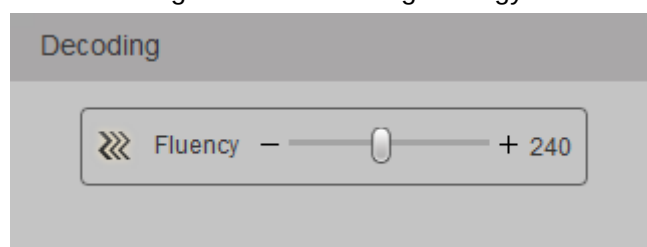
You can cut images and splice them.

3.3.10.5 Decoding

You can drag the sliding block to adjust the smoothness of videos displayed on the windows. You can either decide to have real time decoding or have smooth images (This function can only be available for network signals).

Select network signal window, click  Decoding, and then you can set smoothness according to your requirements.

Figure 3-32 Decoding strategy



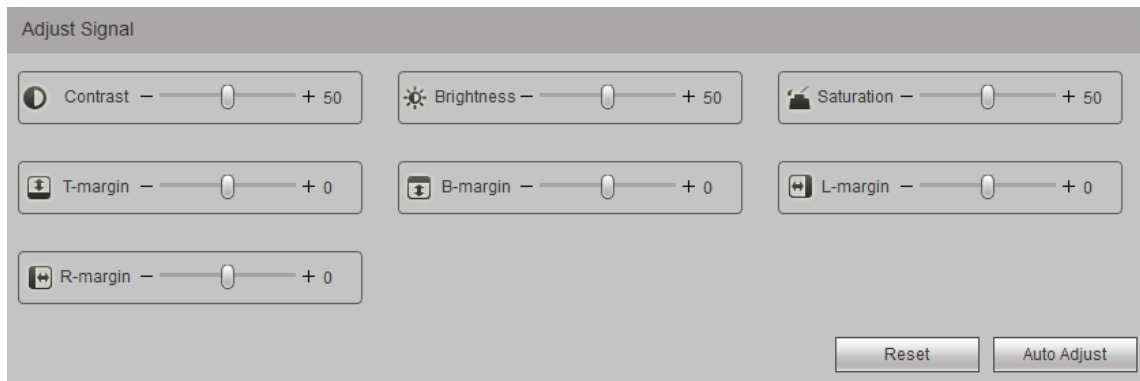
3.3.10.6 Signal Adjustment

You can adjust contrast, brightness, saturability and margins of local signals (only local signals have this function).

Only three signal types have this function: VGA, CVBS, and DVI. Parameters of VGA and CVBS signals can be automatically adjusted. Margins of DVI signals can not be adjusted.

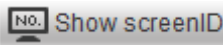
Select windows where signals are in, click , interface like Figure 3-33 will be displayed according to signal types.

Figure 3-33 Signal adjustment



The range of contrast, brightness, saturability, and equilibrium is 0–100; the range of margin is –50–50.

3.3.10.7 Displaying Screen ID

Click , screen numbers can be displayed on the screen. Click the icon again, the screen numbers will be concealed.

3.4 Setting

You can set system configuration, network configuration, events management, signal management, display management and scalability configuration in **SETTING**.

3.4.1 System Configuration

System configuration includes basic setting, user management, restore to default setting, backup setting, system maintenance, system upgrade, background pictures, fan control, and auxiliary tools.

3.4.1.1 Basic Settings

Basic setting includes equipment information, system time, data format, and more.

3.4.1.1.1 Device Settings

Set name, number, and more for the device.

Step 1 Select **SETTING > SETTING > GENERAL > General**.

The **General** interface is displayed. See Figure 3-34.

Figure 3-34 General

The screenshot shows the 'General' settings page. At the top, there are two tabs: 'General' and 'Date&Time'. The 'General' tab is active. Below the tabs, there are three input fields: 'Device Name' with the value 'DSC3000_2.5U', 'Device No.' with the value '8', and 'Language' with a dropdown menu showing 'ENGLISH'. At the bottom of the page, there are three buttons: 'OK', 'Refresh', and 'Default'.

Step 2 Set **Device Name** and **Device No.**, and select **Language**.

Step 3 Click **OK**, setting is finished.



If you changed the language, the Controller will automatically reboot.

3.4.1.1.2 Date Setting

Set system date for the Controller, and also decide whether to enable Network Time Protocol (NTP) or not. After you have enabled NTP, the Controller will automatically synchronize its time with the time of the NTP server.

Step 1 Select **SETTING > SETTING > GENERAL > General > Date&Time**.

The **Date&Time** interface is displayed. See Figure 3-35.

Figure 3-35 Date and time

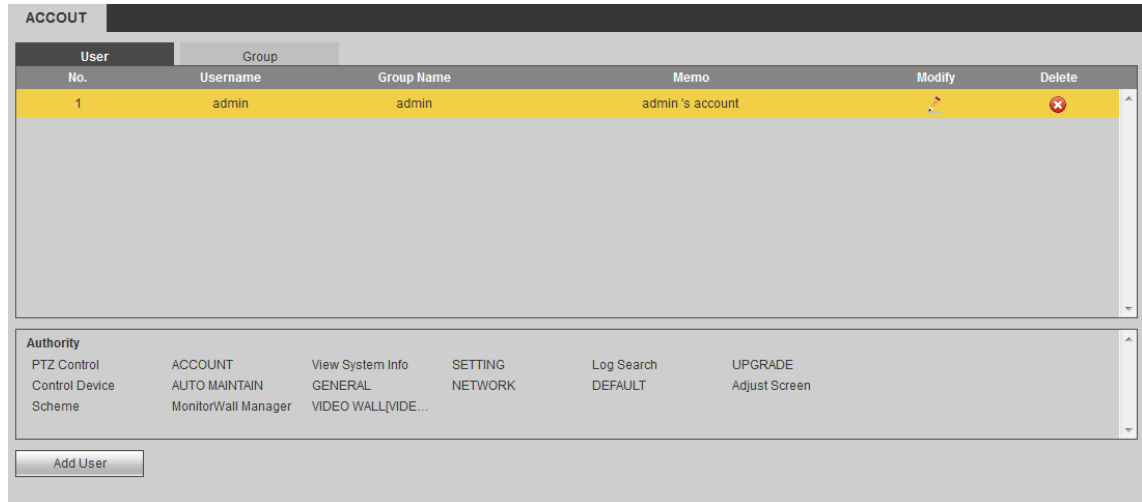
The screenshot shows the 'Date&Time' settings page. At the top, there are two tabs: 'General' and 'Date&Time'. The 'Date&Time' tab is active. Below the tabs, there are several settings: 'Date Format' (YYYY MM DD), 'Time Format' (24-HOUR), 'Date Separator' (-), 'System Time' (2018 - 10 - 13 08 : 58 : 34) with a 'Sync PC' button, 'DST' (unchecked), 'DST Type' (radio buttons for Date and Week, with Week selected), 'Start Time' (Mar 1st week 00 : 00), 'End Time' (Nov 1st week 00 : 00), 'NTP' (unchecked), 'Time Zone' (GMT+08:00), 'Server' (time.windows.com) with a 'Manual Update' button, 'Port' (123) with a note '(1~65535)', and 'Interval' (60 Min.). At the bottom, there are three buttons: 'OK', 'Refresh', and 'Default'.

3.4.1.2.1 User

You can manage user's information by adding, modifying, deleting users, and modifying users' passwords.

Select **SETTING > SETTING > ACCOUNT > User**, and the **ACCOUNT** interface is displayed. See Figure 3-36.

Figure 3-36 Account



Add users

Adding users into a group and set users' authorities.

The user admin with the supreme authority by default can not be deleted.

Step 1 Click **Add user**.

The **Adding user** interface is displayed. See Figure 3-37.

Figure 3-37 Adding user

Add User

Username:

Password:

Low Middle High

Confirm Password:

Group: **admin**

Memo:

Authority

- ☒ All
- ☒ PTZ Control
- ☒ Log Search*
- ☒ GENERAL
- ☒ Scheme
- ☒ ACCOUNT
- ☒ UPGRADE
- ☒ NETWORK
- ☒ MonitorWall Manager
- ☒ View System Info
- ☒ Control Device
- ☒ DEFAULT
- ☒ VIDEO WALL[VIDEO WALL 1]
- ☒ SETTING*
- ☒ AUTO MAINTAIN
- ☒ Adjust Screen

Note : item with "*" is parent directory.

OK Cancel

Step 2 Enter user name, password, and confirmed password. Choose a group, and enter remarks.



- Once you choose a group for a user, the user can only have authorities owned by the group.
- For easier management, it is recommended that when you are assigning authorities to common users, make their authorities not greater than the advanced users.

Step 3 In **Authority**, select system authority for users.

- Select a checkbox, then only the current authority is permitted.
- Select **All**, then all authorities are permitted.

Step 4 Click **OK**, and the user adding is finished.

Modifying user information

Step 1 Click .

The modifying user information interface is displayed. See Figure 3-38.

Figure 3-38 Modify user information

User

Username: admin

Share: ☒

Memo: admin's account

Group: admin

☐ Modify Password

Authority

☒ All	☒ ACCOUNT	☒ View System Info	☒ SETTING*
☒ PTZ Control	☒ UPGRADE	☒ Control Device	☒ AUTO MAINTAIN
☒ Log Search*	☒ NETWORK	☒ DEFAULT	☒ Adjust Screen
☒ GENERAL	☒ MonitorWall Manager	☒ VIDEO WALL[VIDEO WALL 1]	
☒ Scheme			

Note : item with "*" is parent directory.

OK Cancel

Step 2 Modify user information according to your requirements.

Step 3 Click **OK** to make your modification effective.

Modifying passwords

Step 1 Select **Modify Passwords**.

Step 2 Enter your old passwords, and then enter your new passwords and confirmed the new passwords.

Step 3 Click **OK**.

Deleting users

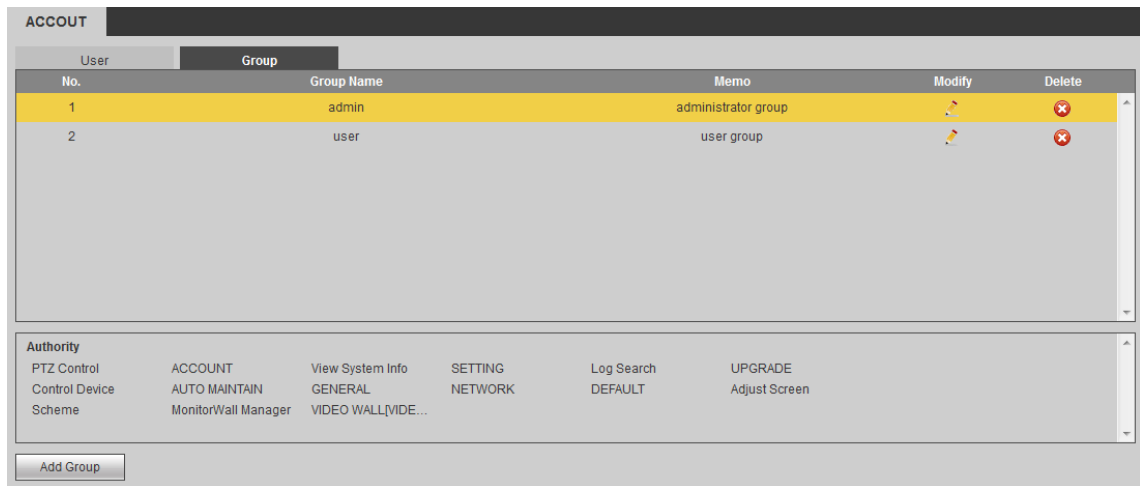
Click , you can delete a user.

3.4.1.2.2 User Group

In the network, authorities of users can be different. You can put users with the same authorities into a group so that you can maintain and manage users' information more easily. You can also increase groups, delete groups, and modify group passwords.

Select **SETTING > SETTING > ACCOUNT > Group**, the **Group** interface is displayed. See Figure 3-39. You can also increase groups, delete groups, and modify group passwords. For details, refer to "3.4.1.2.1 User".

Figure 3-39 User group



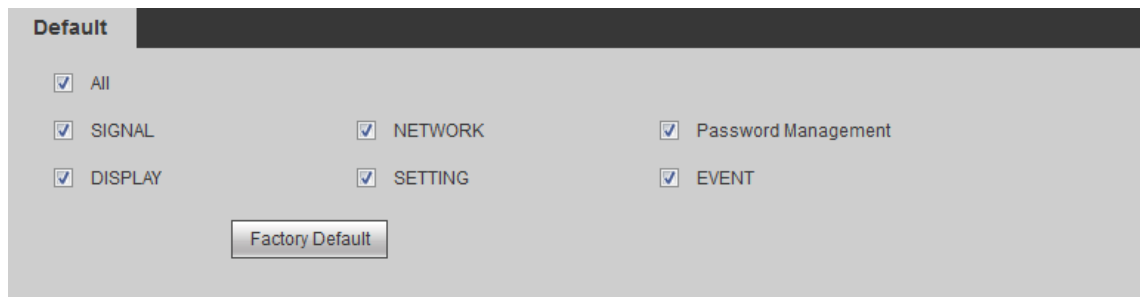
3.4.1.3 Restoring to the Factory Settings

If malfunctions, configuration errors, or something like that occurs, you can restore to the factory settings to solve problems. The system will be restored to the factory settings. Select items that you want to restore to the factory settings according to your actual requirements.

Step 1 Select **SETTING > SETTING > DEFAULT**.

The **DEFAULT** interface is displayed. See Figure 3-40.

Figure 3-40 Default



Step 2 Select items that you want to restore to the factory setting.

- Put ticks into the checkbox to select items that you want to restore to the factory setting.
- Put a tick in the checkbox in front of **ALL** to select all the items that you want to restore to the factory setting.
- If you have put a tick in the checkbox before the Network Setting, the IP address will be restored to the default IP (192.168.1.108).

Step 3 Click **Factory Default**.

A dialog box is displayed.

Step 4 Click **OK**, the Controller starts to be restored to the factory setting.

After the Controller is restored to factory setting, it will be rebooted, and the web logging in interface will be displayed.

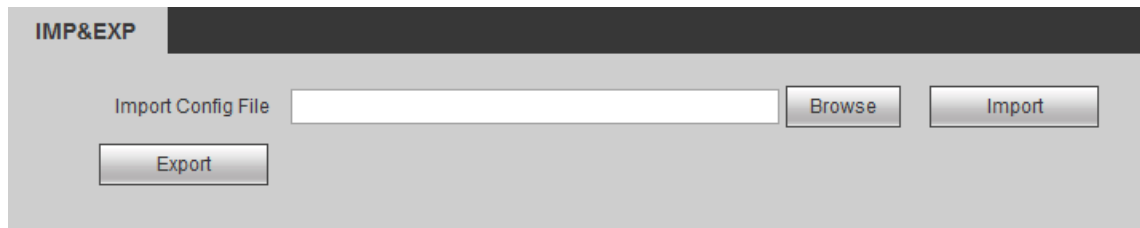
3.4.1.4 Configuration Files

You can export the configuration files of the Controller to storage devices like your computers and USBs. When the Controller has malfunctions or when it needs to be restored to settings

stored in the configuration files, you can import the configuration files to the Controller to restore to the setting easily.

- Select **SETTING > SETTING > IMP&EXP**, and the **IMP&EXP** interface is displayed. See Figure 3-41.

Figure 3-41 IMP&EXP

The screenshot shows the 'IMP&EXP' interface. It has a dark header bar with the text 'IMP&EXP' in white. Below the header, there is a light gray area. On the left, there is a button labeled 'Export'. In the center, there is a text input field labeled 'Import Config File'. To the right of the input field, there are two buttons: 'Browse' and 'Import'.

- Click **Browse** to select a configuration file. Click **Import**, and then the configuration is imported.



If you have imported the configuration file, the Controller will automatically be rebooted.

- Click Exporting Configuration to select storage paths to export the configuration file.

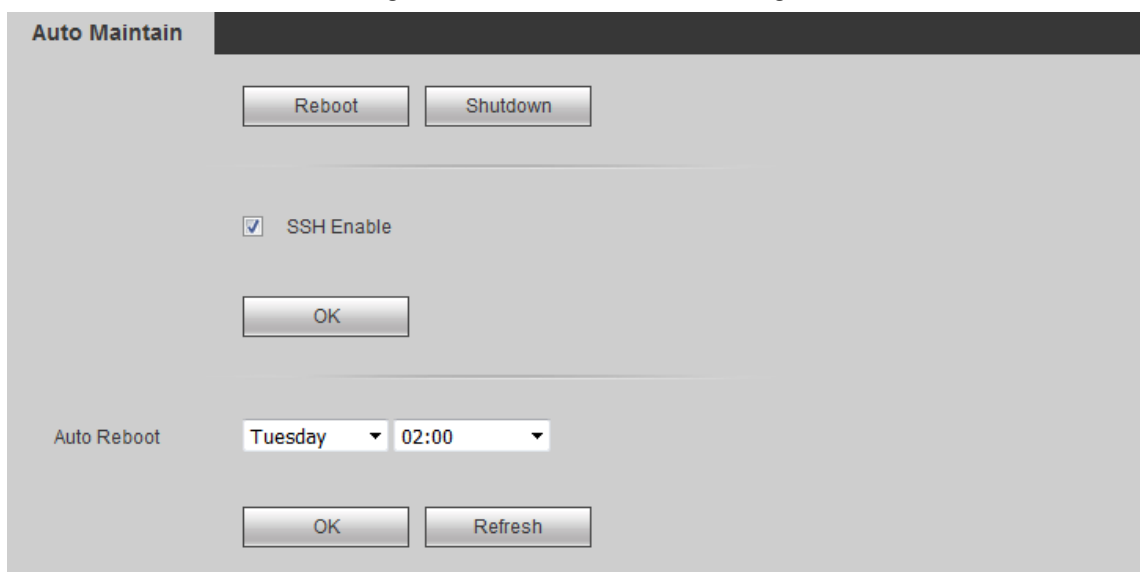
3.4.1.5 Auto Maintenance

You can maintain the system by rebooting, and closing the system. You can also make the system reboot itself automatically.

Select **SETTING > SETTING > AUTO MAINTAIN**, and the **Auto Maintain** interface is displayed. See Figure 3-42.

- If you want to reboot the system manually, click Reboot and the system will be rebooted immediately.
- Click **Shutdown**, the system will be closed immediately.
- SSH is used by technical personnel to open the background debug interface.
- If you want the system to reboot itself, you need to set certain days in a week and the time for the system to reboot it self, and then click **OK**.

Figure 3-42 Automatic maintaining

The screenshot shows the 'Auto Maintain' interface. It has a dark header bar with the text 'Auto Maintain' in white. Below the header, there is a light gray area. At the top, there are two buttons: 'Reboot' and 'Shutdown'. Below these buttons, there is a checkbox labeled 'SSH Enable' which is checked. Below the checkbox, there is a button labeled 'OK'. At the bottom, there is a section labeled 'Auto Reboot'. It contains two dropdown menus: the first is set to 'Tuesday' and the second is set to '02:00'. Below these dropdowns, there are two buttons: 'OK' and 'Refresh'.

3.4.1.6 System Upgrade

Copy the upgraded file to the computer that is used to log in the web, and then you can import the upgraded file to the Controller.

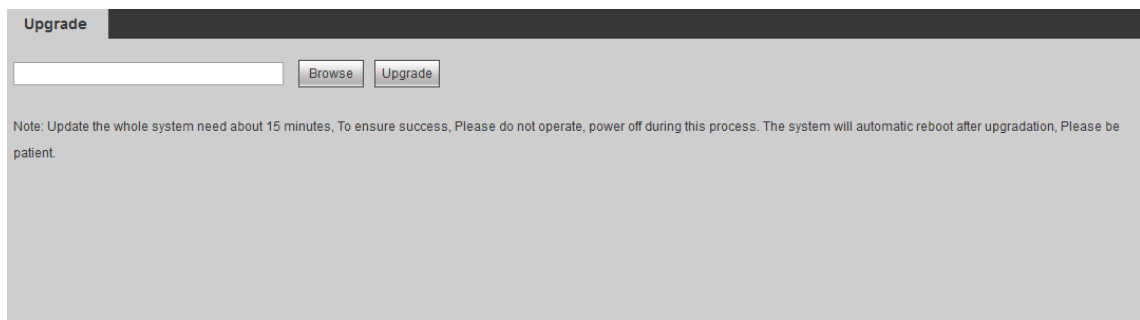


- Use the correct upgrade package, or the upgrade may fail. The upgrade package is a file. And the filename extension is “.bin”. For example, the filename can be General_DSC3000_Chn_UPDATE_SDA1_MIN_FPGA_V2.615.0000.1.R.160718.BIN.
- If the upgrade fails, reboot the Controller, and then select correct upgrade package.

Step 1 Select **SETTING > SETTING > UPGRADE**.

The **Upgrade** interface is displayed. See Figure 3-43.

Figure 3-43 Upgrade



Step 2 Click **Browse**, and then select the upgrade file.

Step 3 Click **Upgrade**, and then the system will be upgraded. There is a progress bar indicating the progress of the upgrade.



- When you click Upgrade, a dialogbox will pop up to inform you that you need to make sure that you have done the configuration backup. For details, see “3.4.1.4 Configuration Files”. After the upgrade, the IP address of the Controller will be restored to the factory settings.
- After the upgrade file is uploaded, the system prompt will inform you that the Controller will be rebooted. Make sure that the Controller has power supply all the time, and wait until the system has rebooted it self.

3.4.1.7 Background Picture

You can upload background pictures to the system. The pictures you uploaded can be used as the Background image of the screen.

Step 1 Select **SETTING > SETTING > PICTURE**.

The **Picture** interface is displayed. See Figure 3-44.

Figure 3-44 Background picture

No.	Name
☐ 1	rebecca_2.yuv
☐ 2	Jellyfish.yuv
☐ 3	DTS000173054_1366-768-1.yuv
☐ 4	DTS000173054_1400-1050-2.yuv
☐ 5	IMG_7278.yuv

Note : upload picture size cannot exceed 32M and must be in jpg format,the picture resolution for each individual screen should not exceed 1080P

Step 2 Click **Browse** to select local pictures.

Step 3 Click **Upload** to upload local pictures to the Controller.



- You can upload 10 background pictures at most.
- Select unwanted pictures, and then click **Delete** to delete them.
- After you have uploaded the background pictures, you need to select corresponding Background images. For details, see “3.4.5.1 Video Wall”.

3.4.1.8 Fan Control

You can set smart temperature control and buzzer alarm for the system.

3.4.1.8.1 Smart Temperature Control

You can set different temperature ranges according to the rotation speed of the fans. The **Intelligent Temperature Control** interface will be displayed. The system will start corresponding rotation speed according to different temperature ranges.

Select **SETTING > SETTING > FAN CONTROL > Intelligent Temperature Control**, and the interface in Figure 3-45 is displayed.

Figure 3-45 Intelligent temperature control

Intelligent Temperature Control

Fan1 Low 50 °C Medium 60 °C High

Rotation speed of the fans has three levels: low speed, intermediate speed, and high speed. Different temperature ranges will trigger different speed levels.

3.4.1.8.2 Close the Buzzer

You can set periods in which the buzzer is closed or is enabled. When giving an alarm, the buzzer will make a buzzing sound. Click **SETTING > SETTING > FAN CONTROL > Close Buzzer**, and the **Close Buzzer** interface will be displayed. See Figure 3-46.

Figure 3-46 Close the buzzer

Intelligent Temperature Control | **Close Buzzer**

Time Setup (0~600s)

Notice: Set to 0, then delay off function is disabled.

You can set to a time-delay close for the buzzer. The delayed time range can be 0s–600s.

3.4.1.9 Assist Tool

Packet capture is a computer networking term for intercepting, resending, editing, and storing a data. It is used to check network security.

When the Controller is in network malfunction, you can download the packet capture files to the Controller, and then provide the files for technical personnel to analyze network conditions.

Select **SETTING > SETTING > FAN CONTROL > ASSIST TOOL**, and the **Network Sniffer** interface is displayed. See Figure 3-47.

Figure 3-47 Network Sniffer

Network Sniffer

Ethernet

IP Address

Protocol

Port

Name	Size	Type	Download	Rename	Delete
------	------	------	----------	--------	--------

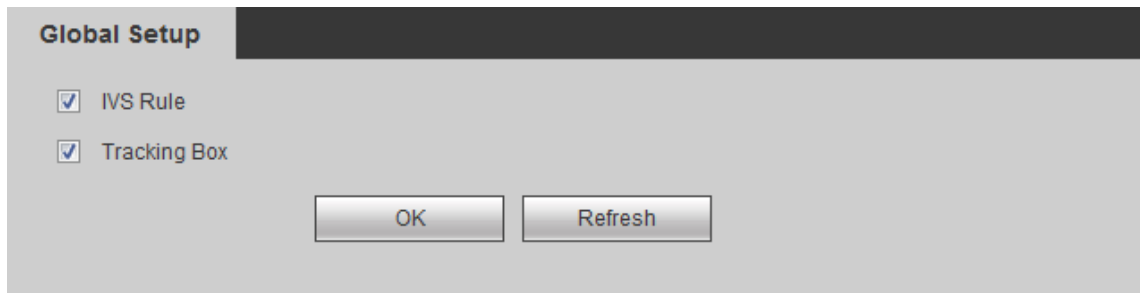
After you have done the packet capture,  download packet capture files to the local computer.

3.4.1.10 Global Setup

You can set global setup like IVS rule.

Select **SETTING > SETTING > FAN CONTROL > GLOBAL SETUP**, and the **Global Setup** interface is displayed. See Figure 3-48.

Figure 3-48 Global setup



If the front end enables the intelligent rules and smart tracking box functions and enables display at the back, the system will tracking moving objects with green boxes. When the objects contact the alarming areas marked by blue lines, the blue lines turn red and flicker.

3.4.2 Network Setting

Set network parameters to ensure the Controller can send and receive data to and from other devices.

3.4.2.1 TCP/IP

3.4.2.1.1 TCP/IP

Set IP address and DNS server for the Controller according to the network planning.



Be sure that the Controller is connected to the network before you set network parameters.

- If there is no router in the network, assign IP addresses in the same network segment.
- If there are routers, you need to set appropriate gateways and subnet mask.

Step 1 Select **SETTING > NETWORK > TCP/IP**.

The **TCP/IP** interface is displayed. See Figure 3-49.

Figure 3-49 TCP/IP

TCP/IP	Port	HTTPS
Network Mode	Multi-address ▼	
Default Net Card	Net Card1 ▼	
Net Card	Net Card1 ▼	
Mode	☒ Static ☐ DHCP	
IP Version	IPv4 ▼	
IP Address	172 . 3 . 1 . 40	
Subnet Mask	255 . 255 . 0 . 0	
Default Gateway	172 . 3 . 0 . 1	
Preferred DNS Server	1 . 1 . 1 . 1	
Alternate DNS Server	1 . 1 . 1 . 1	
MAC Address		
Card 1	e0 . 50 . 8b . e6 . 19 . 6c	
Card 2	e0 . 50 . 8b . e6 . 19 . 6d	
OK Refresh Default		

Step 2 Configure parameters. For detailed parameters, see Table 3-4.

Table 3-4 TCP/IP parameter

Parameter	Description
-----------	-------------

Parameter	Description
Network mode	Network models are as follows: • Multiple access The two network cards can be used independently. You can use either use network card 1 or network card 2 to ask the Controller to provide services like HTTP and RTSP. You need to set a default network card (network card 1 by default) to ask DHCP, Email, and FTP devices to provide network services. When checking your network connection state, if only one of the network cards is disconnected form the network, the network is considered disconnected. • Fault-tolerance Each network uses one IP address. Normally only one network card works. When the working network card has malfunctions, the other network card will work automatically. When checking your network connection state, if the two network cards are both disconnected form the network, the network is considered disconnected. The two network cards need to be in the same local area network. • Load balancing Each network uses one IP address, and both network cards work at the same time to take the network load. Throughput of each network card is basically the same. If one network card has malfunctions, the other one will work normally. When checking your network connection state, if the two network cards are both disconnected form the network, the network is considered disconnected. The two network cards need to be in the same local area network.
Default network card	When the “network mode” is set to be “multiple access”, you can select a network card as the default card.
Network card	Network cards are binding by default.
Mode	• If you select static mode, you need to set IP address, subnet mask, and default gateway. • If you select DHCP mode, the Controller will search IP address automatically.
IP version	Select IPv4
IP address	IP address of the Controller.
Subnet mask	Enter subnet mask according to the IP address of the Controller.
Default gateway	Enter the default gateway according to the IP address of the Controller.
Preferred DNS server	Enter the IP address of the DNS server.
Spare DNS server	Enter the IP address of the spare DNS server.
MAC address	Displays MAC address of the Controller.

Step 3 Click **OK**, and the setting is finished.

3.4.2.1.2 Port

Set the maximum number of clients (like web clients and PC clients) allowed to visit the Controller at the same time. Set port numbers.

Step 1 Select **SETTING > NETWORK > TCP/IP > Port**.

The **Port** interface is displayed. See Figure 3-50.

Figure 3-50 Port

TCP/IP	Port	HTTPS
Max Connection	128 (1~128)	
TCP Port	37777 (1025~65535)	
UDP Port	37778 (1025~65535)	
HTTP Port	80 (1~65535)	
OK Refresh		

Step 2 Configure port values for each port. For detailed parameters, see Table 3-5.

Table 3-5 Port value description

Parameter	Description
Maximum connection	Numbers of clients (like web clients, PC clients and mobile applications) allowed to visit the Controller. The range is 1–128, and the default number is 128.
TCP Port	Port number of port that needs TCP service can be set according to your requirement. The default port number is 37777.
UDP Port	Port number of the User Datagram Protocol (UDP) port can be set according to your requirement. The default port number is 37778.
HTTP Port	You can set port number of the HTTP port according to your requirement. The default number is 80. If you enter other numbers, you need to add the modified port number after the address when you log in the Controller through browsers.



Except the **Maximum Connection**, if you modified other parameters, you need to reboot the Controller to enable the functions of the parameters.

Step 3 Click **OK**, and the setting is finished.

3.4.2.1.3 HTTPS

In the HTTPS setting interface, you can create server certificates, download root certificates, and set port numbers to make PC log in the Controller and to ensure the security of communication data.

Step 1 Select **SETTING > NETWORK > TCP/IP > HTTPS**.

The **HTTPS** interface is displayed. See Figure 3-51.

Figure 3-51 HTTPS

Step 2 Select **Enable Https**.

Step 3 Enter the Https port value.



The default value is 443.

Step 4 Click **OK** to save your settings.



- If this is the first time that you use this function or modify IP address of the Controller, you need to do **Create Server Certificate** again.
- If this is the first time that you use HTTPS after you changed your computer, you need to do **Download Root Certificate** again.
- The HTTPS enable status can only be effective after you have rebooted the Controller.

3.4.2.2 IP authority

Select IP devices (devices with IP address) that can visit the Controller. After you have selected devices that can visit the Controller, you can enable the allowlist function, and then only IP devices on the allowlist can log in the web. If you enable the blocklist function, then devices on the blocklist can not log in the web.

Step 1 Select **SETTING > NETWORK > TCP/IP > IP FILTER**.

The **IP FILTER** interface is displayed. See Figure 3-52.

Figure 3-52 IP filter

	IP Address	Edit	Delete
1	12.34.2.1		
2	171.2.3.99		

Step 2 Select **Enable**, and then select **Trusted Sites** or **Blocked Sites**.

- If you want to select **Trusted Sites**, click **Trusted Sites**, and then add devices on the **Trusted Sites**.
- 1) Click **Add**, and then enter IP Address related information into the pop-up dialog box according to Table 3-6.

Table 3-6 IP address information

Parameter	Description
IP address	Enter IP addresses of devices that you want to add on the Trusted Sites.
IP segment	Enter the start address and end address of the network segment that you want to add.
IPv4	IPv4 is adopted.

- 2) Click **OK** to make your modification effective.
Log in the web interface of the Controller by IP devices into the trusted sites.
- If you want to select blocked sites, click **Blocked Sites**, and then add devices into the blocked sites.
- 1) Refer to Table 3-6 to add devices on the blocked sites.
- 2) Click **OK** to make your modification effective.
Log in the web interface of the Controller by IP devices into the blocked sites. The system will remind you that the IP devices have been added to the blocked sites, and you can not log in the Controller.

3.4.3 Event Management

Set alarm mode for network malfunctions. When the Controller has network malfunctions, the system will give an alarm.

Select **SETTING > EVENT > ALARM** and the **Net** interface is displayed. See Figure 3-53.

Figure 3-53 Net abnormality

Select functions like enable log and buzzer alarm according to different malfunctions (network disconnection, IP conflict, and MAC conflict). Click **OK** to save the settings.

3.4.4 Signal Management

You can manage analog matrix, remote devices, local channels and signal groups.

3.4.4.1 Matrix Management

You can add analog matrices to manage matrix devices by binding input channels of the Controller and output channels of matrices.

3.4.4.1.1 Analog Matrix

An analog matrix is a switching device for video signals. It has multiple input ports and output ports. Video images from more than one channels can be input to the analog matrix. The analog matrix can be connected to multiple analog display equipment. You can add analog matrices according to parameters like address code, and matrix protocols.

Step 1 Select **SETTING > SIGNAL > MATRIX > Analog Matrix**.

The **Analog Matrix** interface is displayed. See Figure 3-54.

Figure 3-54 Analog Matrix(1)

Matrix Name	Matrix Protocol	Matrix Type	Input Channel Number	Output Channel Number	Serial	Modify	Delete
-------------	-----------------	-------------	----------------------	-----------------------	--------	--------	--------

Add Refresh

Step 2 Click **Add**.

The **Add** interface is displayed. See Figure 3-55.

Figure 3-55 Add matrices

Channel No.	Channel Name
1	Unknown
2	Unknown
3	Unknown
4	Unknown
5	Unknown

OK Cancel

Step 3 Configure parameters.

For detailed parameters, see Table 3-7.

Table 3-7 Description

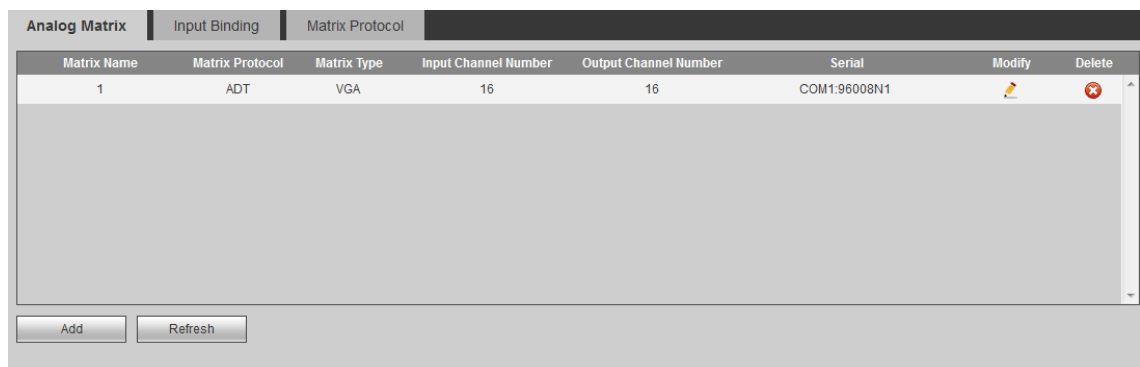
Parameter	Description
Matrix name	Named by you.

Parameter	Description
Address code	Matrix address code.
Matrix protocol	Select appropriate protocols according to the connected matrices.
Matrix type	Select appropriate matrix types according to the connected matrices.
Input channel number	Channel numbers of input matrices.
Output channel number	Channel numbers of output matrices.
Serial port	Select serial port that controls the matrices. - COM0 corresponds to RS-232-1. - COM1 corresponds to RS-232-2. - COM2 corresponds to RS-232-3. - COM3 corresponds to RS485.
Baud rate	Serial communication baud rate.
Odd/Even parity	Check bits of serial communication.
Data bits	Serial communication data bits.
Stop bits	Stop bits of serial communication.

Step 4 Click **OK**.

Analog matrices added will be displayed. See Figure 3-56.

Figure 3-56 Analog Matrix (2)



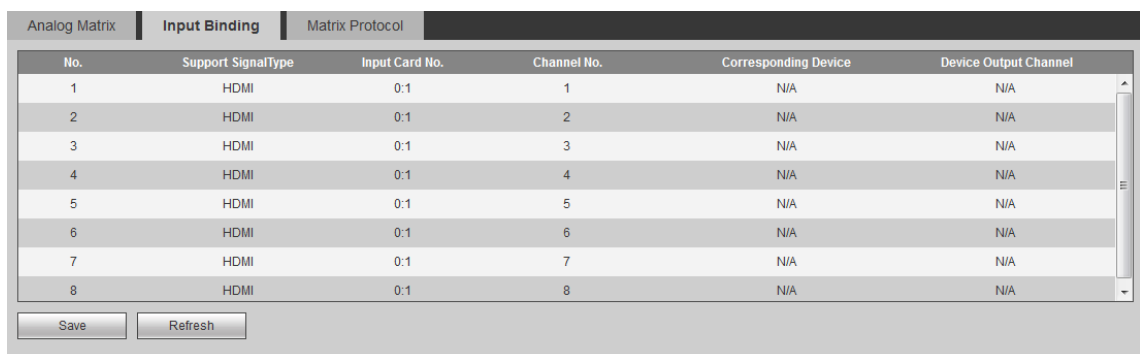
3.4.4.1.2 Input Binding

Set input binding according to the connection of output channels of the matrices to input ports,

Step 1 Select **SETTING > SIGNAL > MATRIX > Input Binding**.

The **Input Binding** interface is displayed. See Figure 3-57.

Figure 3-57 Input binding



Step 2 Click the line where Signal Types is in, select matrix devices in the **Corresponding Devices** drop-down box. Select **Device Output Channel** in the Device Output Channel drop-down box, and make the number the same as numbers marked on the device.



Matrices in the **Corresponding Devices** are matrices that you added in "3.4.4.1Matrix".

Step 3 Click **Save**.

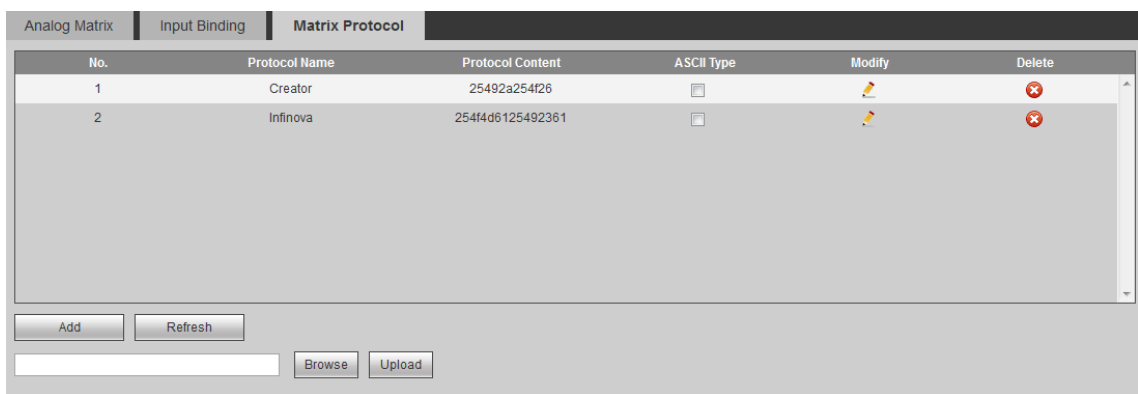
3.4.4.1.3 Matrix Protocol

Select matrix protocols according to matrix types. You can send matrix orders to matrices according to matrix protocols to manage the matrices.

Step 1 Select **SETTING > SIGNAL > MATRIX > Matrix Protocol**.

The **Matrix Protocol** interface is displayed. See Figure 3-58.

Figure 3-58 Matrix protocol



Step 2 Click **Add**.

The **Add** interface is displayed. See Figure 3-59.

Figure 3-59 Add protocols

Add

Protocol Name:

Protocol Content:

HEX Content:

ASCII Type: ☐ Note: Please input protocol content.

Protocol Note:
 (1) ----- First character means width of port.
 (2) ----- A means address.
 (3) ----- %I means input port number.
 (4) ----- %O means output port number

OK Cancel

Step 3 Configure parameters. For detailed parameters, see Table 3-8.

Table 3-8 Description

Parameter	Description
-----------	-------------

Parameter	Description
Protocol name	Named by you.
Protocol content	Set protocol content according to matrix types.  Explain protocol content that you entered according to protocol formats.
HEX content	The protocol content will be displayed in the form of hexadecimal.
ASCII types	If you select ASCII types, then you need to enter protocol content according to the American Standard Code for Information Interchange (ASCII).

Step 4 Click **OK**, and the setting is finished.



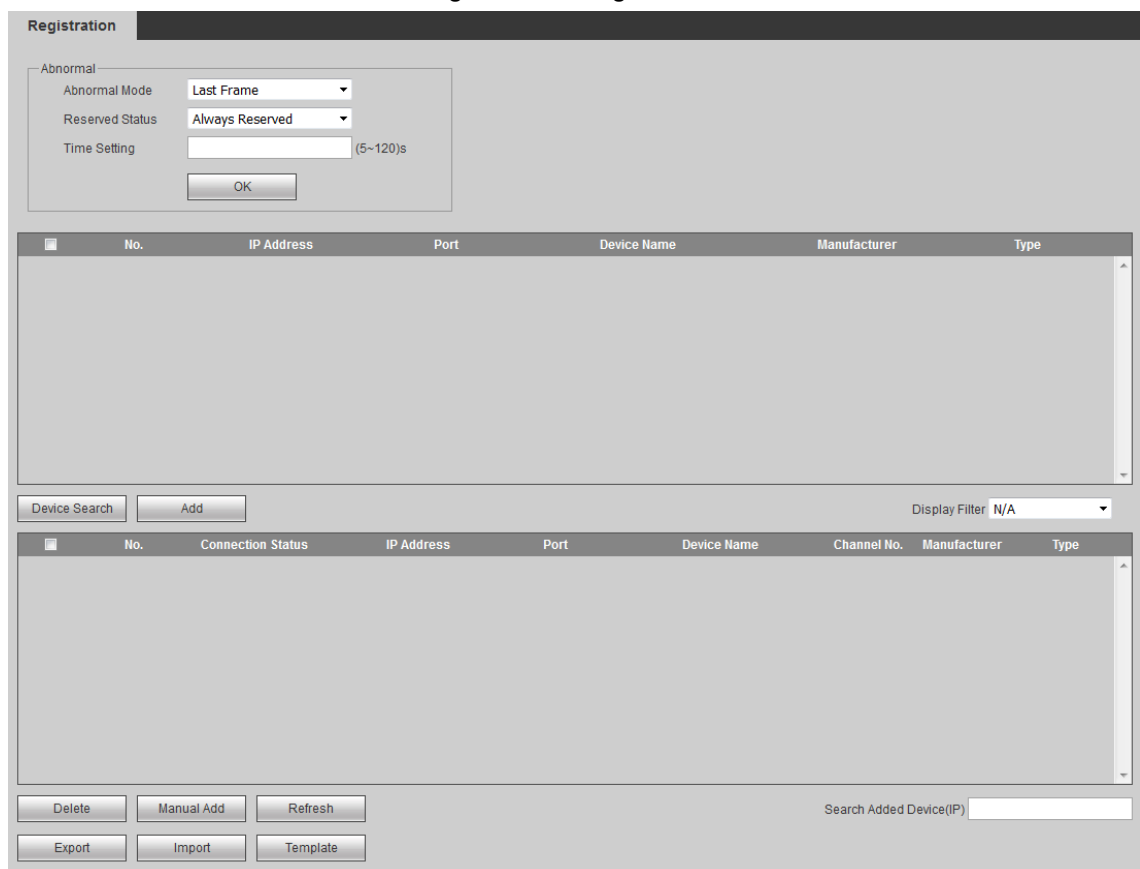
You can add matrix protocols by uploading . lua script files that contains matrix protocols.

3.4.4.2 Registration

After adding remote devices, the Controller can receive and manage video data rate transmitted by remote devices. You can add, modify, and delete remote devices, and set malfunction managing modes for remote devices.

Select **SETTING > SIGNAL > REGISTRATION**, and the **Registration** interface is displayed. See Figure 3-60.

Figure 3-60 Registration



The screenshot shows the 'Registration' web interface. At the top, there's a 'Registration' header. Below it, on the left, is an 'Abnormal' settings box containing: 'Abnormal Mode' set to 'Last Frame', 'Reserved Status' set to 'Always Reserved', and 'Time Setting' with a text input field and '(5~120)s' label, and an 'OK' button. The main area features a table with columns: No., IP Address, Port, Device Name, Manufacturer, and Type. Below the table are 'Device Search' and 'Add' buttons, and a 'Display Filter' dropdown set to 'N/A'. At the bottom, there's another table with columns: No., Connection Status, IP Address, Port, Device Name, Channel No., Manufacturer, and Type. Below this second table are buttons for 'Delete', 'Manual Add', 'Refresh', 'Export', 'Import', and 'Template', and a 'Search Added Device(IP)' input field.

Abnormal condition management

You can set abnormal modes when remote devices are disconnected to the network.

Step 1 Configure abnormal. For detailed parameters, see Table 3-9.

Table 3-9 Malfunction management

Parameter	Description
Abnormal mode	Set malfunction management according to your requirements. • The last frame: the last frame will be displayed on the screen when the network is disconnected • Black screen: the screen turns black when the network is disconnected. • No stream: the screen is in no stream state.
Reserved status	If the last frame is the abnormal mode, you can set the reserved status. • Always reserved: the last frame will be displayed on the screen when the network is disconnected. • Reserved stage: the screen reserves the last frame for a period you set, and then the screen turns blank.
Time setting	If the reserved state is to reserve signals in a certain period, the time range that you can set to reserve the last frame is 5s–120s.

Step 2 Click **OK** to save your settings.

Automatic Add

Step 1 Click **Search Devices**.

Devices you have searched that connected to the network are displayed at the top of the interface.



In the **Display the Selected Devices** drop-down box, you can select device types, and then you can search according to device types.

Step 2 Adding devices that you need.

Step 3 Click **Add**.

Manual Add

Step 1 Click **Manual Add**.

The **Manual Add** interface is displayed. See Figure 3-61.

Figure 3-61 Manual add

Manual Add

Device Name

Manufacturer

Private

Protocol

TCP

IP Address

Port

37777

(1~65535)

Username

admin

Password

•••••

Channel Type

Video

Channel No.

0

Channel No.

Channel Name

Channel Note

Control ID

OK

Cancel

Step 2 Configure parameters.
For detailed parameters, see Table 3-10.



The parameters that you need to configure are different depending on the manufacturers that you choose.

Table 3-10 Add Manually description

Parameter	Description
Device name	Enter names of devices that you need to add.
Manufacturer	Keep manufacturers of the devices that you add the same as that of the Controller.  - If you select General in the Manufacture drop-down box, you connect the devices to the video wall by adding URL address that enables rtsp data rate. - If you select VNC in the Manufacture drop-down box, the desktop of computers with VNC server can be displayed on the screen wall in real time.
Protocol	Select protocols according to devices that you added.
IP address	IP address of remote devices.

Parameter	Description
Port	TCP, HTTP or RTSP port numbers of remote devices.
Username	User name of remote devices.
Password	Passwords of remote devices users.
Channel type	You can select videos or alarms.
Channel No.	Channel number of remote devices.

Step 3 Select corresponding channel numbers, and then you can preview images of the channels you selected.

Step 4 Click **OK**.

Download template

In the template, enter device information that you want to import to the network, and then you can add network signals in batches. Ways to get templates are as follows:

Step 1 Click **Template**.

The file download dialog box pops up.

Step 2 Click **Save**, select storage paths to store the template.

Step 3 Click **Save**.



Download templates to your local PC. The template you download is a file in .csv format. Details the file contains are displayed in Figure 3-62.

Figure 3-62 Template information

Channel Name	Logical No.	Channel No.	Control No.	Device Name	Device Type	Protocol	HTTP Port	TCP Port	RTSP Port	User Name	Password	IP Address
--------------	-------------	-------------	-------------	-------------	-------------	----------	-----------	----------	-----------	-----------	----------	------------

Import

You can import network signals in batches.

Step 1 In the template, enter device information that you want to import to the network, and then save the information.

Step 2 Click **Import**.

Step 3 Select a path of a folder.

Step 4 Import the templates that you have entered information.

Network signals that you imported in are displayed at the bottom of the interface, and the system reminds that you have operated successfully.

Export

You can save the added network signals saved in the format of “. csv” to your local PC.

Step 1 Click **Export**.

Step 2 Click Save, select storage paths to export the “. csv” file.

Step 3 Click **Save**.

Step 4 Export files in the format of “. csv.”

You can view information of the added network signals like channel names and logical unit number.

Delete

Select network signals that you want to delete in the signal list, click **Delete** to delete the network signals.

3.4.4.3 Local Channel

You can set malfunction managing modes for local network signals, modify the channel names and control numbers, and set signal capture modes.



When you use DVI capture card OR VGA capture card, the system will automatically set signal capture modes.

- DVI: DVI capture mode.
- VGA: VGA capture mode
- Automatically switching: automatically identify types of signal sources, and select appropriate capture modes.

Figure 3-63 Local signals

Abnormal mode

You need to do abnormal condition management when local signals are disconnected to the network.

Step 1 Configure abnormal mode according to your requirements. For detailed parameters, see Table 3-11.

Table 3-11 Malfunction management

Parameter	Description
Abnormal mode	Set malfunction management according to your requirements. • The last frame: the last frame will be displayed on the screen when the network is disconnected. • No stream: the screen is in no signal state.
Reserved status	If the last frame is the abnormal mode, you can set the reserved state. • Always reserved: the last frame will be displayed on the screen when the network is disconnected. • Reserve stage: the screen reserves the last frame for a period you set, and then turns blank.

Parameter	Description
Time setting	If the reserved state is to reserve signals in a certain period, the time range that you can set to reserve the last frame is 5s–120s.

Step 2 Click **OK** to save your settings.

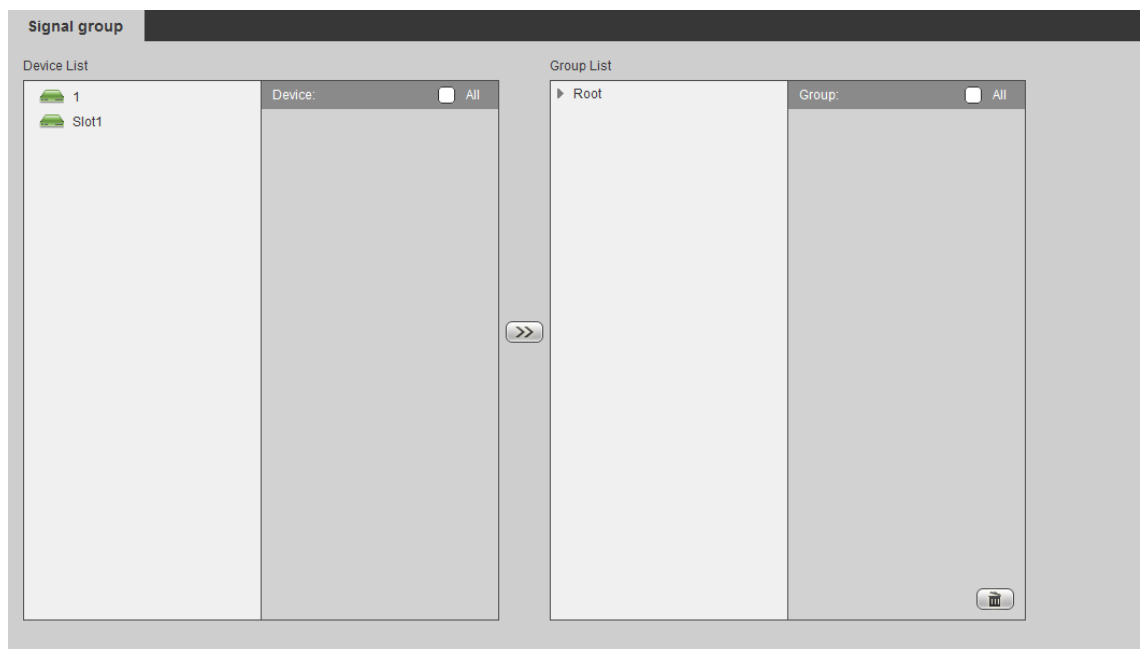
3.4.4.4 Signal Groups

You can put signals into groups. The added groups and signals in the groups will be displayed in **Signal Group**. Signals in the groups can be played cyclically on the video wall.

Step 1 Click **SETTING > SIGNAL > SIGNAL GROUP**.

The **Signal Group** interface is displayed. See Figure 3-64.

Figure 3-64 Signal group



Step 2 Click **Root** in the **Group List**, and click , and then you can set groups under Root.



- Click  behind the group name, you can modify group names. Click  to save your modification.
- Click  you can add groups in groups.

Step 3 In the **Device List**, select devices that you want to add into the group. After you have selected the devices, channels of the devices will be displayed in the **Device Names**.

Step 4 Click the channels that you want to add to a group, click  to add.

After you have added the channels into a group, the group and details about the group will be displayed in **Custom**.

- Select a group name, click , you can delete the group.
- Select a group name, all selected channels in the group will be displayed in the sub-group list. You can select a channel, and click  to delete the channel.

3.4.5 Display Management

You can configure parameters for the video wall and set time switch for the screen.

3.4.5.1 Video Wall

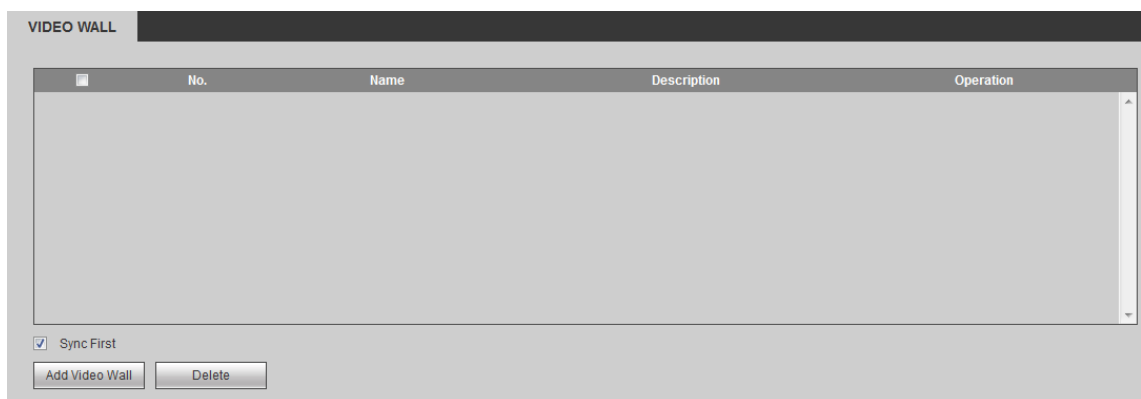
You can configure parameters for video walls according to the number of screens and splicing condition to enable signals to be played on the video walls.

Select **Setting > Display > Video Wall**, and the **Video Wall** interface is displayed. See Figure 3-65.



- At most 16 video walls can be connected to the Controller.
- Select Synchronization First to synchronize images on all the screens.

Figure 3-65 Screen configuration.

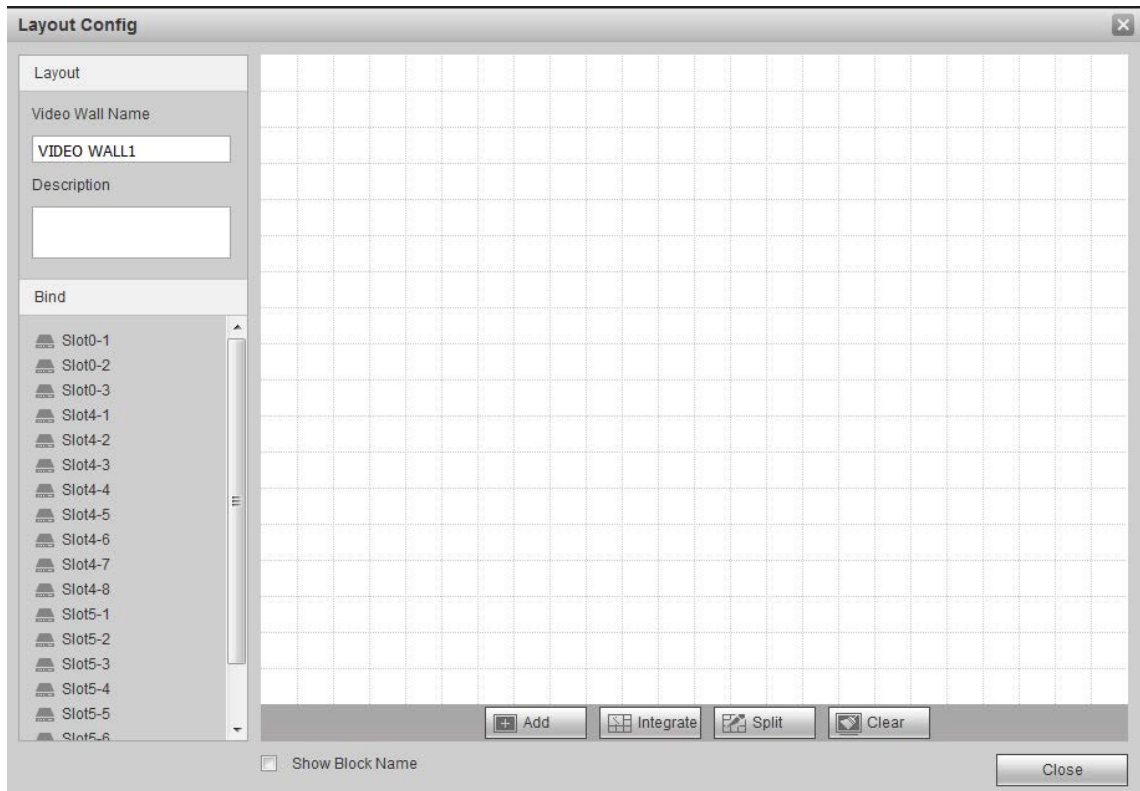


Adding Video Wall

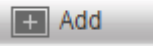
Step 1 Click **Add Video Wall**.

The **Layout Config** interface is displayed. See Figure 3-66.

Figure 3-66 Layout config



Step 2 Enter video wall names and their descriptions.

Step 3 Click .

The **Video Wall Setup** interface is displayed. See Figure 3-67.

Figure 3-67 Video wall setup

Video Wall Setup

Block Name:

Layout: Row: Col: Device Type:

Control Protocol: Screen Resolution:

Communication Port: Baud Rate:

Odd/Even Parity: Data Bit: Stop Bit:

☐ Background: Block ControlID:

Screen Input Bind

row-column	Address Code	Output Port	Screen Resolution	Step	Screen ControllID
1-1	11	4-1	1920 * 1080	0	25

OK Cancel

Step 4 Configure parameters according to your requirements. For detailed parameters, see Table 3-12 and Table 3-13.

Table 3-12 About parameters of big screen setting

Parameter	Description
Block name	Named by you.
Layout	You can set the display area consists of how many screens.
Device type	Select device types, for example LCD and DLP.
Control protocol	Select control protocols for devices.
Screen resolution	Resolutions of output signals.
Communication port	Output serial ports, COM1–COM3.
Baud rate	Serial communication baud rate.
Odd/Even parity	Check bits of serial communication.
Data bit	Serial communication data bits.
Stop bit	Stop bits of serial communication.
Background	Upload local pictures. For upload methods, see “3.4.1.7Background Picture”. After you have selected one of the pictures, if there are no configurations for the big screen, the picture will be used as the background picture.
Block control ID	Block numbers in the serial port central control.
Output port	Connects output port of the Controller and the input port of the screen. You can select output port in the drop-down list.

Parameter	Description
Step	Regulates frame rate, its delay unit is ms. You can synchronize images by regulating steps.
Block control ID	Screen control ID in the serial port central control.

Table 3-13 The relation between control protocols and input ports.

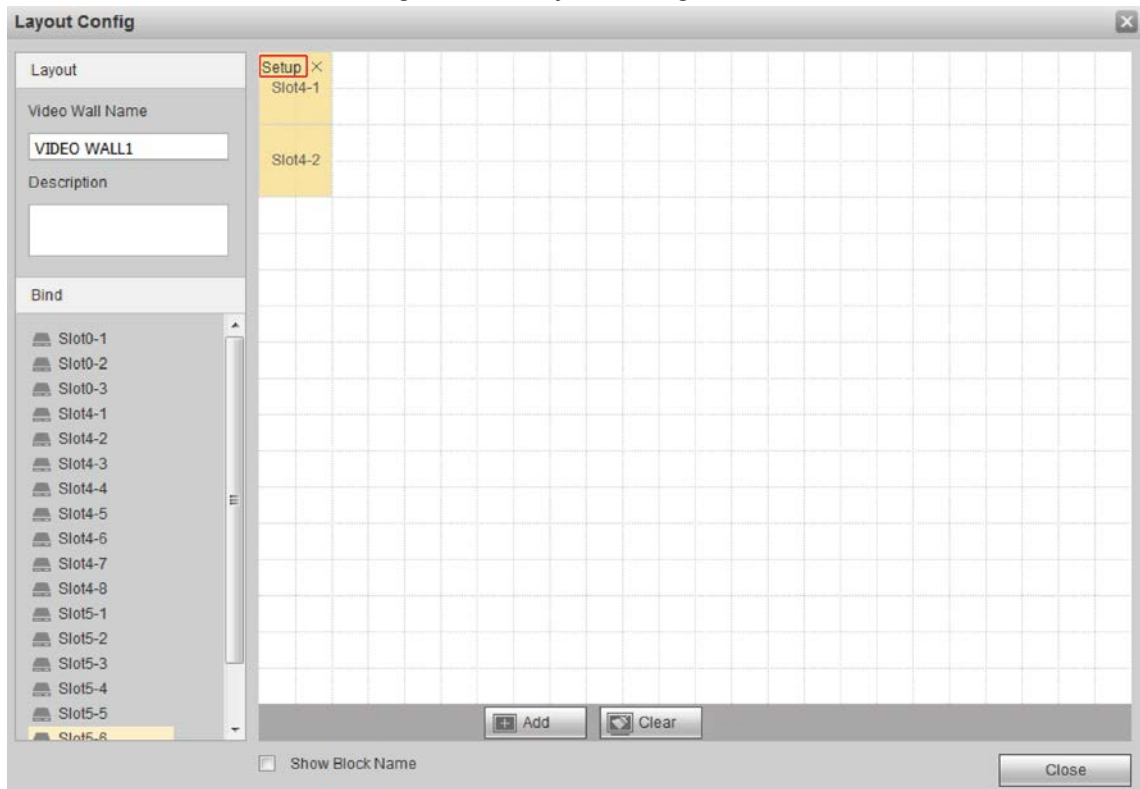
Control protocol	DVI input port	VGA input port	RGB input port	Video input port
Dahua	5	2	3	0
Samsung	24	20	10	12
Delta Greentech	3	2	5	4

Step 5 Click **OK**.



If you select LED_NEW as the device types, 960×540@60 as resolution of the screen and select the output port of the eight-channel fine pixel LED sending card as the output port, and the interface like Figure 3-68 will be displayed.

Figure 3-68 Layout configuration



Step 6 (Optional) Click **Setup** in the red rectangle, and interface like Figure 3-69 will be displayed.

Figure 3-69 Configure the sending card

Step 7 (Optional) Set row and column number of sending cards. See Figure 3-70.

Figure 3-70 Setting row and column number of sending cards

Step 8 (Optional) One Ethernet port can be bound with more than one sending cards. Connect the sending cards to the Ethernet ports according to the actual conditions. See Figure 3-71. For detailed parameters, see Table 3-14.

Figure 3-71 Connecting sending cards



- The first four Ethernet ports of the sending card are a group, and the last four Ethernet ports are a group. Receiving cards of each group (four Ethernet ports or some of the ports) must form a rectangle.
- The groups are spliced together to form a rectangle. Sending cards in group one and sending cards in group two can not be spliced together to form a rectangle.

Table 3-14 Description

Parameter	Description
Width	Width and height of the receiving cards will be displayed.
Height	
Background image	Click the check box, select the picture that you want to set as the background picture in the drop-down box. For methods of uploading background pictures, see “3.4.1.7 Background Picture”.
Correction coefficient	Select coefficient correction files in the drop-down box, click Setting to correct display parameters related to LED screens. For methods of uploading coefficient correction files, see “3.4.5.6Correction Coefficient”.
Reset all	Click Reset All , the connecting lines of the receiving cards will all disappear. You need to reconnect the lines according to your requirements.
Cancel port	Click Cancel Port , receiving cards connecting lines of the current Ethernet port will all disappear. You need to reconnect the lines according to your requirements.
Back	Click Back , connecting lines of the last receiving card will disappear, and the connecting lines go back to the previous receiving card.

Parameter	Description
Hide mapping line	Click Hide mapping line , lines of the receiving cards will be concealed, but the lines are actually still connected.
Display state	Click Display State , the Receiving Card State interface will be displayed. You can see version number and types of the receiving cards. Click Edit, you can set threshold value for voltage and temperature. Click OK to save the settings.
Export settings	Click Export Configuration to export the configuration file of the current line connecting of the receiving cards.
Import settings	Click Import Configuration to import the configuration file of the line connecting of the receiving cards.
Dark or bright lines adjustment	Click Dark or Bright Lines Adjustment , and then you can adjust brightness of the four frames and four points on the LED screen box and light board. Click Send to Hardware to send settings to the LED screen.

Step 9 (Optional) Click **OK**, and the setting is finished.

Step 10 Do Step 3–Step 5 again to add more screens.



- Select screens that you want them to be integrated, click  **Integrate**, you can integrate more than one screens,
- Select screens that you want to cancel merging, click  **Split**, you can split the screen.
- Click  **Clear**, you can delete all screens that you added.

Step 11 Click **Close**.

Modify video walls

Click  that is related to the video wall that you want to modify, and then you can modify **Video Name** and other items in the pop-up **Layout Config** interface. The methods to modify the video wall layout configuration are the same as those of adding video walls.

Deleting video walls

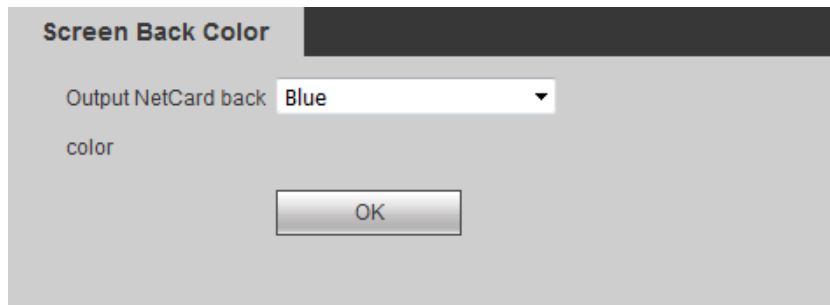
Click  that is related to the video walls that you want to delete, or select check boxes on the left of the video walls, and click Delete, and then the video walls are deleted.

3.4.5.2 Screen Back Color

You can set background color for the screen.

Select **Setting > Display > Screen Back Color**, and the **Screen Backg Color** interface is displayed. See Figure 3-72.

Figure 3-72 Screen back color



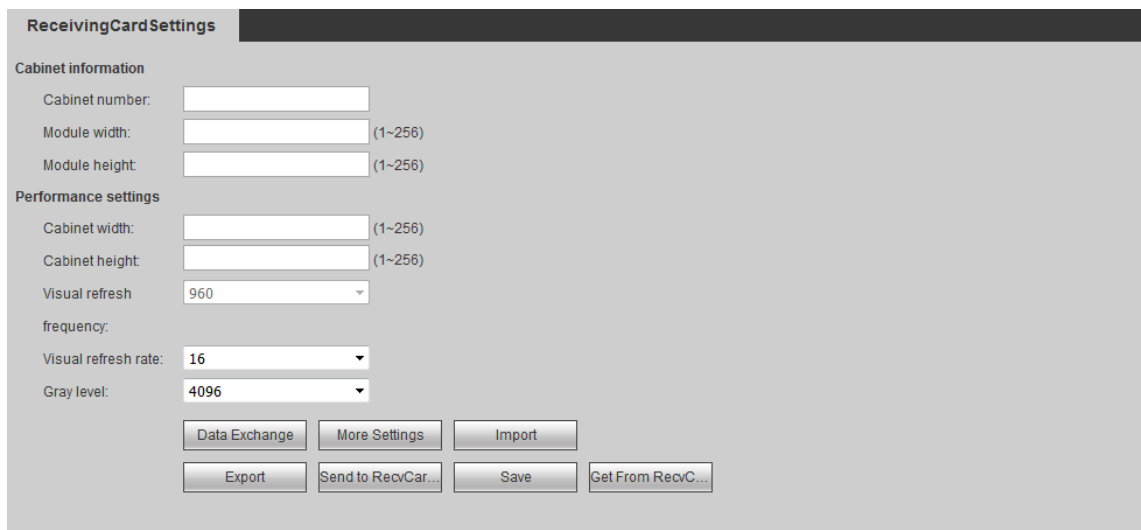
Set background color for the Output Net Card. You can select **Black** or **Blue**.

3.4.5.3 Configuring Receiving Cards

You can configure the parameters of the receiving cards.

Select **Setting > Display > Receiving Card Settings**, and the **Receiving Card Settings** interface is displayed. See Figure 3-73.

Figure 3-73 Receiving card settings

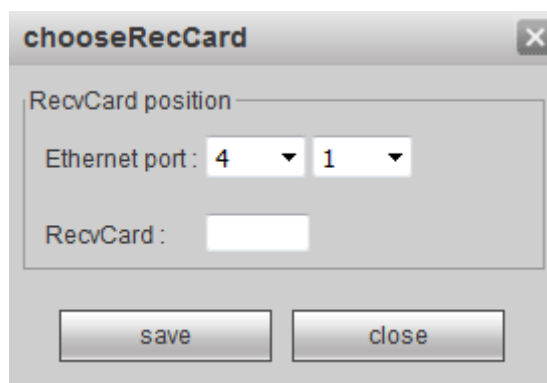


Modifying parameters of receiving cards

Step 1 Click **Get From RecvCard**.

The **Choose RecvCard** interface is displayed. See Figure 3-74.

Figure 3-74 Choose receiving cards



Step 2 Click **Ethernet port**, set **Receiving Card Number**, and then click **Save**.

Interface like Figure 3-75 will be displayed.

Figure 3-75 Getting parameters of receiving cards

Step 3 Modify parameters of the receiving cards. For detailed parameters, see Table 3-15.

Table 3-15 Parameters of receiving cards

Parameter	Description
Cabinet number	Box numbers are decided by network numbers.
Module width	The range of width and length of the light board is 1–256.
Module height	
Cabinet width	The range of width and length of the current box that carried by receiving cards is 1–256.
Cabinet height	
Visual refresh frequency	The rate that LED screens update pictures. The higher the frequency is, and the stabler the images are.
Visual refresh rate	Used to raise the visual refresh frequency.
Gray level	Select gray levels according to your requirements. The higher the levels are, the higher quality the images will have.

Step 4 Click **More settings**.

The **More settings** interface is displayed. See Figure 3-76.

Figure 3-76 More settings

More Settings

Module chips

Chip mode: Common chip OE Polarity: Lowly effective

Module information

Scanning modes: Unknown Data Groups: 1

RGB Permutation: RGB DCLK maximum: (4~20)MHz

DCLK falling edge: (1~19)MHz DCLK phase: (0~19)MHz

deviation:

Decoding method: Static state don't need c Output mode: Do not use the output m

save close

Step 5 Modify parameters according to your requirements.



Expertise is needed to configure parameters in this interface, call technical personnel to help you.

Step 6 Click **Save**, and the setting is finished.

Step 7 Click **Send to RecvCards** to make your modification effective.

Data exchange

Receiving cards consist of several data sets. Data sets present corresponding images. Each data set is arranged in order, and you can adjust sequences of the data sets according your requirements.

Step 1 Click **Data Exchange**.

Data Group Exchange interface is displayed. See Figure 3-77.

Figure 3-77 Data group exchange

Number	Data Group sequences
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0



Enable Data Group Exchange is selected by default.

- Step 2** Select network numbers whose data group sequences need arrangement, and select receiving cards that are corresponding to Ethernet port numbers.
- Step 3** Adjust data set sequences according to your requirements.
- Step 4** (Optional) Select **Send to All RecvCards**, and you can give out data sets in one receiving card to all receiving cards.
- Step 5** Click **Save**, and data set exchange is completed.

More operations

- Export configurations: Click **Export**, parameters of receiving cards will be exported in the format of ". Json" files.
- Import configurations: Click **Import**, you can import the configuration file of the receiving cards to configure parameters for the receiving cards.
- Data curation: after you modify parameters of receiving cards, click **Save** to save the data. Even if the LED screen is disconnected to power supply, parameters you modified will still be saved.



If you do not do data curation, parameters of receiving cards you modified will be restored to the factory settings after the LED screen is disconnected to power supply.

3.4.5.4 Image Adjustment

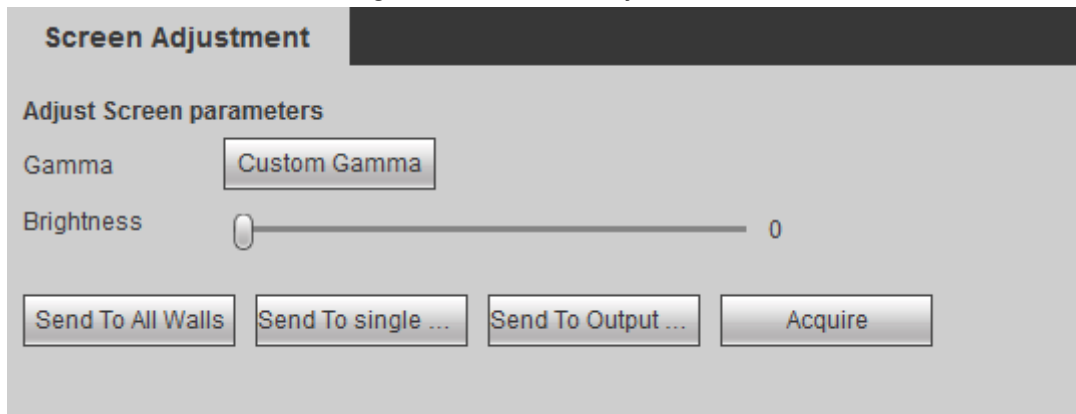
You can adjust parameters of images on the LED screen. The parameters include Gamma adjustment and brightness adjustment.

Gamma adjustment: Modify Gamma value to adapt the medium gray so that color differences on the screen can be compensated.

Step 1 Select **Setting > Display > Screen Adjustment**.

The **Screen Adjustment** interface is displayed. See Figure 3-78.

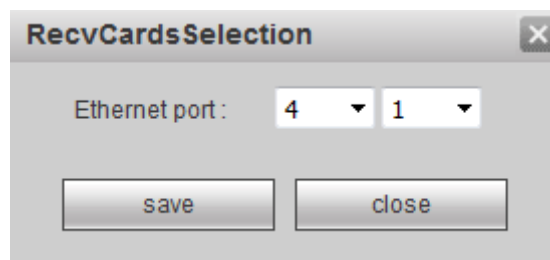
Figure 3-78 Screen adjustment.



Step 2 Click **Acquire**.

The **RecvCards Selection** interface is displayed. See Figure 3-79.

Figure 3-79 Reveiving cards selection



Step 3 Select Ethernet port numbers, and then click **Save**.

The system will acquire detailed parameters of images on the LED screen.

Step 4 Click **Custom Gamma**.

Gamma Adjustment interface is displayed. See Figure 3-80.

Figure 3-80 Gamma adjustment

Gamma Adjustment

Gamma Enable:

Grayscale bit:

Image Quality: ☒ Soft Mode ☐ Enhanced mode

You can slightly adjust the Gamma table by editing values in the table.

X	Y
0	0
1	2
2	4
3	6
4	8
5	10
6	12
7	14

Step 5 Configure parameters according to your requirements. For detailed parameters, see Table 3-16.

Table 3-16 Parameters of Gamma Adjustment

Parameter	Description
Gamma enable	Select whether to enable Gamma adjustment function or not.
Grayscale bit	Select grayscale bit according to your requirements. The default bit is 15 bit.  The grayscale bit is determined by chips used by the screen. For details, consult technical personnel.
Image quality	Select image quality according to your requirements. Image quality includes soft light mode and enhanced mode. - Soft Mode: we recommend that you use this mode in environment that where light is weak. - Enhanced Mode: we recommend that you use this mode in environment where light is bright.
Gamma table	Slightly tweak values in the Gamma table according to your requirements.

Step 6 Click **Save** to save your settings.



- Click **Import**, you can import the Gamma table so that you can tweak values in the Gamma table quickly.
- Contact technical personnel for Gamma values.

Step 7 Drag the brightness bar to adjust brightness of the screen.

Step 8 Click **Send to Output Port**, you can send image parameters to the corresponding receiving card of a single output port to make the settings effective.



- Click **Send to All Walls**, you can send image parameters to all the receiving cards.
- Click **Send to Single Wall**, you can send image parameters to all receiving cards of a single video wall.

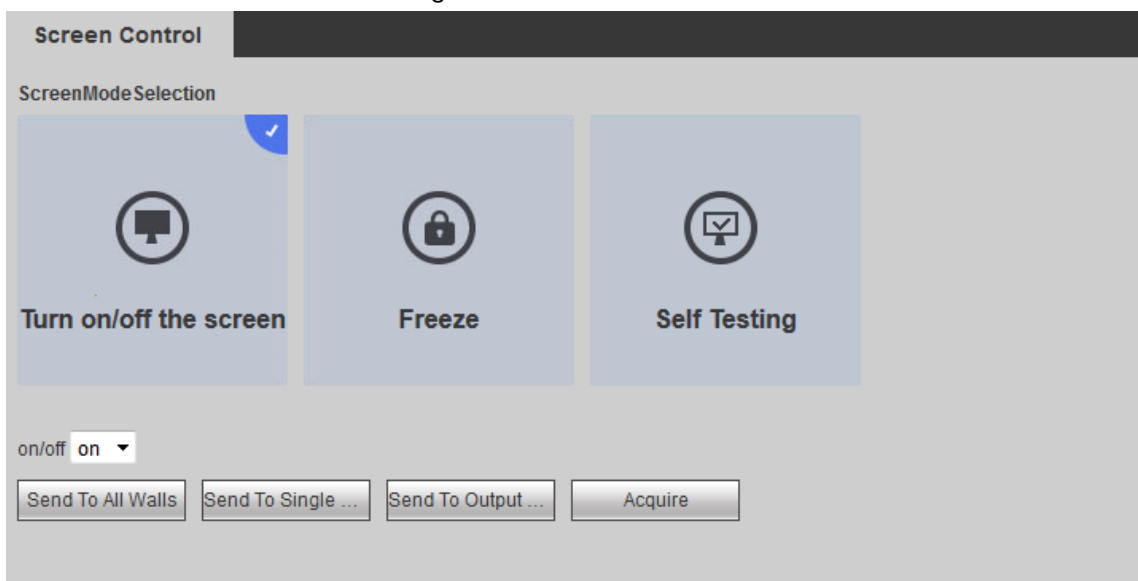
3.4.5.5 Screen Control

You can control images on the screen. The operations you can do include turn on/off the screen, freeze, and self testing.

Step 1 Select **Setting > Display > Screen Control**.

The **Screen Control** interface is displayed. See Figure 3-81.

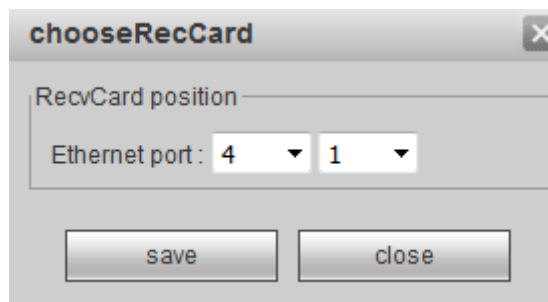
Figure 3-81 Screen control



Step 2 Click **Acquire**.

The **Choose RecvCard** interface is displayed. See Figure 3-82.

Figure 3-82 Choose receiving cards



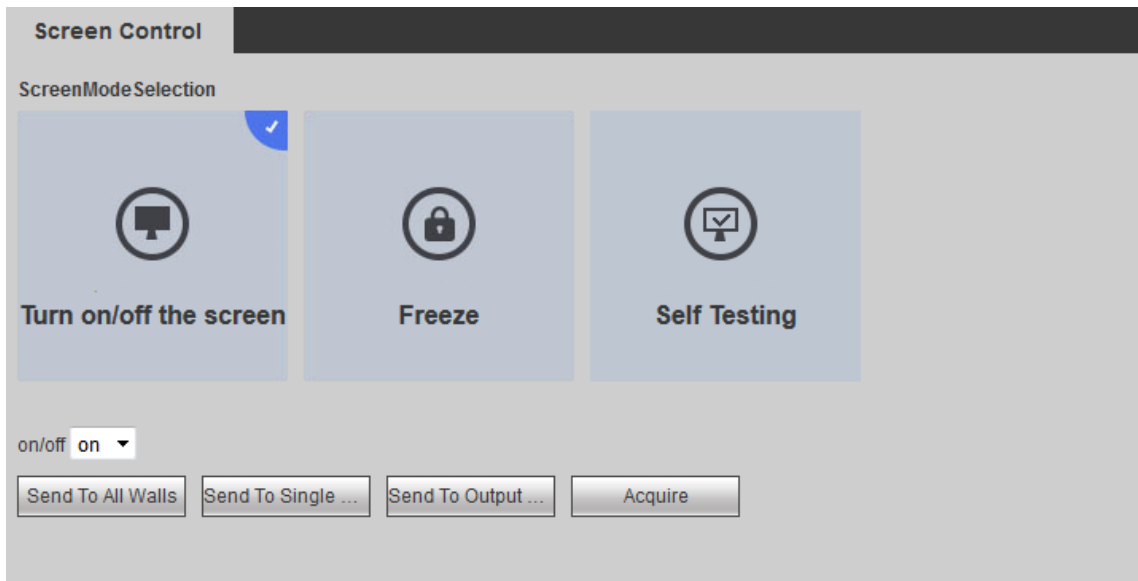
Step 3 Select Ethernet Port number, and then click **Save**.

The system will acquire detailed parameters of images on the LED screen.

Turn on/off the Screen

Step 1 Select **Turn on/off the screen** as the image mode. See Figure 3-83.

Figure 3-83 Turn on/off the Screen



Step 2 Select **Turn on/off the Screen**.

Step 3 Click **Send to Output Port**, you can control the on/off state of a screen corresponding to the output port.

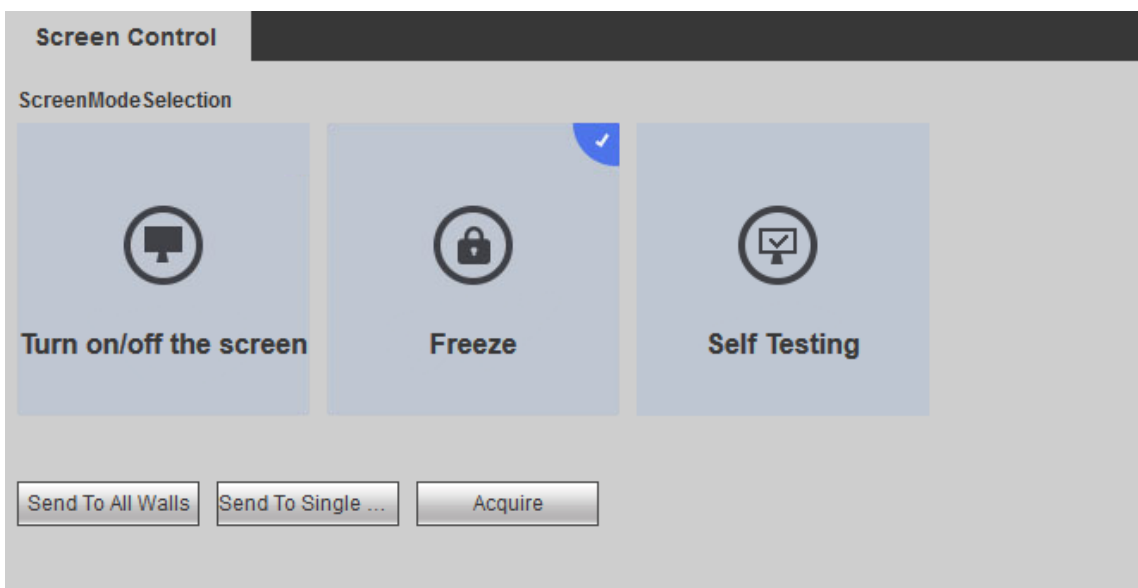


- Click **Send to All Walls**, and then you can control the on/off state of all screens.
- Click **Send to Single Wall**, and then you can control the on/off state of screens that correspond to output port of the video wall.

Freeze

Step 1 Select **Freeze** as the image mode. See Figure 3-84.

Figure 3-84 Freeze



Step 2 Click **Send to All Walls**.

You can freeze all screens.



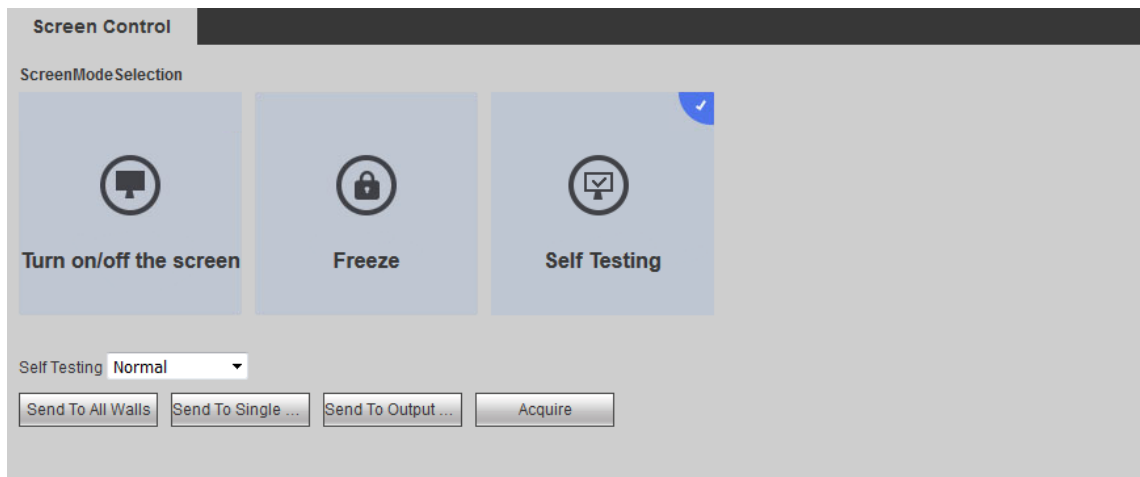
- Images on the screens keep stationary, and the last frame will be displayed on the screen.
- Click **Display Normally** in the **Self Testing** mode, and then you can unlock the screen.
- Click **Send to Single Wall**, and then you can freeze screens of a single video wall.

Self testing

You can control a single output port or all output ports of the corresponding screens, and make the output port (s) do self testing. To do screen self testing can detect whether screens have display malfunctions.

Step 1 Select self testing as the image mode. See Figure 3-85.

Figure 3-85 Self testing



Step 2 Select self testing types according to your requirements.

Step 3 Click **Send to Output Port**, you can control a single screen that corresponds to a single output port to make the screen do self testing.



- Click **Send to All Walls**, you can control the on/off state of all the screens to make all screens do self testing.
- Click **Send to Single Wall**, you can control screens that corresponds to a single video wall to make the screens do self testing.

3.4.5.6 Correction Coefficient

You can import the files of screen correction coefficient to the system. When creating a new video, you can use the files to correct hardware coefficients of the screen.

Step 1 Select **Setting > Display > Correction Coefficient**.

The **Correction Coefficient** interface is displayed. See Figure 3-86.

Figure 3-86 Correction coefficient

Number	Name	Delete
1	HuaDa_51.vu3	

Note: Files uploaded can not exceed 512M, and only files of vu3 and txt format can be uploaded.

Step 2 Click **Browse**, and then select correction coefficient files that are stored in your computer.



Correction coefficient files can only be provided after being corrected by professional equipment. For correction coefficient files, consult technical personnel.

Step 3 Click **Upload** to upload correction coefficient files to the system.

3.4.5.7 Screen Timer

Set on/off time for each screen. Each screen will be on/off according to the time that you set.

Step 1 Select **Setting > Display > Screen Timer**.

The **Screen Timer** interface is displayed. See Figure 3-87.

Figure 3-87 Screen timer

VIDEO WALL: VIDEO WALL1 Block: 123 Week: Sun

☐ Period 1 00 : 00 (On) — 24 : 00 (Off)

☐ Period 2 00 : 00 (On) — 24 : 00 (Off)

☐ Period 3 00 : 00 (On) — 24 : 00 (Off)

☐ Period 4 00 : 00 (On) — 24 : 00 (Off)

☐ Period 5 00 : 00 (On) — 24 : 00 (Off)

☐ Period 6 00 : 00 (On) — 24 : 00 (Off)

Step 2 Select **Video Wall**, **Screen Block**, and **Week**.



There are six period for you to select. Select appropriate checkbox and set period for each screen.

Step 3 Click **OK**.

Step 4 (Optional) Click **Apply to**.

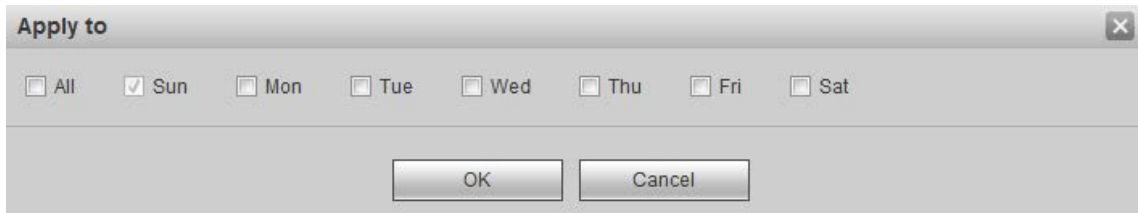
Interface like Figure 3-88 will be displayed.



The period you set can be applied to other weeks.

Step 5 Select checkboxes of the weeks, and click **OK**.

Figure 3-88 Days applicable to



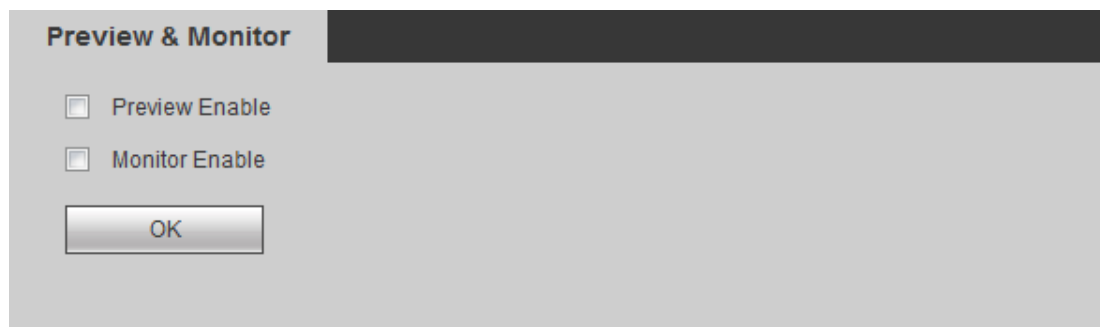
3.4.5.8 Preview and Monitor



- **Preview:** you can move the mouse to network signals and local signals in the device tree to preview images.
- **Playback:** you can output network signals and local signals, and make them be played on the video wall.

Select **Setting > Display > Preview & Monitor**. You can select **Preview & Monitor** function according to your requirements. See Figure 3-89.

Figure 3-89 Preview and monitor



Preview and monitor functions can only be enabled on Firefox browser.

3.4.6 Scalability Configuration

3.4.6.1 Central Control Setting

After the central control function is enabled, the third platform's system can control the Controller through serial port orders. The third platform's system can switch preset schemes, turn on/off screens, play intended signals on the video wall.



Contact technical personnel for central control orders.

Step 1 Select **Setting > Scalability Configuration > Central Control**.

The **Central Control** interface is displayed. See Figure 3-90.

Figure 3-90 Central control

Center Control

☐ Enable

Communication Port: COM0

Baud Rate: 115200 Data Bit: 8

Stop Bit: 1 Odd/Even Parity: N/A

OK Refresh

Step 2 Configure parameters according to your requirements. For detailed parameters, see Table 3-17.

Table 3-17 Central control setting Description

Parameter	Description
Enable	Select Enable , and then the central control function is enabled.
Communication port	Select communication ports. The communication ports include COM0–COM3. The default port is COM0.
Baud rate	Baud rate of communication ports.
Data bits	Data bits of communication ports.
Stop bits	Stop bits of communication ports include 1, 1.5, and 2.
Odd/Even Parity	Parity bits of serial communication port, including N/A, Odd, and Even.

Step 3 Click **OK**, and the setting is finished.

3.5 Information

You can view information of the Controller, read or download user manuals.

3.5.1 About the Controller

You can view information of the Controller.

3.5.1.1 About the Capture Card

You can check details about the Controller like the state, type, port types and temperature.

Select **INFO > DEVICE INFO > CARD INFO**, and then the interface is displayed as follows. See Figure 3-91.

Figure 3-91 Card information

Card Info						
Board Quantity(3/5)						
Status	Slot	Type	Port Type	Status	Temperature Status	Version
	Main Card	Main Card	HDMI	Normal	49°C	02.00
	Slot1	Collection Board	HDMI	Normal	44°C	V2.610.7.1.V4.800.V5069,Build:2018-09-13 23:25:00
	Slot2					
	Slot3					
	Slot4	Combination Board	RJ45	Normal	37°C	V2.610.7.0.V4.810.V5137,Build:2018-09-13 23:25:32
	Slot5	Combination Board	RJ45	Normal	36°C	V2.610.7.0.V4.810.V5137,Build:2018-09-13 23:25:32

Refresh

3.5.1.2 About Data Rate

Select **INFO > DEVICE INFO > DECODE INFO**, and then you can view decoding information of the window ID, resolutions, FPS, net flow, and bit rate. See Figure 3-92.

Figure 3-92 Decode information

Decode Info					
Window ID	State	Resolution	FPS	Net Flow(kb/s)	Bit Rate(kb/s)

Refresh

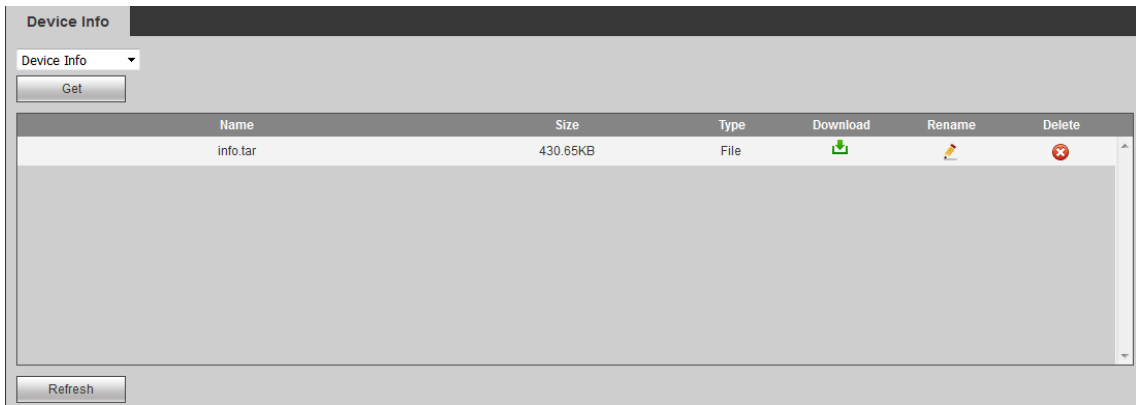
3.5.1.3 About the Controller

You can acquire details about the Controller, and you can restore the information you acquired in your local computer or USB flash drive.

Step 1 Select **INFO > DEVICE INFO > Device Info**.

The controller information interface is displayed. See Figure 3-93.

Figure 3-93 Device information



Step 2 Select **Device Info**.

Step 3 Click **Get**.



After you have got the information, controller information files in the format of .tar are displayed in the list.

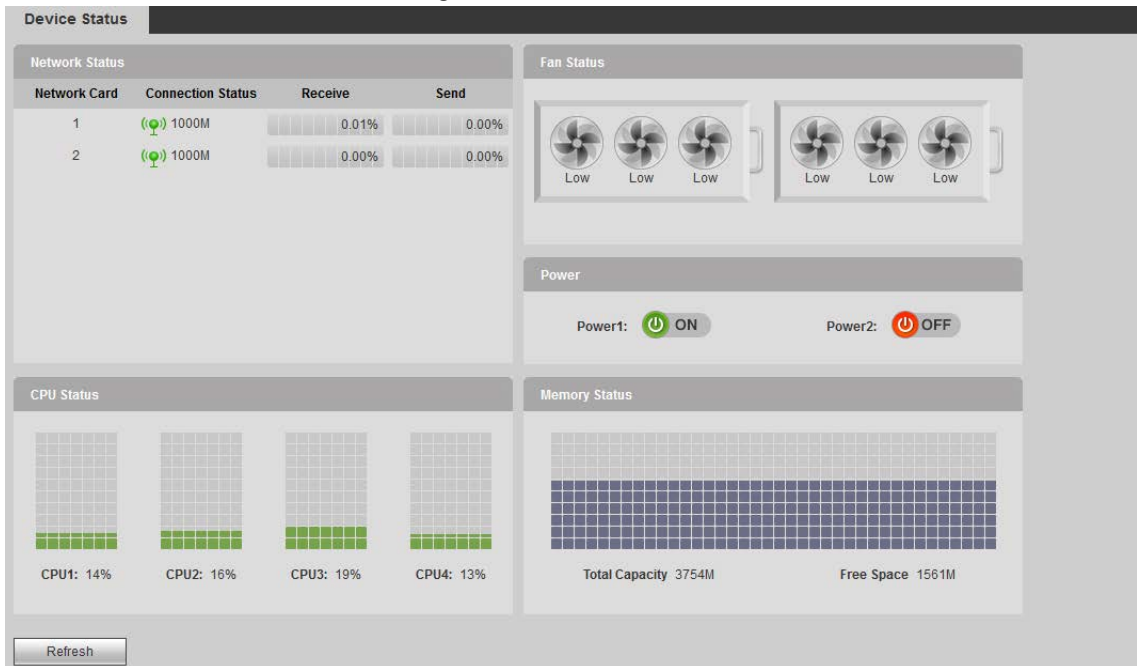
- Click you can save files in your local computer or USB flash drive.
- Click you can rename files.
- Click you can delete files.

3.5.1.4 Controller State

You can view the state of the network, CPU usage rate, fans, power supply, and memory.

Select **INFO > DEVICE INFO > DEVICE STATUS**, and then the interface is displayed as follows. See Figure 3-94.

Figure 3-94 Device status



3.5.1.5 System Logs

You can search for and view system logs of the Controller according to time and log types. You can also store the logs in your local computer.

Step 1 Select **INFO > DEVICE INFO > SYSTEM LOG**.

The **System Log** interface is displayed. See Figure 3-95.

Figure 3-95 System logs

System Log

Start Time: 2018 - 10 - 12 00 : 00 : 00 End Time: 2018 - 10 - 13 00 : 00 : 00

Type: All Search

No.	Time	Log Type
-----	------	----------

Detail Info

Backup Clear

1 / 1 Go to 1

Step 2 Enter start time and end time.

Step 3 Select log types.

Step 4 Click **Search**.



- Click **Backup**, and you can store the logs in your local PC.
- Click **Clear**, you can delete all logs of selected types in the period that you selected. Think twice before clicking **Clear**.

3.5.1.6 Online Users

Select **INFO > DEVICE INFO > ONLINE USER**, you can view details like user names, the groups, and IP address of online users. See Figure 3-96.

Figure 3-96 Online user

Online User

No.	Username	User Group	IP Address	User Login Time
1	admin	admin	10.33.12.213	2018-10-12 14:13:48

Refresh

3.5.1.7 Version

Select **INFO > DEVICE INFO > VERSION**, you can see details about the versions of the Controller.

3.5.2 Help

Select **INFO > HELP INFO > USER'S MANUAL**, you can check or download the user manual.

3.6 Exit

Log off the current user, next time you want to enter the menu, you need to provide your password again.

4 DSS Operations

Besides WEB, you can also log in the Controller remotely through Digital Surveillance System (DSS).

For details about DSS, refer to user manual of DSS.



For details about the eight fine pixel LEDs receiving card and create new video walls through DSS, consult technical support to see if your version of DSS has this function.

5.1 FAQ

If problems you meet are not included, consult customer services in your place, or call the headquarter.

1. Q: The Controller can not boot after you have plugged it in?

A: If the Controller is powered off, it will not boot when it is plugged in until you press the power button on the front panel.

2. Q: The Controller beeps when you press the power button?

A: The power supply of the Controller has dual power, if only one of the power cord is connected, the Controller will beep:

- Connect the other cord to the power source
- Press the red button beside the socket of the power modules to stop the warning buzzer.

3. Q: A single channel, several channels, or all channels can not output videos?

A: It might be:

- The program and front end devices of a third platform are incompatible.
- Video sources have malfunctions.
- Hardware of the Controller has malfunctions.

4. Q: Problems of real time images like color distortion and brightness distortion?

A: It might be:

- The impedance of the Controller and monitor are not the same.
- The transmission distance is too long, or the attenuation of the transmission line is great.
- The settings of parameters like color and brightness are incorrect.

5. Q: Images on the video walls flicker, and there are redundant lines on the images?

A: It might be:

- The power supply of the monitor and Controller are not common-grounded.
- The video or wires are of poor quality, or the wires are too long.

6. Q: Time displayed is not correct?

A: It might be:

- The setting is incorrect.
- The bad contact batteries or the voltage is low.
- The crystal oscillator is poor.

7. Q: Can not log in through the client or WEB?

A: It might be:

- ActiveX controls are blocked.
- Malfunction of network connection.
- Wrong network setting
- Your user name or password are incorrect.

8. Q: The network connection is not stable?

A: It might be:

- The network is not stable.
- IP address conflict
- MAC address conflict
- Adapters in the local area network have problems or their configurations are wrong.
- Network card of the Controller has malfunctions.

5.2 Operations and Maintenance

- Do not let irrelevant objects fall into the Controller; otherwise malfunctions might occur.
- Do not transport the Controller with the motherboard faces the ground.
- Connect the circuit carefully. If you violate relevant circuit regulations, damage to the Controller might occur.
- Short circuit must be prevented when connecting the external wires.
- Only when all wires are connected can you connect the Controller to the power supply.
- When all wires are connected, bind all the wires with cable ties to prevent short circuit, giving out heat, and electric shocks.
- When distributing wires, you must disassemble the negative binding post of the battery.
- Make sure that the Controller will not be exposed to water or be put in high humidity environment This might result in short circuit, fire, or other dangers.
- Do not install the Controller at places under direct sunlight. Install the Controller at places with good ventilation conditions.
- In high humidity environment, dust on the circuit board is likely to cause short circuit. To prevent damage, please remove dust on the circuit board, plug-ins, and industrial case regularly.
- Make sure that the Controller is connected to the ground wire so that video and audio signals will not be interfered, and the Controller will not be damaged by static electricity and induced voltage.

- Do not use hot swappings on audio signal wires, and ports like RS-232 and RS-485; otherwise these ports might be damaged.
- Make sure that the Controller is away from high temperature heat sources.
- Make sure that the Controller is horizontally and stably installed. And make sure that the interior anti-knock components work normally.
- Do through checks regularly.