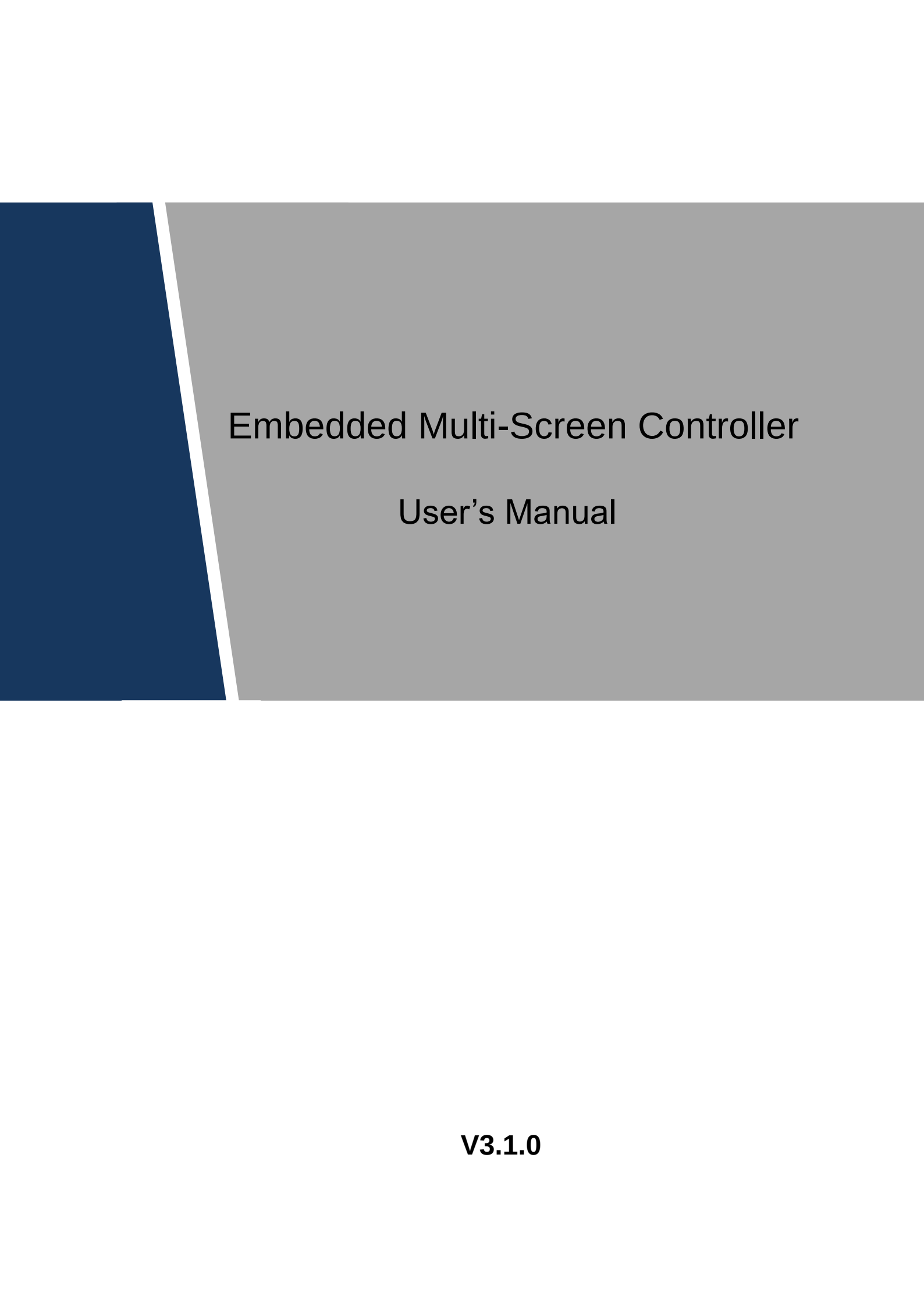




Embedded Multi-Screen Controller

User's Manual

V3.1.0

Foreword

General

This document mainly introduces functional features, installation, operation and maintenance of embedded multi-screen controller.

Models

DSCON3000-4U, DSCON3000-7U

Safety Instructions

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

Signal Words	Meaning
 DANGER	Indicates a high potential hazard which, if not avoided, will result in death or serious injury.
 WARNING	Indicates a medium or low potential hazard which, if not avoided, could result in slight or moderate injury.
 CAUTION	Indicates a potential risk which, if not avoided, could result in property damage, data loss, lower performance, or unpredictable result.
 FAN	Indicates hazardous moving part. Keep away from the moving fan blades.
 TIPS	Provides methods to help you solve a problem or save you time.
 NOTE	Provides additional information as the emphasis and supplement to the text.

Revision Record

Version	Revision Content	Release Time
---------	------------------	--------------

Version	Revision Content	Release Time
V3.1.0	DSCON3000 series LED decoding sending card	April 2019
V3.0.2	Modify full configured weight	September 2018
V3.0.1	Add privacy protection notice and FCC	June 2018
V2.2.0	Baseline modification	May 2017

Privacy Protection Notice

As the device user or data controller, you might collect personal data of others, 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, including 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 User's Manual, CD-ROM, QR code or our official website. If there is inconsistency between paper User's 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 Guide (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.

Operating 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.



CAUTION

When the Device is used in Finland, Norway, Sweden and Denmark, ensure that the Device can be connected to an IT power distribution system.

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.



CAUTION

When two power supplies are used, ensure to disconnect two power supplies to isolate the Device completely.

Table of Contents

Foreword	I
Important Safeguards and Warnings	IV
Table of Contents.....	V
1 Product Overview	1
1.1 Brief Introduction	1
1.2 Technical Specifications	1
1.3 Functional Feature	4
1.3.1 Device Highlights	4
1.3.2 Structure Feature	4
1.3.3 Hardware Feature.....	5
1.3.4 Software Feature	5
1.4 Introduction to Board Cards of the System.....	6
1.5 Host System.....	7
1.5.1 4U Host Case	7
1.5.2 7U Host Case	8
1.5.3 Main Control Panel	9
1.5.4 Control Panel	10
1.6 Business Board.....	10
1.6.1 VI0401HD DVI Input Card	10
1.6.2 VI0801HS SDI Input Card	11
1.6.3 VI0801HC HDCVI Input Card	12
1.6.4 VI3201FB CVBS Input Card	12
1.6.5 VI0201UH HDMI UHD Input Card	13
1.6.6 VI0801HH HDMI HD Input Card.....	13
1.6.7 VI0401HH HDMI Capture Card	14
1.6.8 VI0401HS 3G-SDI Capture Card (with Loop Output)	14
1.6.9 VO0401HD DVI Output Card.....	15
1.6.10 VO0801HH HDMI Output Card	15
1.6.11 VO0401HH HDMI Output Card.....	16
1.6.12 VO0405UH 4-channel HDMI Network Decoding Card	16
1.6.13 VO0801HS HD-SDI Output Card	17
1.6.14 VO0401HS 3G-SDI Output Card (with Copy Output)	17
1.6.15 LSC0801HN 8-channel LED Display Sending Card	18
1.6.16 LSC0805HN 8-channel RJ45 Decoding Sending Card	18
2 Unpacking Check and Wiring	20
2.1 Check Procedure	20
2.2 Points for Attention during Installation	20
2.3 Schematic Diagram of Installation	21
3 WEB Operation	22
3.1 Network Connection.....	22
3.2 Login WEB	22

3.3 Screen	24
3.3.1 Add Screen	24
3.3.2 Signal	25
3.3.3 Add Device	29
3.3.4 Real-time On-wall	29
3.3.5 Scheme	30
3.3.6 Window	31
3.3.7 Block/Window Split	32
3.3.8 Refresh Video Wall	35
3.3.9 Eagle Eye	35
3.3.10 Switch Box Power	36
3.3.11 Screen	37
3.3.12 Advanced Function	44
3.4 Setting	51
3.4.1 System Setting	51
3.4.2 Network Setting	62
3.4.3 Event Management	70
3.4.4 Signal Management	71
3.4.5 Display Management	79
3.4.6 Additional Configuration	100
3.5 Info	102
3.5.1 Device Info	102
3.5.2 Help	105
3.6 Logout	105
4 Local Interface Config	106
4.1 General Operation	106
4.1.1 Bootup	106
4.1.2 Shutdown	106
4.1.3 Enter System Menu	107
4.1.4 Homepage	108
4.1.5 Output Device Tree	110
4.1.6 Input Device Tree	111
4.1.7 Display Setup	112
4.1.8 Input Group	114
4.1.9 Scheme	118
4.2 Advanced Menu Operation	120
4.2.1 Menu Navigation	120
4.2.2 Menu Operation	121
4.2.3 Setting	122
4.2.4 Advanced	131
4.2.5 Info	137
4.3 Shutdown	140
5 DSS Operation	141
6 FAQ	142
6.1 FAQ	142
6.2 Daily Maintenance	143
Appendix 1 Mouse Operation	145

Appendix 2 Cybersecurity Recommendations 147

1 Product Overview

1.1 Brief Introduction

The embedded multi-screen controller is the industry's latest professional multi-screen image processor based on ATCA (Advanced Telecommunications Computing Architecture), integrating several patented technologies, which can splice, zoom and overlap multiple dynamic images on multiple screens in a real-time way.

It is specially designed for high-quality video processing scenarios with high performance, high reliability and extendibility, so it applies to numerous industries, including education, scientific research, government notice, information publishing, administration, military command, display and demonstration, security surveillance and sale of home appliance.



Figure 1-1 Appearance of 4U Product



Figure 1-2 Appearance of 7U Product

1.2 Technical Specifications

Parameter Type	Parameter Name	Details
Model		Embedded multi-screen controller
System Config	Main processor	Intel X86 Baytrail processor
	Operation	WEB control via browser

Parameter Type	Parameter Name	Details
	Slot	4U products support 10 business boards; 7U products support 20 business boards;
	Min config	4-channel image output, 4-channel signal input
	Full config	For 4U products, there are 80 input and output signal ports in total, and maximum decoding capacity reaches 160-channel 1080P@25Hz; For 7U products, there are 160 input and output signal ports in total, and maximum decoding capacity reaches 256-channel 1080P@25Hz.
Video Parameter	Video output	4-channel DVI-D or 8-channel HDMI output of single board
	Output image	Max. 32 single screens
	Output video	Max. 32-channel of single screen
	Video resolution	1024×768@60Hz–4K×2K@30Hz, 24-bit true color
	DVI capture input	4-channel DVI-I port of single board
	DVI capture resolution	1080P@60Hz downward compatibility
	VGA capture input	4 DVI-I ports of single board
	VGA capture resolution	1080P@60Hz downward compatibility
	HDMI UHD capture input	2 HDMI ports of single board
	HDMI capture resolution	4K2K@30Hz downward compatibility
	HDMI HD capture input	4 or 8 HDMI ports of single board, collect 4-channel or 8-channel HDMI/DVI signal source
	HDMI capture resolution	1080P@60Hz downward compatibility, 1080I collection
	SDI capture input	8-channel BNC ports of single board

Parameter Type	Parameter Name	Details
	HD-SDI capture resolution	1080P@30Hz downward compatibility, at the rate of 1.485G
	3G-SDI capture resolution	1080P@60Hz downward compatibility, at the rate of 2.97G
	CVBS capture input	2-channel DVI-D ports of single board, connected with braided wire; 16 channels in every port
	CVBS capture resolution	D1, 960H
	HDCVI capture input	8-channel BNC ports of single board
	HDCVI capture resolution	1080P@30Hz downward compatibility, at the rate of 1.485G
Port	USB port	4 ports in total, including 3 USB2.0 ports and 1 USB3.0 port
	Network port	2 ports, RJ45 10M/100M/1000M self-adaption Ethernet port
	RS232 port	3 ports, adopt RJ45 connector, control external matrix and display screen
	RS232 port	1 port, DB-9 connector, for system debugging or central control
	RS485 port	1 port, reserved at present
General	Power supply	115V–230V; 47Hz–63Hz; dual power redundant supply (optional)
	Consumption	For 4U products, min. system config consumption is 90W and full config consumption is 360W. For 7U products, min. system config consumption is 90W and full config consumption is 590W.
	Working temperature	-10℃–+55℃
	Working humidity	10%–90%
	Barometric pressure	86kpa–106kpa
	Dimension	4U, 19-inch standard industrial case 7U, 19-inch standard industrial case
	Weight	4U, about 22Kg in case of full config 7U, about 37Kg in case of full config
	Installation	Bracket installation, desktop installation

Parameter Type	Parameter Name	Details
	Working type	7×24h

1.3 Functional Feature

The device adopts high-capacity high-speed FPGA array and PCI-E digital BUS routing switch technology, with mixed input/output card design of all business card slots. The device supports multiple signal source inputs, including VGA, DVI, HDMI, SDI, HDCVI, CVBS and etc., plus DVI and HDMI output mode, compatible with VESA resolutions (4K and lower). Customize resolution of small-spacing LED; support super HD, dynamic background, signal source OSD overlay, virtual LED, black edge correction, multiplication and smooth displaying, fog penetration etc.; support multi-level user authorities, scheme tour, log, maintenance, intelligent temperature control, failure alarm and redundant power backup etc.

1.3.1 Device Highlights

- For 4U products, there are 80 input and output signal ports in total, and maximum decoding capacity reaches 160-channel 1080P@25Hz; for 7U products, there are 160 input and output signal ports in total, and maximum decoding capacity reaches 256-channel 1080P@25Hz.
- Multiple analog and digital signal input at the same time (VGA/RGB/YPbPr/DVI/HDMI/network stream).
- Output meeting VESA standard, with 4K max resolution; customize resolution, max 1920×1200.
- Multi-screen splicing, zoom, tour and overlay.
- Fixed split of block and window; lock and unlock all windows.
- OSD overlay of input signal source and output port.
- Virtual LED display.
- Signal source full-screen display, each screen sync displays.
- Single screen displays 32-channel different signal sources.
- Copy signal source; one signal can be shown in two windows.
- HD point-to-point background display.
- Scheme tour.
- Display screen control, random switch and scheduled screen on/off, adjust brightness, contrast, saturation and energy-saving mode.
- Control multiple display windows at the same time.
- Linkage control of matrix.
- Central control of third-party system serial port.
- DSS, SmartPSS, IOS APP and multiple clients.

1.3.2 Structure Feature

- 19-inch 4U/7U standard rack type chassis, ensuring engineering installation universality.
- Horizontal ATCA architecture with strong extendibility and flexibility.

- Multiple groups of fan, intelligent temperature control, compatible with chassis structure to form stable air channel and temperature balance.
- Dual-channel redundant power supply design guarantees continuous work and data safety.
- Blade business card.

1.3.3 Hardware Feature

- Intel x86 platform guarantees device extendibility and fluency at full load.
- High-speed connector on the board card, x4 PCI-E gen2 and DC 12V power guarantee fluency of high-speed data stream.
- Hot swap button and indicator guarantee user's application flexibility and understanding of card working status.
- Each card port, such as USB, serial, network port, HDMI, BNC, DVI and etc. guarantees device functionality and facilitates user or technical personnel's operation and debugging.
- Each business card works independently, contributing to balanced system load and smooth operation.
- Dual high-speed block-free rear panel design, for large capacity of A/V data transmission.

1.3.4 Software Feature

Embedded LINUX OS is reliable, safe, stable and easy for development and maintenance.

Network Function

- 2 RJ45 ports, supporting 1000M network.
- Support TCP/IP protocol stack, including TCP, UDP, RTP, RTSP, DHCP, DNS, NTP and SMTP etc.
- Obtain system log remotely.
- Support management software to remotely switch between analog and digital videos on video wall and control with keyboard.
- Support remotely receiving and configuring parameters, remotely rebooting and remotely importing/exporting parameters.

Video Management

- Support HD and SD digital matrix. Digital video stream exchanges directly without coding compression, which eliminates image quality reduction after multiple switches of video signal.
- Switch between HD and SD.
- Support user customized scheme storage and maintenance.
- Support digital video full crossing switch matrix, based on different board card combination, forming digital video full crossing switch matrix with different specifications.
- Video capture card supports HDMI, DVI-I, max. 4K (4096×2048) resolution output.
- Allow operator to display different images on the same screen circularly, pre-set and switch as group.
- Customize video signal group, simplified user management of signal source.

Other Functions

- Complete operation, alarm, abnormality and log records, simplifying user and technical personnel's maintenance.
- Complete user authority management, making the device more user-friendly.
- Support local and remote online update; update timely to meet changing market demand.
- Multiple users and clients login, convenient for users to preview and manage video layout on the screen whenever and wherever possible.
- Secondary development, with SDK provided.
- DSS-PSS linkage control.
- One-key reset to default configuration.

1.4 Introduction to Board Cards of the System

No.	Name	Model	Functional Module	Port Description	Note
1	Host	Splicing Controller -4U	Embedded multi-screen controller host	• One 4U host case, supporting 10 business boards; • One MBC0004 main control panel; • One control panel; • One built-in power adapter.	Standard config (dual power redundancy is optional)
		Splicing Controller -7U		• One 7U host case, supporting 20 business boards; • One MBC0004 main control panel; • One control panel; • Two built-in power adapters.	Standard config
2	Input Module	VI0401HD	DVI input card	4-channel DVI-I video port input, supporting DVI, VGA and HDMI signal input.	Optional
3		VI0801HS	SDI input card	8-channel BNC video port input	Optional
4		VI0801HC	HDCVI input card	8-channel BNC video port input	Optional
5		VI3201FB	CVBS input card	2-channel DVI-D video port input, supporting to input 32-channel CVBS signal with braided wire.	Optional
6		VI0201UH	HDMI UHD input card	2-channel HDMI video port input, supporting HDMI V1.4 signal input.	Optional

No.	Name	Model	Functional Module	Port Description	Note
7		VI0801HH	HDMI HD input card	8-channel HDMI video port input, supporting DVI and HDMI signal input.	Optional
8		VI0401HH	HDMI capture card	4-channel HDMI video port input, supporting DVI and HDMI signal input.	Optional
9		VI0401HS	3G-SDI capture card (with loop output)	4-channel 3G-SDI video port input 4-channel 3G-SDI video loop port output	Optional
10	Output Module	VO0401HD	DVI output card	4-channel DVI-D video output port	Optional
11		VO0801HH	HDMI output card	8 HDMI output ports	Optional
12		VO0401HH	HDMI output card	4 HDMI output ports	Optional
13		VO0405UH	HDMI network decoding card	4 HDMI output ports	Optional
14		VO0801HS	HD-SDI output card	8-channel HD-SDI video port output	Optional
15		VO0401HS	3G-SDI output card (with copy output)	4-channel 3G-SDI video port output 4-channel copy output	Optional
16		LSC0801HN	LED display sending card	8 RJ45 output ports	Optional
17		LSC0805HN	LED decoding sending card	8 RJ45 output ports	Optional

Table 1-1

1.5 Host System

1.5.1 4U Host Case

19-inch 4U rack type host case of embedded multi-screen controller includes business board slot, power supply port and intelligent temperature control fan, as shown in Figure 1-3.



Figure 1-3

- Front panel displays operating status of the device.

	
	On/off key of the device. it turns blue after power on.
	Power light. It doesn't show red light when the device isn't connected with power, and it shows red light after connecting power.
	Alarm light. It shows red light in case of fault, and it doesn't show red light when the device is normal.
	System status light. It shows yellow light after the device is booted and working normally.

Table 1-2

- Viewing from rear, on the left is air intake and on the right is air outtake. There is anti-dust filter at air intake. Please wash the filter every two months.
- Intelligent temperature control fan, total of 2 groups, allowing hot swap;



FAN

Indicates hazardous moving part. Keep away from the moving fan blades.

- Business board's port board slot, total of 10, labeled in sequence, for installation of business board's rear port board;
- Main panel's port board slot, marked as "M";
- Control panel's port board slot, marked as "C";
- Dual power module, supporting 220V modules.

1.5.2 7U Host Case

19-inch 7U rack type host case of embedded multi-screen controller includes business board slot, power supply port and intelligent temperature control fan, as shown in Figure 1-4.



Figure 1-4

- Front panel displays operating status of the device, which is the same as 4U device.
- Viewing from rear, on the left is air intake and on the right is air outtake. There is anti-dust filter at air intake. Please wash the filter every two months.
- Intelligent temperature control fan, total of 3 groups, allowing hot swap;



FAN

Indicates hazardous moving part. Keep away from the moving fan blades.

- Business board's port board slot, total of 20, labeled in sequence, for installation of business board's rear port board;
- Main panel's port board slot, marked as "M";
- Control panel's port board slot, marked as "C";
- Dual power module, supporting 220V modules.

1.5.3 Main Control Panel

1.5.3.1 Port Description



Figure 1-5

No.	Port	Function
1	Reset button	1, clear config
2	Power light of main control panel	1, display power status of main control panel
	System status light	1, display operating status of system
	PCI-E status light	1, display PCI-E working status
3	USB port	3 USB ports, 1 USB3.0 and 2 USB2.0 to connect mouse, keyboard and USB disk
4	VGA	1, local display output port
5	Audio input	1, audio intercom (reserved, unavailable at present)
6	Audio output	1, support decoded audio output
7	1000M RJ45 network port	2, transmit network video audio data and network control signal

1.5.3.2 Performance Feature

- High-speed connector, including 10 x4 PCI-E gen2, DC 12V power supply, I²C
- Memory slot, 1-slot single channel, 4G DDR3L memory
- Fan port, power/rotational speed control (CPU)

- 3 indicator lights (power status light, system operating status light and PCI-E status light)

1.5.4 Control Panel

1.5.4.1 Port Description

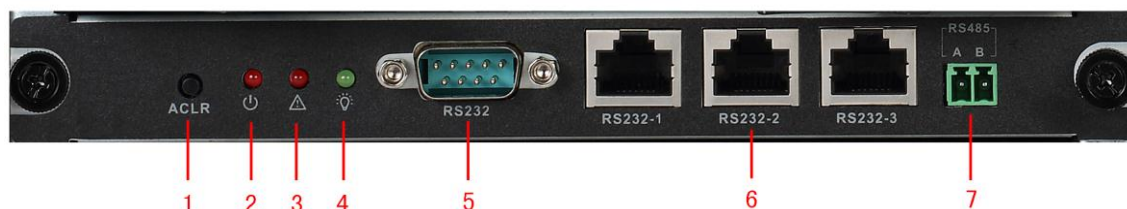


Figure 1-6

No.	Port	Function
1	Alarm reset button	1, support to clear alarm signal
2	Power light of main control panel	1, display power status of main control panel
3	Alarm light	1, display alarm status
4	System status light	1, display operating status of system
5	RS232	1, DB9, debugging serial port or central control serial port
6	RJ45 serial port	3, control peripheral device
7	RS485	1, reserved at present

1.5.4.2 Performance Feature

- Control power-on/power off and operating status monitoring control of the entire device.
- After alarm, press the alarm reset button to clear system alarm.
- 3 indicator lights (power status light, system alarm light and system operating status light).
- With RS232 serial port, connect central control device or debugging computer.
- With RJ45 serial port, control peripheral devices such as analog matrix and display wall.

1.6 Business Board

Each business board adopts blade module design to complete input of analog and digital image, image processing and image output.

1.6.1 VI0401HD DVI Input Card



Figure 1-7

Performance Feature

- 4-channel DVI-I video port input, supporting DVI, VGA and HDMI signal input.
- 2 hot swap buttons.
- 4 working indicators.
- High-speed connector, including x4 PCI-E gen2, DC 12V power.

Capture Function

- Input resolutions under 1080P meeting VESA standard, such as: 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.
- For VGA signal capture, support up/down/left/right black edge cutting.
- Brightness, contrast, saturation adjustment.
- Channel OSD time and title overlay; overlay position is configurable.
- Defog.
- Indicator is normally on after power on; port flashes if normal.

Note

ATI video card output mode includes 1680×1050, 1440×900, 1280×1024, 1280×960, 1280×800, 1280×768, 1024×768, 1152×864 and 800×600, captured with DVI. There may be black edge on the left and right of signal. This is caused by output source setting, since “Enable GPU Zoom” option is checked. Uncheck this option as follows:

Click right mouse button on computer desktop, select “Resolution->Advanced ->Catalyst Control Center->ATI Catalyst Control Center-> My Digital Panel->Property (Digital Panel) ->Enable GPU Zoom”. Remove the check.

1.6.2 VI0801HS SDI Input Card



Figure 1-8

Performance Feature

- 8-channel HD-SDI video port input.
- 2-channel RS485 port.
- 2 hot swap buttons.
- 4 working indicators.
- High-speed connector, including x4 PCI-E gen2, DC 12V power.

Note

- Two RS485 ports control SDI camera; COM1 corresponds to no. 1–4 input ports, while COM2 corresponds to no. 5–8 input ports.

- RS485 line sequence is that A connects A, and B connects B.

Capture Function

- Video parameters of every channel are adjusted independently, including resolution rate, frame rate and image quality etc.
- Support rate: 1.485Gbit/s.
- Support resolution rate: 1080P@30Hz and 720P@60Hz.

1.6.3 VI0801HC HDCVI Input Card



Figure 1-9

Performance Feature

- 8-channel BNC video port input and HDCVI signal input.
- Reverse control with coaxial cable.
- 2 hot swap buttons.
- 4 working indicators.
- High-speed connector, including x4 PCI-E gen2, DC 12V power.

Capture Function

- HDCVI HD input port supports 1080P@30Hz, 1080P@25Hz, 720P@60Hz, 720P@50Hz, 720P@30Hz and 720P@25Hz.
- Video parameters of every channel are adjusted independently, including resolution rate, frame rate and image quality etc.

1.6.4 VI3201FB CVBS Input Card



Figure 1-10

Performance Feature

- Connect with braided wire, and support 32-channel CVBS input.
- 2 hot swap buttons.
- 2-channel RS485 ports (reserved at present).
- 2 working indicators.

- High-speed connector, including x4 PCI-E gen2, DC 12V power.

Capture Function

- Input port supports resolution: CIF, D1 and 960H.
- Video parameter of every channel can be adjusted independently.

1.6.5 VI0201UH HDMI UHD Input Card



Figure 1-11

Performance Feature

- 2-channel HDMI video port input, supporting HDMI signal input.
- 2 hot swap buttons.
- 2 working indicators.
- 2 audio loop output ports.
- High-speed connector, including x4 PCI-E gen2, 12V DC power.

Capture Function

- Input resolutions below 4K x 2K meeting VESA standard: 4096×2160@24fps, 3840×2160@30Hz, 2560×1600@30Hz, 2048×1536@30Hz, 1920×1080@60Hz, 1680×1050@60Hz, 1440×900@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.
- Customized non-standard resolution capture.
- Channel OSD time and title free overlay.
- Indicator is normally on after power on; port flashes if normal.

1.6.6 VI0801HH HDMI HD Input Card



Figure 1-12

Performance Feature

- 8-channel HDMI video port input, supporting DVI and HDMI signal input.
- 8 working indicators.

- High-speed connector, including x4 PCI-E gen2, 12V DC power.

Capture Function

- Input resolutions below 1080P meeting VESA standard, such as: 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, 800×600@60Hz, 1080I@60Hz and 1080I@50Hz.
- Channel OSD time and title overlay; overlay position is configurable.
- Indicator is normally on after power on; port flashes if normal.

1.6.7 VI0401HH HDMI Capture Card



Figure 1-13

Performance Feature

- 4-channel HDMI video port input, supporting DVI and HDMI signal input.
- 4 working indicators.
- High-speed connector, including x4 PCI-E gen2, DC 12V power.

Capture Function

- Input resolutions below 1080P meeting VESA standard, such as: 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.
- Channel OSD time and title overlay; overlay position is configurable.
- Indicator is normally on after power on; port flashes if normal.

1.6.8 VI0401HS 3G-SDI Capture Card (with Loop Output)



Figure 1-14

Performance Feature

- 4-channel 3G-SDI video port input and 4-channel 3G-SDI video loop port output.

- No. 1, 3, 5 and 7 ports are for input, whereas no. 2, 4, 6 and 8 ports are for output. No. 2 port provides loop outputs of no. 1 port video, and so on.
- 2-channel RS485 port.
- 2 hot swap buttons.
- 4 working indicators.
- High-speed connector, including x4 PCI-E gen2, DC 12V power.

 Note

- Two RS485 ports control SDI camera, in which COM1 corresponds to no. 1–4 input ports and COM2 corresponds to no. 5–8 input ports.
- RS485 line sequence is that A connects A, while B connects B.

Capture Function

- Video parameters of every channel are adjusted independently, including resolution rate, frame rate and image quality etc.
- Support SMPTE424M protocol and 2.97Gbit/s rate.
- Support resolutions:1080P@60/50/30/25, 1080i@60/50 and 720P@60/50/30/25

1.6.9 VO0401HD DVI Output Card



Figure 1-15

Performance Feature

- 4-channel DVI-D digital video port output.
- 2 hot swap buttons.
- 4 working indicators.
- High-speed connector, including x4 PCI-E gen2, DC 12V power.

Output Function

- Output all resolution rates below 1920×1080 meeting VESA standard.
- Support to output customized resolution rates (below 1200P).
- Support to display 32 channels of randomly spliced signal source at every output port.

1.6.10 VO0801HH HDMI Output Card



Figure 1-16

Performance Feature

- 8 HDMI output ports, supporting DVI 1.0 and HDMI 1.3 norms.
- 8 working indicators.
- High-speed connector, including x4 PCI-E gen2, 12V DC power.

Output Function

- Output all resolution rates, including 1920×1080 @60Hz and below that meet VESA standard.
- Support to output customized resolution rates (1200P and below).
- Support to display 16 channels at every output port.

1.6.11 VO0401HH HDMI Output Card



Figure 1-17

Performance Feature

- 4 HDMI output ports, supporting DVI 1.0 and HDMI 1.3 norms.
- 4 working indicators.
- High-speed connector, including x4 PCI-E gen2, DC 12V power.

Output Function

- Output all resolution rates, including 1920×1080 @60Hz and below that meet VESA standard.
- Support to output customized resolution rates (1200P and below).
- Support to display 32 channels at every output port.

1.6.12 VO0405UH 4-channel HDMI Network Decoding Card



Figure 1-18

Performance Feature

- 4-channel HDMI digital video port output; no. 2 and 3 ports support max. 4K output.
- 4 working indicators.
- High-speed connector, including x4 PCI-E gen2, DC 12V power.

Output Function

4-channel output supports all resolution rates, including 1920×1080 @60Hz and below that meet VESA standard. 2-channel output supports all resolution rates, including 4K (3840×2160) and below that meet VESA standard.

1.6.13 VO0801HS HD-SDI Output Card



Figure 1-19

Performance Feature

- 8-channel HD-SDI video port output.
- 2 hot swap buttons.
- 4 working indicators.
- High-speed connector, including x4 PCI-E gen2, DC 12V power.

Output Function

- Video parameters of every channel are adjusted independently, including resolution rate, frame rate and image quality etc.
- Support SMPTE292M protocol and 1.485Gbit/s rate.
- Support 1080P@30Hz, 1080i@50Hz and 720P@60Hz fixed resolution ratio. Customized resolution ratio is not available.

1.6.14 VO0401HS 3G-SDI Output Card (with Copy Output)



Figure 1-20

Performance Feature

- 4-channel 3G-SDI video port output and 4-channel copy output.

- No. 1, 2, 3, 4, 5, 6, 7 and 8 ports are for copy output. No. 2 port provides copy outputs of no. 1 port video, and so on.
- 2 hot swap buttons.
- 4 working indicators.
- High-speed connector, including x4 PCI-E gen2, DC 12V power.

Output Function

- Video parameters of every channel are adjusted independently, including resolution rate, frame rate and image quality etc.
- Support SMPTE424M protocol and 2.97Gbit/s rate.
- Support 1080P@60/50/30Hz and 720P@60Hz fixed resolution ratio. Customized resolution ratio is not available.

1.6.15 LSC0801HN 8-channel LED Display Sending Card



Figure 1-21

Performance Feature

- 8 RJ45 ports in compliance with RGMII protocol standard.
- 8 working indicators and 8 data indicators.
- High-speed connector, including x4 PCI-E gen2, DC 12V power.

Output Function

- Single Ethernet port supports loading of maximum 648,000 pixels, and single board card supports loading of 5.2 million pixels.
- Single Ethernet port supports to output with customized resolution. The widest resolution is 3840 and the highest resolution is 3840 (within the width × height loading range).

1.6.16 LSC0805HN 8-channel RJ45 Decoding Sending Card



Figure 1-22

Performance Feature

- 8 RJ45 ports in compliance with RGMII protocol standard.
- 8 working indicators and 8 data indicators.

- High-speed connector, including x4 PCI-E gen2, DC 12V power.

Output Function

- Single Ethernet port supports loading of maximum 648,000 pixels, and single board card supports loading of 5.2 million pixels.
- Single Ethernet port supports to output with customized resolution. The widest resolution is 3840 and the highest resolution is 2160 (within the width × height loading range).

2 Unpacking Check and Wiring

2.1 Check Procedure



Label at the side of the case owns serial number and other information of the device, which shall be provided when you call after-sales service. This label shall be protected well, and shall not be torn or discarded; otherwise, we may not be able to provide effective service.

Step 1 When you receive controller, please check whether there are obvious external damages. The material of product package should be able to protect the product from most impacts during transportation.

Step 2 Open the package, and check all accessories, and see if any part is missing. Refer to accompanied accessory bag. After you have checked that all parts are included, remove protective film on the device.

Step 3 Open device case to check front panel's data line, power line and see if the connection between mainboard and interface board is loosened.

2.2 Points for Attention during Installation

- To add a business board, please carefully take down protection cover at rear port.
- After the device is power-on, if buzzer beeps, check power line of the two power supply modules. Cancel the buzzer alarm by pressing red button next to power supply module at the reverse side of the case.

2.3 Schematic Diagram of Installation

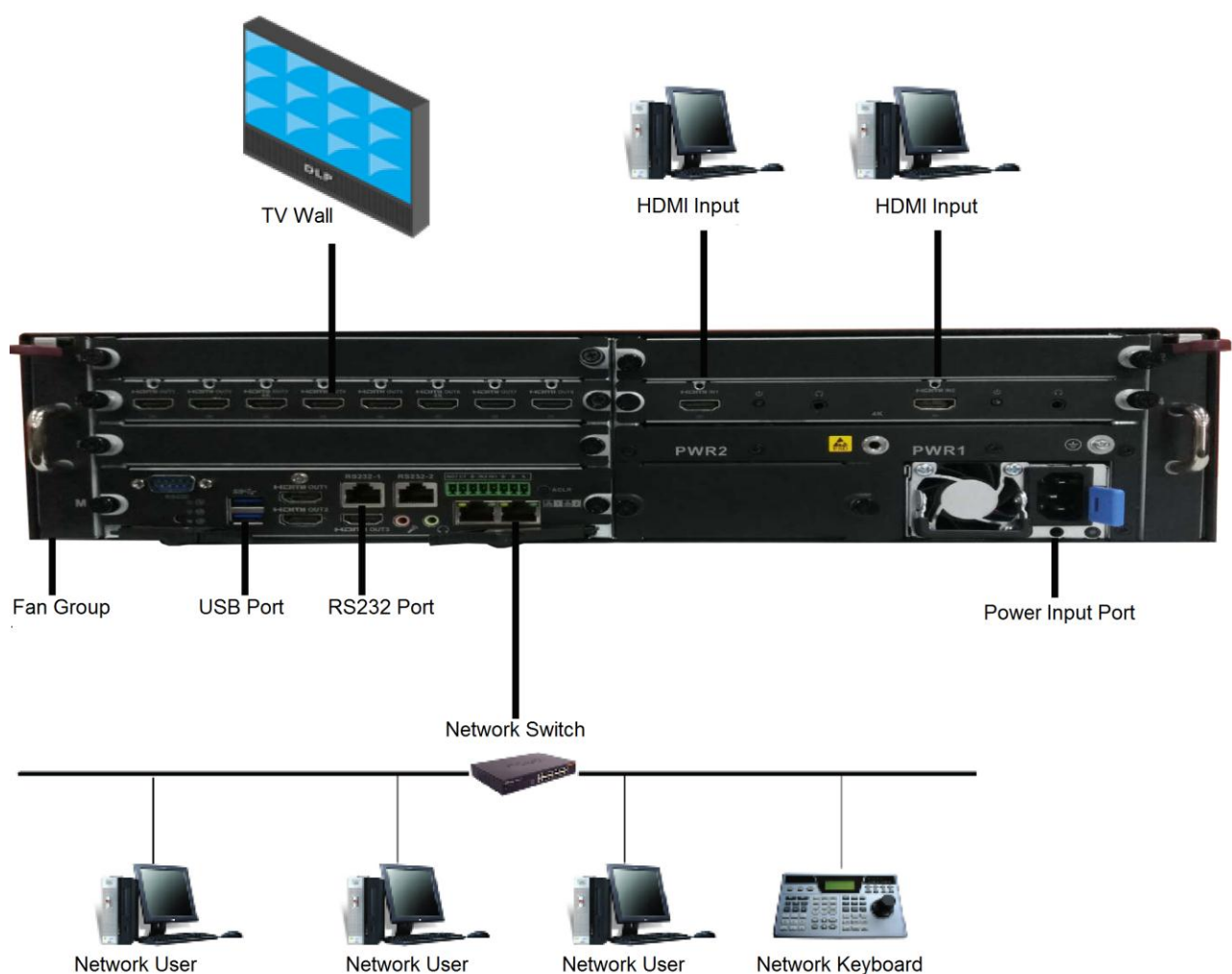


Figure 2-1

 Note

This figure takes 4U device installation for example. 7U device installation is similar.

3 WEB Operation

3.1 Network Connection

Step 1 Ensure that embedded multi-screen controller and PC have been connected with network correctly.



When any Ethernet port on main control panel of embedded multi-screen controller is connected with network port via Ethernet cable, and corresponding Ethernet port indicator flashes, it means that the device has been properly connected to network.

Step 2 Set IP address, subnet mask and gateway of PC and embedded multi-screen controller respectively (In case of no router in the network, please distribute IP address in the same network segment; In case of router in the network, corresponding gateway and subnet mask shall be set). For network settings, please refer to “3.4.2 Network Setting”.



If you are uncertain about IP address of embedded multi-screen controller, view IP address at its local interface in the following steps:

Connect the display and mouse with VGA port and USB port of main control panel respectively, turn on embedded multi-screen controller, login and right click “Network Setting” to view IP address. Modify IP address, subnet mask and gateway according to needs.

Step 3 Use ping `***.***.***.***` (IP of embedded multi-screen controller) to check whether network connection is OK or not.

Step 4 Open IE browser, in “Tool > Internet Option> Security> Custom Level”, select ActiveX and plug-in to be “Enable” or “Prompt”.



Support Firefox and Chrome browsers.

Step 5 At address bar of IE browser, input IP address of embedded multi-screen controller.

Step 6 Install controls according to webpage prompts.

3.2 Login WEB

Step 1 At address bar of the browser, input IP address of embedded multi-screen controller (taking 192.168.1.108 for example). That is to say, input `http:// 192.168.1.108` in address bar and press [Enter] key.

After successful connection, the system displays Figure 3-1.



Figure 3-1



Please wipe cache during the first login after upgrading the software to the latest version.

Step 2 Input username and password, and click “Login”.



Default username is admin and password is admin.

The system pops up “Device Initialization” prompt box, as shown in Figure 3-2.

Device Initialization

Username

admin

Password

Low

Middle

High

Confirm Password

OK

Figure 3-2

Step 3 Modify admin password.



Password can be 8 – 32-digit non-empty characters; it can consist of at least two types among capital letter, small letter, number and special character (except “'”, “””, “.””, “-”, “_”, “&”). “Password” and “Confirm Password” shall be the same. Please set a high-security password according to password strength prompt.

Step 4 Click “OK” to complete modification.



Note

If the platform is connected, the device added to the platform shall also modify the password.

Enter the login interface again.

Step 5 Input username and new password, and click “Login”.

3.3 Screen

Select “Screen” tab, and the system displays Figure 3-3.

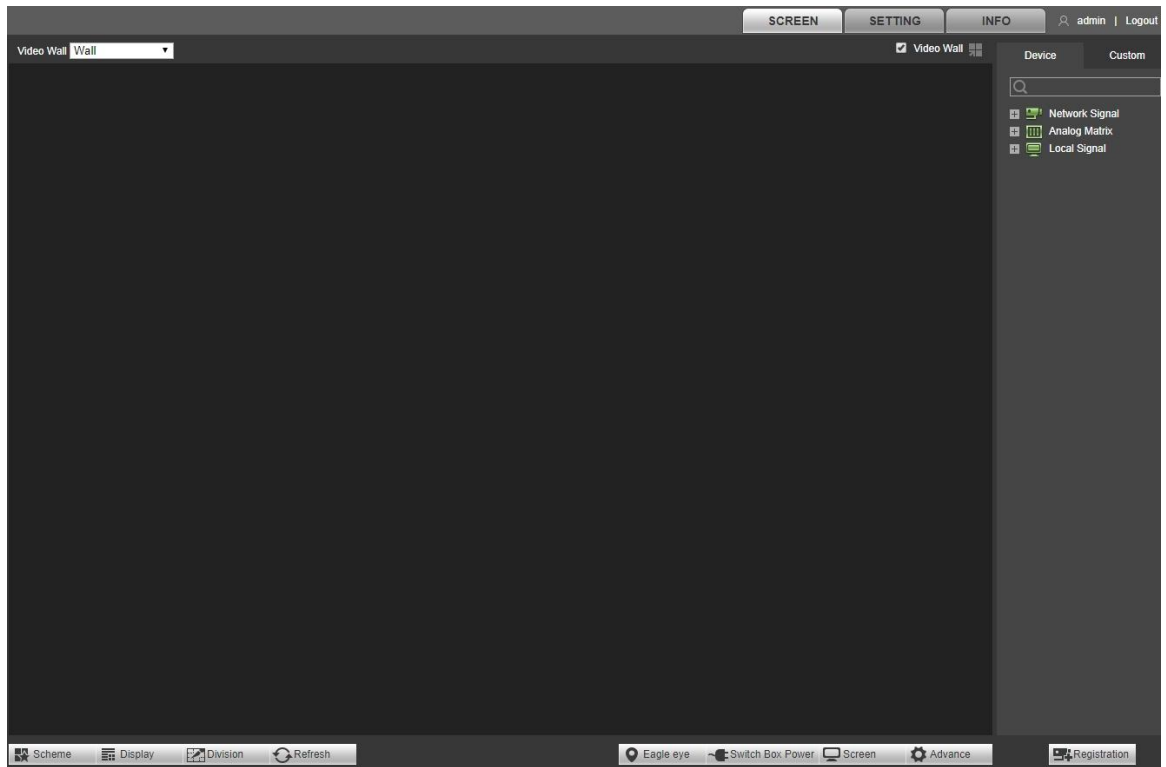


Figure 3-3

3.3.1 Add Screen

For the first login, it is necessary to add a screen, as shown in Figure 3-4.

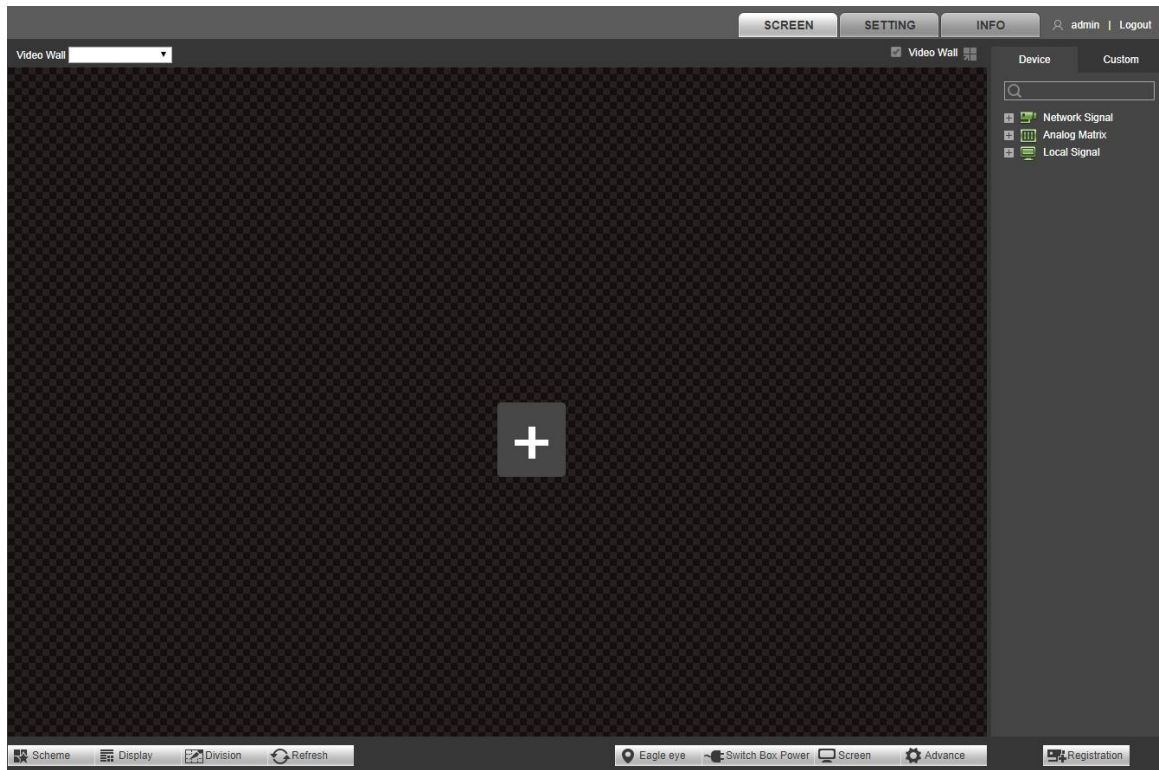


Figure 3-4

Click  to enter “Video Wall Setup” interface. Please refer to “3.4.5.1 Video Wall” for instructions.

3.3.2 Signal

After adding signal, view signal info or added signal group info; configure signal on wall, signal tour or window; realize signal switch.

3.3.2.1 Device Tree

In device tree, display all local signals, added network signals and matrix signals.

- Registration: display the network device signal sources that are added in “Add Device”. Please refer to “3.4.4.2 Registration” for instructions.
- Analog matrix: display the matrix signal sources that are added in “Matrix Management”. Please refer to “3.4.4.1 Matrix Management” for instructions.
- Local signal: display local signal sources. Please refer to “3.4.4.3 Local Channel” for instructions.

3.3.2.2 Custom

Customize signal groups; display added groups and signals in “Custom” tab. Realize loop play of signals in the group. Please refer to “3.4.4.4 Signal Group” for instructions.

3.3.2.3 Signal on Wall

Output signals to corresponding windows of video wall, so as to view signal video on the screen.

- Click a signal source in “Device” or “Custom”, and click in the main screen to open a single screen window.
- Click a signal source in “Device” or “Custom”, and hold the left mouse button in the main screen to draw a frame, to open a free window.
- Select a signal source in “Device” or “Custom”, hold the left mouse button and drag it to the blank area of main screen, to open a single screen window.
- In the blank area of main screen, hold the left mouse button to open a window without signal; double click the signal source in “Device” or “Custom”.



Local signal supports multi-copy function. Exceeding the stipulated quantity, the system will prompt “Exceeded capability”.

- One signal can copy 2-channel signal in one block.
- One signal can copy 8-channel signal at most.
- One capture board can copy 12-channel signal at most.

3.3.2.4 Signal Tour

Drag the signal or configured signal group to corresponding window, so as to play the signal in the window cyclically. Please set “Tour Time Interval” and “Stream Type”.

Step 1 Select a window to tour signal.

Step 2 Select a signal source in “Device” or “Custom”, hold the left mouse button and drag it to the designated window. Repeat the operation to add multiple signal sources if necessary.

The interface displays all signal sources of this window, as shown in Figure 3-5.



- Only when you hold left mouse button and drag signal source to designated window, the signal source will be shown in tour list. If you select a window, click or double click signal source, or drag the signal source to blank area in screen or no signal window, signal source will not be shown in tour list.
- In “Custom”, drag one signal group to designated window, added signal source list will be replaced with signal source in this group.

Channel List		Advance			
No.	IP	Channel Name	Tour Time Interval	Stream Type	Operation
1		ITC8147-302	10	Main Stream	×
2		ITC8147-523	10	Main Stream	×
3		132	10	Main Stream	×

Figure 3-5

Step 3 Set signal source parameters in the tour list. Please refer to Table 3-1 for specific parameter descriptions.

Parameter	Description
No.	Display quantity and tour sequence of signal source in tour list. Note Max. 16 signal sources can be added to the tour list.

Parameter	Description
IP	Display IP address of signal source.
Channel Name	Display channel name of signal source.
Tour Time Interval	Set tour time interval of signal source, meaning the time interval of displaying one signal source on the wall to displaying the next signal source on the wall. It ranges from 10s to 120s.
Stream Type	Set stream type of signal source. - When signal source is set to “Network”, you can set “stream type” as “Main Stream” or “Sub Stream”. - When signal source is “Analog Matrix” or “Local Signal”, stream type only supports “Preview”.
Operation	Operate signal sources in the list. - Click  to delete corresponding signal source. If you delete all signal sources in the list, the window will display “no signal”. - Click  to set tour sequence of signal. - Double click one signal source in the list; the source will be displayed on the wall.

Table 3-1

Step 4 Click  at the top right corner of window to start signal tour of this window.

 Note

Click this icon again to stop signal tour.

3.3.2.5 Adjust Window

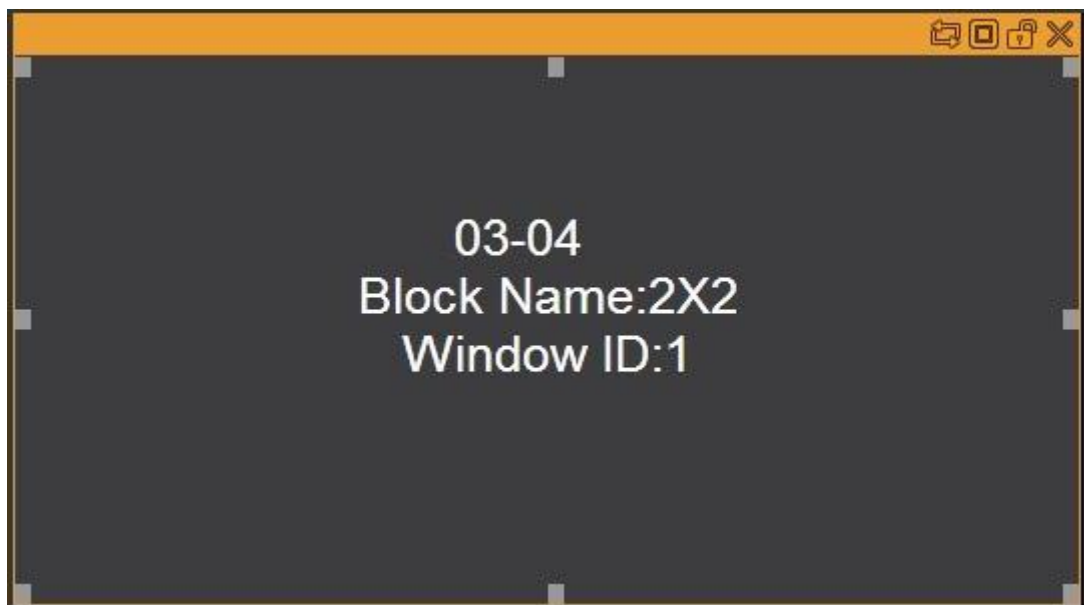


Figure 3-6

Conference Mode

Click ; window output image is displayed with original proportion of collected image.

 Note

- Only support local signal.
- Click  to disable conference mode.

Signal Tour

Click  to start signal tour, and the icon turns to . Click  to stop signal tour.

Roam

Click  to enter “Roam” status. Now you can adjust size and position of the window.

- In “Roam” status, hold the left mouse button and move, so the selected window moves accordingly. Release the mouse, and the window moves to target position.
- In “Roam” status, click the window; drag any directional control point to change the size of the selected window.

 Note

Roam is available in  unlock mode. If the window displays , window position and size cannot be adjusted.

Paste

 Note

Click , and  appears.

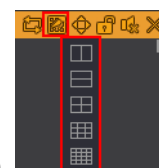
Click ; signal window will fill in the screen which this signal window crosses.

Split

 Note

Click , and  appears.

Click  and split the window into types as shown in the red frame



Lock

Click  to lock the window, and the icon turns to .

When the window is locked, its position and size cannot be adjusted.

Audio

Click  to enable audio, and the icon turns to .

Close

Click  to close the present window.

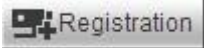
3.3.2.6 Signal Switch

Switch output signal source of the window.

Step 1 Select a window that needs to input signal.

Step 2 Double click a signal source in “Device” or “Custom”.

3.3.3 Add Device

Click  to input “Remote Device”. Please refer to “3.4.4.2 Registration” for instructions.

3.3.4 Real-time On-wall

Real-time on-wall means that config operation on video wall will be displayed on the video wall immediately. This function is enabled by default. Enable or disable this function according to needs.

 Note

Cancel the selection of “Real-time On-wall” at the top right corner of the screen, and it will switch to manual on-wall.

- Real-time on-wall mode: WEB operations will be displayed on video wall immediately.
- Manual on-wall mode: WEB operations won't be displayed on video wall immediately. After

screen config is completed, click  at the top right corner of the screen, and it will be displayed on video wall.

Click  in manual on-wall mode, and the system displays Figure 3-7. Click “OK”, and video wall will return to the scene before manual on-wall. Config at the time of manual on-wall will be cleared.

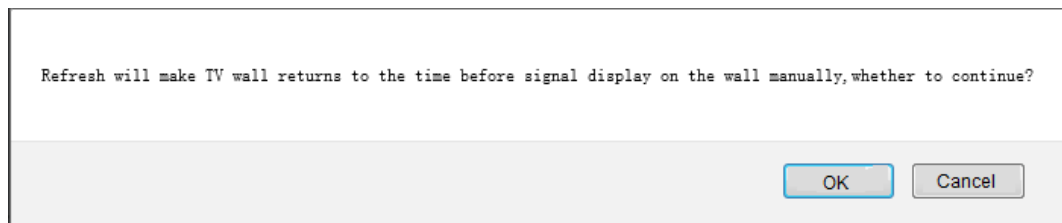


Figure 3-7

3.3.5 Scheme

Save video wall layout as a scheme, configure multiple schemes to be played on the screen in turn, and realize management of schemes.

Step 1 Click  **Scheme**.

The system displays “Scheme” interface, as shown in Figure 3-8.

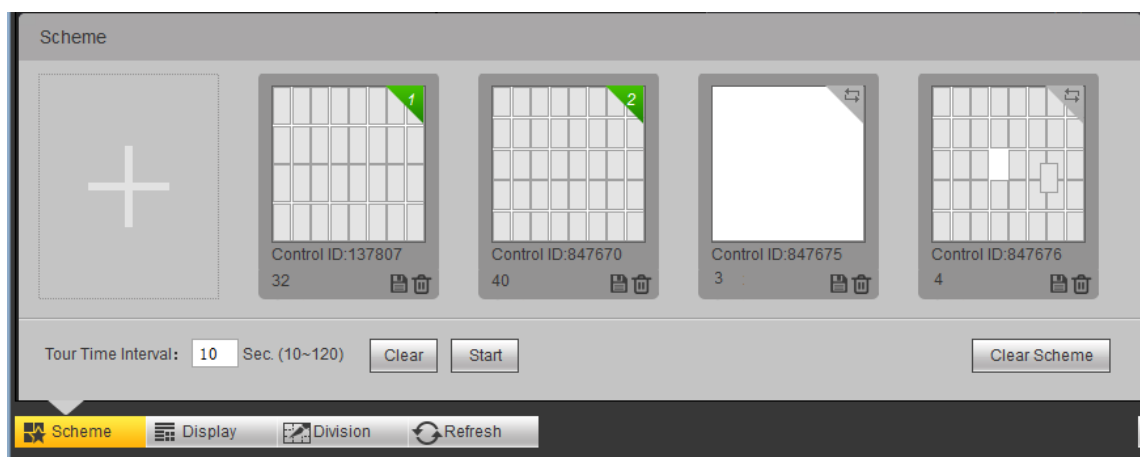


Figure 3-8

Step 2 Click  to save the scheme, as shown in Figure 3-9.



Figure 3-9

Step 3 Configure current layout again, repeat Step 2 to add more schemes.



Note

Click “Clear Scheme” to clear all schemes.

Step 4 Set tour time interval.

Step 5 Click  at the top right corner of every scheme, and thus add the scheme to tour list.  becomes a number, representing its sequence in tour list, as shown in Figure 3-10.

 Note

Double click “Control ID” and scheme name to modify them.

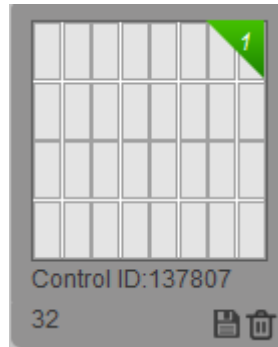


Figure 3-10

Step 6 Click “Start”. The system starts to tour, and tour info is displayed at the lower right corner of the interface, as shown in Figure 3-11.

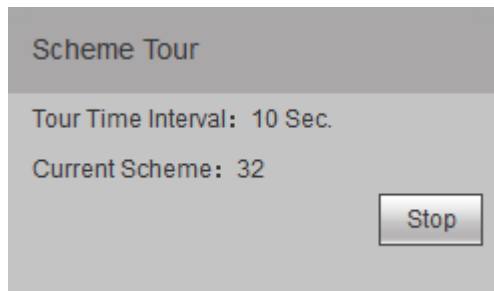


Figure 3-11

 Note

- Click “Stop” to stop tour.
- During scheme tour, “Screen” interface cannot be operated.
- Click “Clear” to clear the whole scheme tour proposal.
- Control ID is used to distinguish schemes during central control.

3.3.6 Window

When a window you want to view is covered by other windows or you want to top the window,

click  Display . The system displays Figure 3-12.

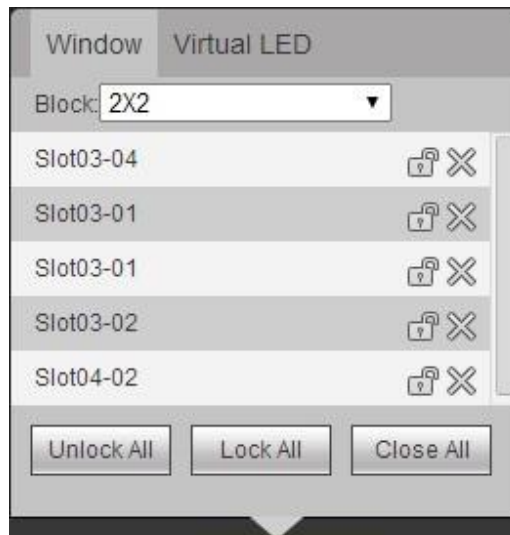


Figure 3-12

- Select channel name you want to view, top the window.
- Click “Unlock All” to unlock all windows, and adjust window position and size.
- Click “Lock All” to lock all windows, so window position and size cannot be adjusted.
- Click “Close All” to close all windows.
- User can lock or unlock one window independently, or click “x” to close one window.

3.3.7 Block/Window Split

According to your need, split block or window depending on split proposals provided by the system or depending on manually input split number.

Block Split

To split a block, the system will clear all open windows in original block, and re-open window according to selected split. After splitting, original windows will be closed, but original signals will be reserved.

- When original signal window number is less than block split number, after splitting, excessive windows will be shown as “no signal”.
- When original signal window number is more than block split number, after splitting, the system only shows earliest signal window according to window sequence, whereas signal window beyond split number will be closed.

Step 1 Select “Division > Block”.

The system displays “Block” interface, as shown in Figure 3-13.

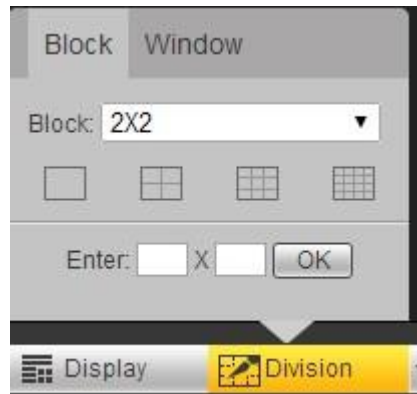


Figure 3-13

Step 2 Select fixed split    , or manually input split number (for example, “3×3” means 9-split).

Step 3 Click “OK”.

The system displays a prompt box, as shown in Figure 3-14.

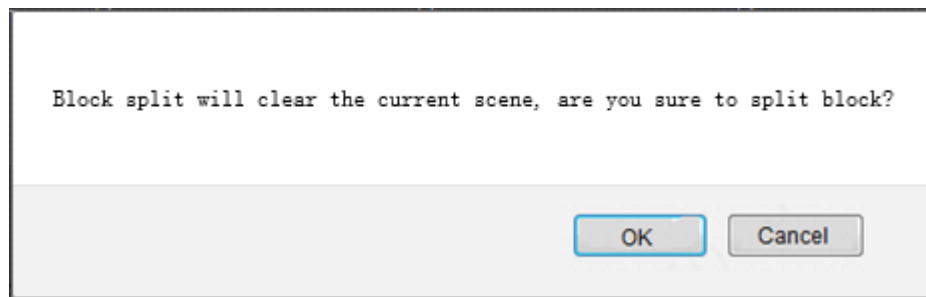


Figure 3-14

Step 4 Click “OK”.

The system displays split blocks, as shown in Figure 3-15.



Note

After splitting, the window is locked by default. To adjust window position and size, click



to unlock.

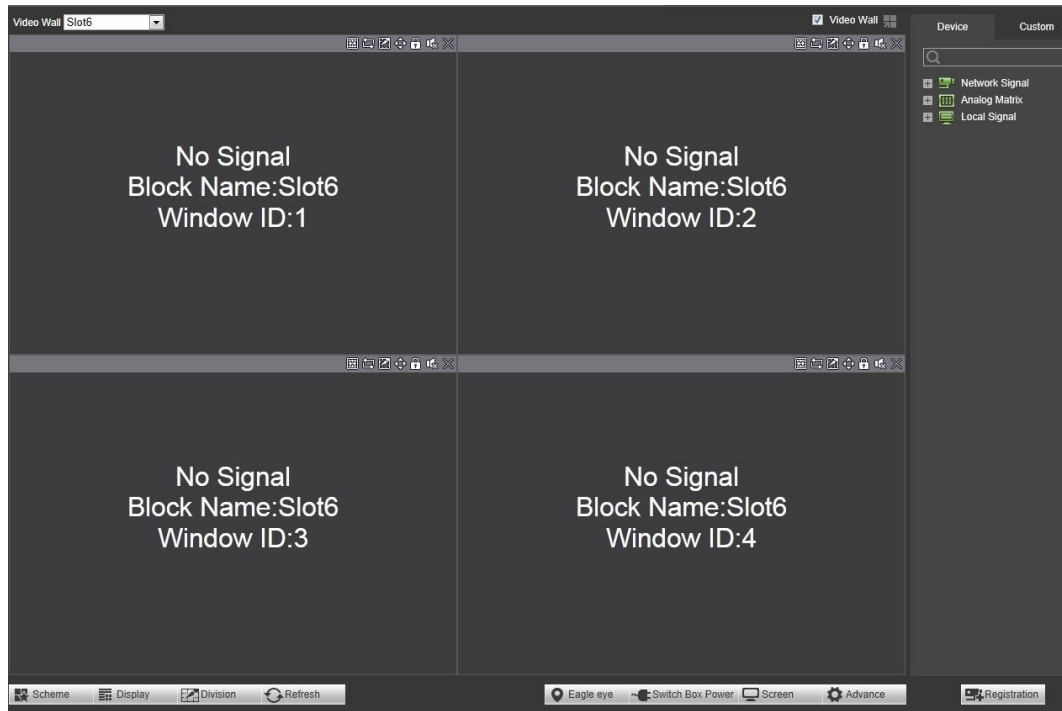


Figure 3-15

Window Split

Window split is to freely split the selected window, and multiple signals can be displayed in one window.

Step 1 Select signal window to be split.

 Note

It is suggested that four windows should not be split.

Step 2 Select “Division > Window”.

The system displays “Window” interface, as shown in Figure 3-16.

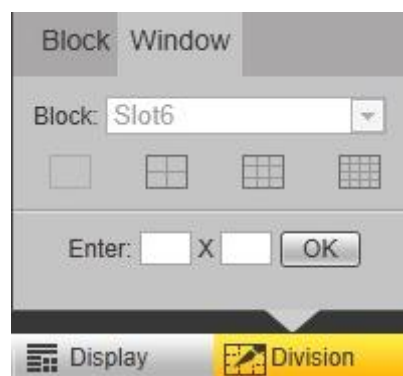


Figure 3-16

Step 3 Select fixed split , or manually input split number (for example, “3×3” means 9-split).

Step 4 Click “OK”.

The system displays split windows, as shown in Figure 3-17.



Note

After window split, original signal will be displayed in the first window, and other windows will display “No Signal”.

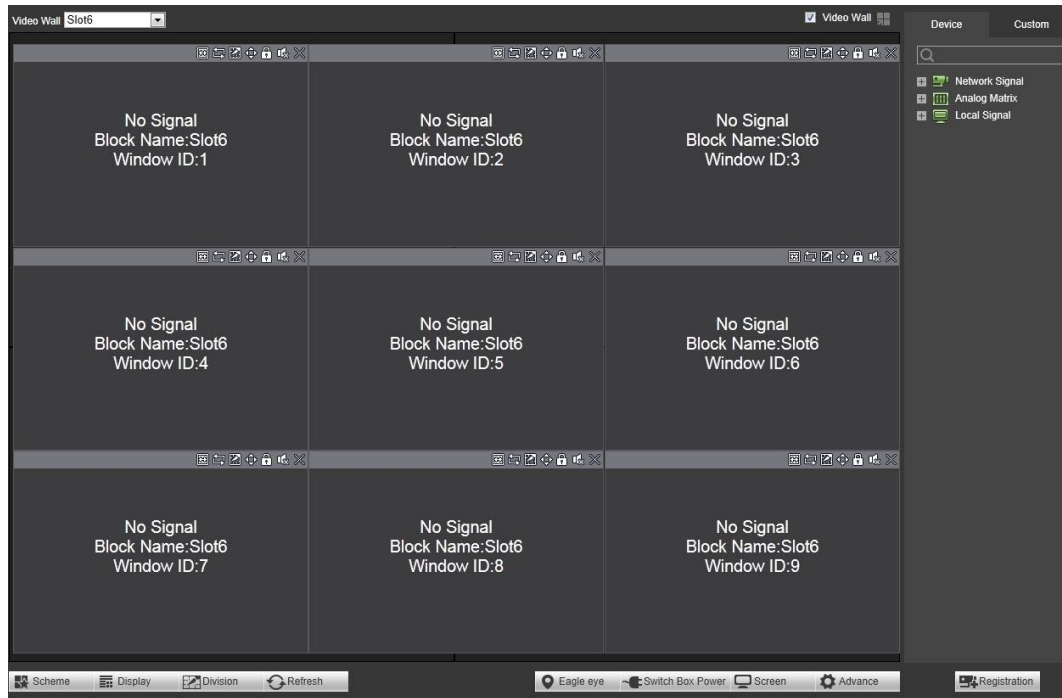
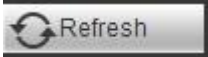


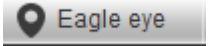
Figure 3-17

3.3.8 Refresh Video Wall

Click  to refresh video wall config.

3.3.9 Eagle Eye

Eagle eye, also known as eagle-eye map and thumbnails, adjusts display size and area of main WEB screen.

Click , and the system displays “Eagle Eye” interface, as shown in Figure 3-18.

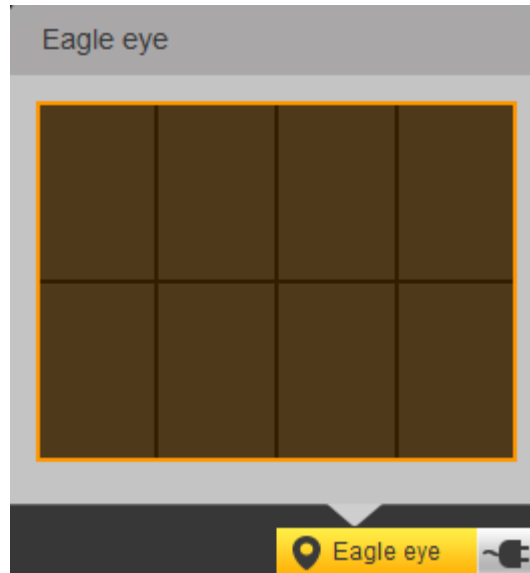


Figure 3-18

Adjust area frame size with the mouse, or zoom with mouse wheel, so as to change corresponding main window size. Drag area frame position in the eagle eye, to change corresponding main window area.

3.3.10 Switch Box Power

Connect the device with serial port line of switch box correctly as required, enable “Switch Box Power” function, so as to control its power of switch box.

Click  Switch Box Power, and the system displays “Switch Box Power” interface, as shown in Figure 3-19.

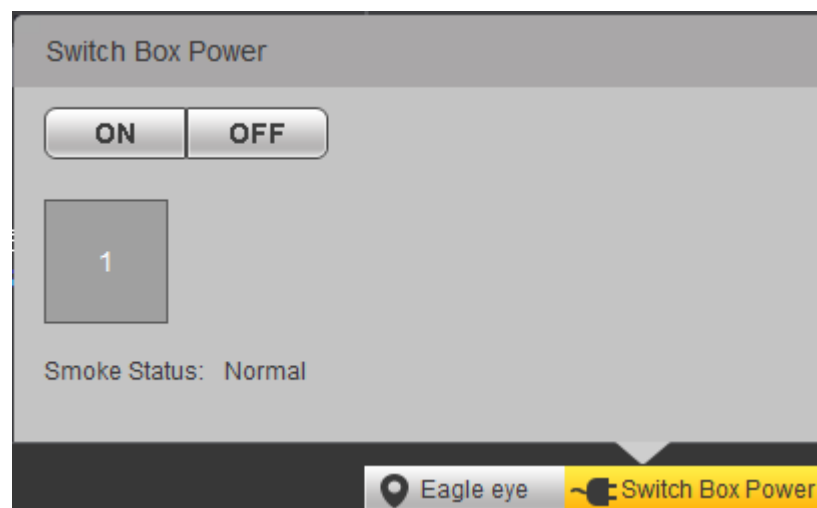


Figure 3-19

According to needs, set ON/OFF of single-channel switch box.

 Note

Max. 8-channel switch box can be controlled.

3.3.11 Screen

Manage the screen. For example, control screen power and LED power, set backlight mode, adjust screen parameters, select screen input port and set signal mode.

3.3.11.1 Screen Power

Connect the device and screen serial port as required, and control screen on/off.

Click  Screen to select “Screen Power” tab, as shown in Figure 3-20.

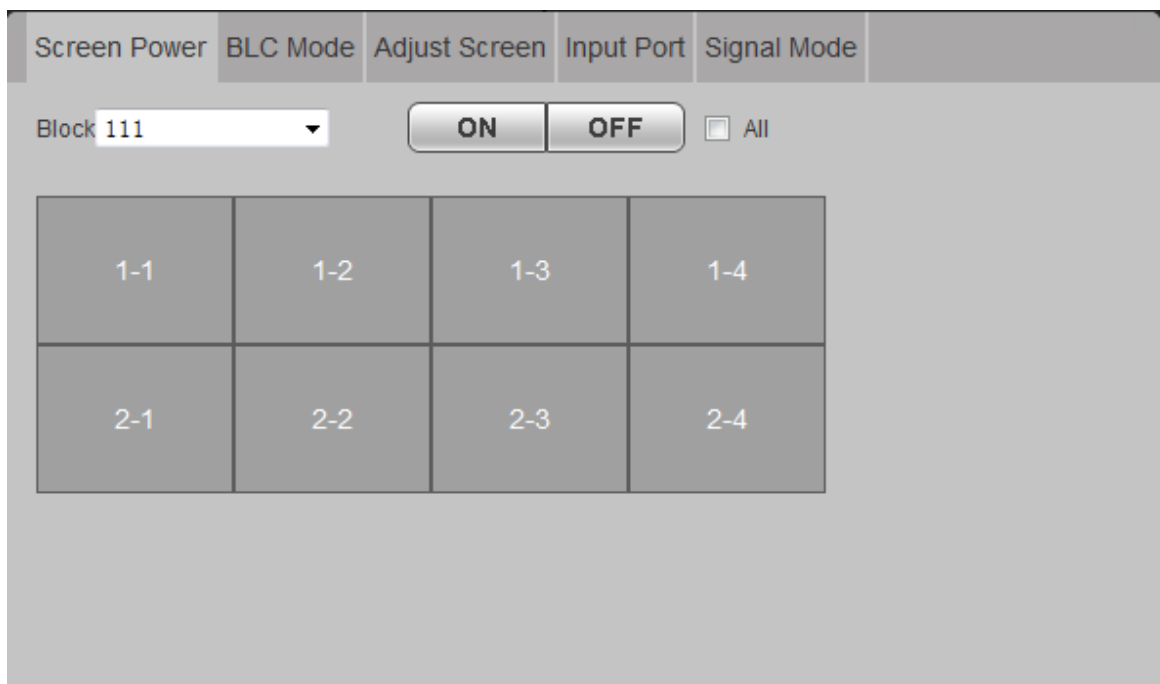


Figure 3-20

To turn on and off the screen, RJ-45 serial port line of control panel shall be connected as follows:

Wire no. 1 is RXD, no. 8 is TXD and no. 5 is GND.

Other cables are cut off:

- According to serial port wire sequence of LCD, no. 2 is RXD, no. 3 is TXD and no. 5 is grounding.
- In control serial port RJ45 of control panel of splicing controller, no. 1 is RXD, no. 8 is TXD and no. 5 is grounding, as shown in Figure 3-21.

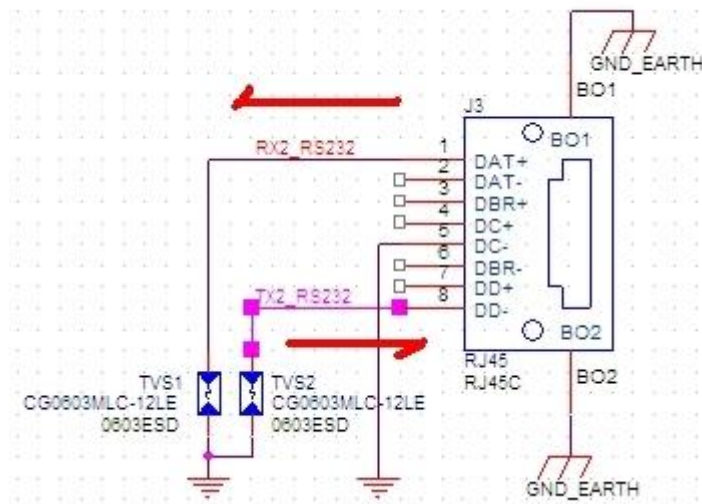


Figure 3-21

RXD no. 1 of splicing controller connects no. 3, TXD no. 8 connects no. 2, and no. 5 connects no. 5. That is to say, no. 1 of network cable connects no. 3, no. 8 connects no. 2, and no. 5 connects no. 5. Cut others. 18-end crystal head connects any one of 3 RJ45 ports of splicing controller, while the other end connects LCD.

After completing RJ-45 serial port wiring, control screen power as shown in Figure 3-22.

- In block dropdown list, select block to control.
- Select one or multiple screens on the block, click “ON” or “OFF” to turn on/off the screens.
- Tick “All” to select all screens.

3.3.11.2 LED Power Switch

Connect the device and LED screen serial port as required, and control LED screen on/off.

Select “LED Power Switch”, and the system displays Figure 3-22.

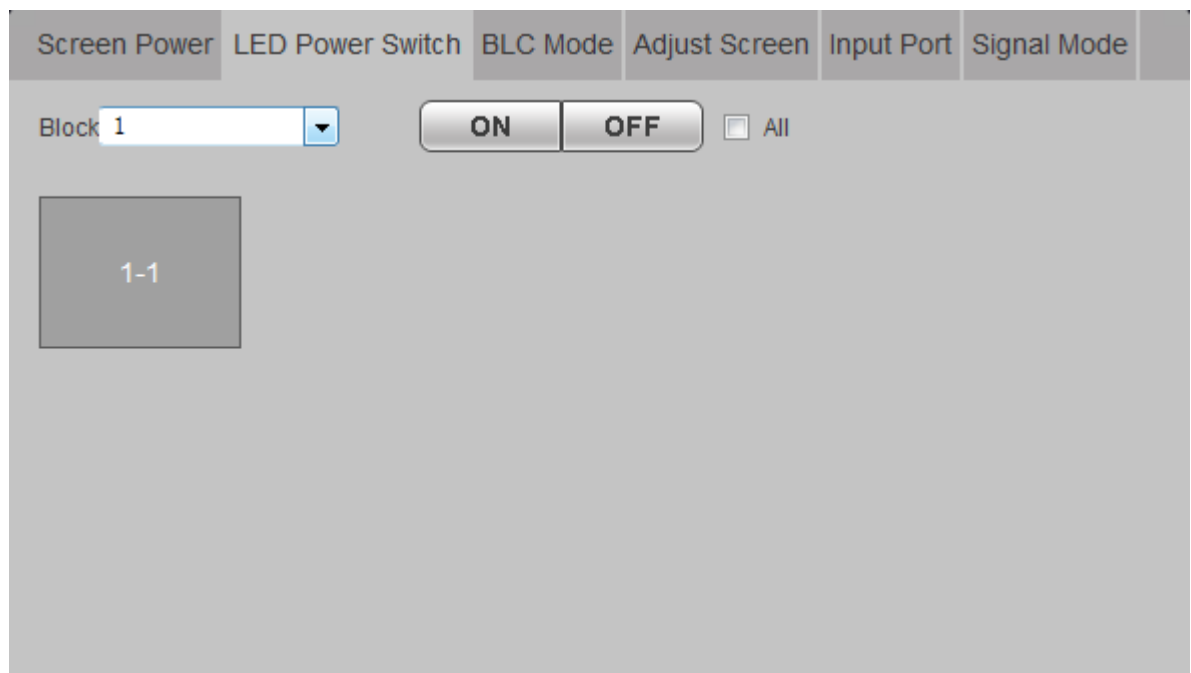


Figure 3-22

In block dropdown list, select block to control.

Select one or multiple screens on the block, click “ON” or “OFF” to turn on/off the screens.

 Note

- Tick “All” to select all screens.
- If screen type is “LED” and control protocol is “DH-LED-N”, video signal can be displayed on LED screen normally. “LED Power Switch” tab is displayed in “Screen”, so the system controls on/off status of LED screen power.

3.3.11.3 BLC Mode

Set screen backlight mode according to your need. The screen will emit backlight with different brightness, according to the selected saving mode, standard mode or highlight mode, so as to display more clearly.

 Note

- This function is available to specified screen type only.
- Available modes are different depending on screen config protocol. “Switch Mode” corresponds to “Standard Mode”. Please configure according to actual needs, since “Saving Mode”, “Standard Mode” and “Highlight Mode” correspond to backlight with different brightness.

Select “BLC Mode” tab, and the system displays Figure 3-23 and Figure 3-24.

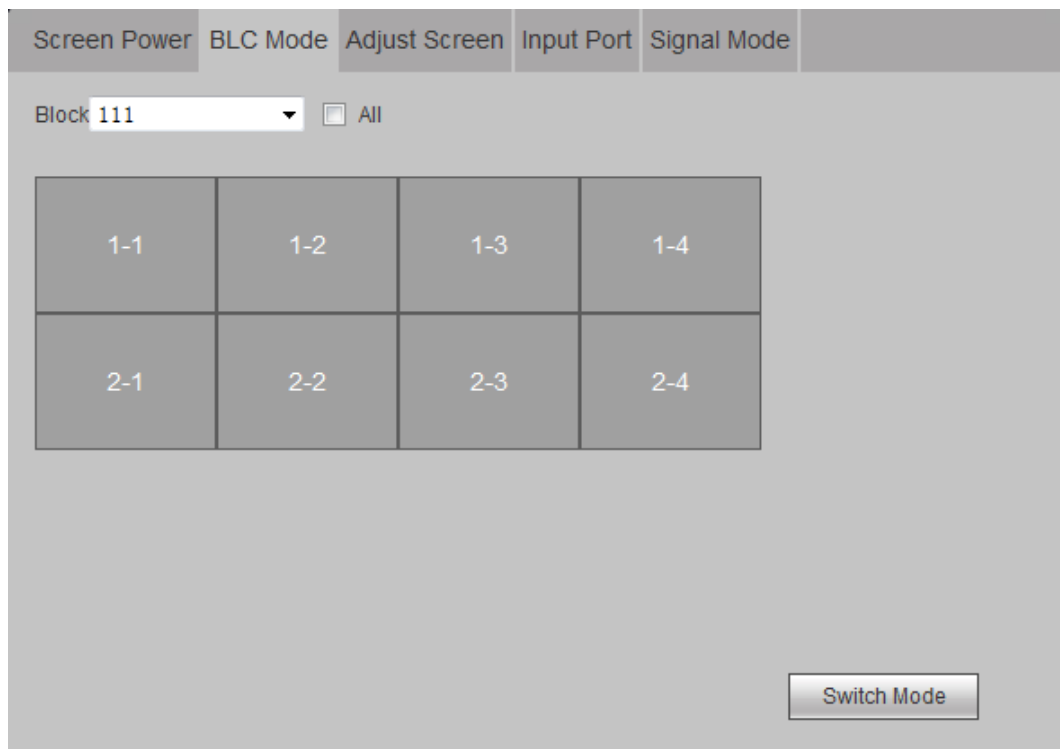


Figure 3-23

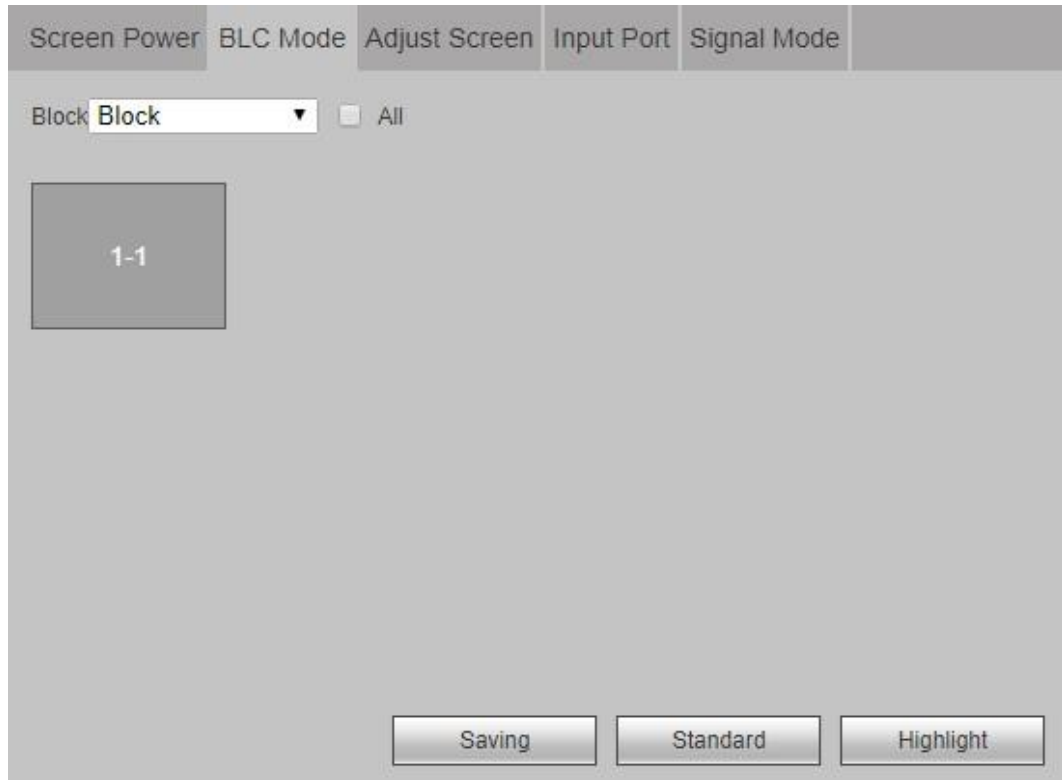


Figure 3-24

Select one or multiple screens; click the required mode.

 Note

Tick "All" to select all screens.

3.3.11.4 Adjust Screen

Set screen brightness, contrast and other parameters of DVI, VGA and video output signal. In case of LED screen, set LED screen brightness and color temperature; adjust screen display.

 Note

This function is available to specified screen type only. Available parameters are different depending on screen types.

Select "Adjust Screen" tab, and the system displays Figure 3-25 or Figure 3-26.



Figure 3-25

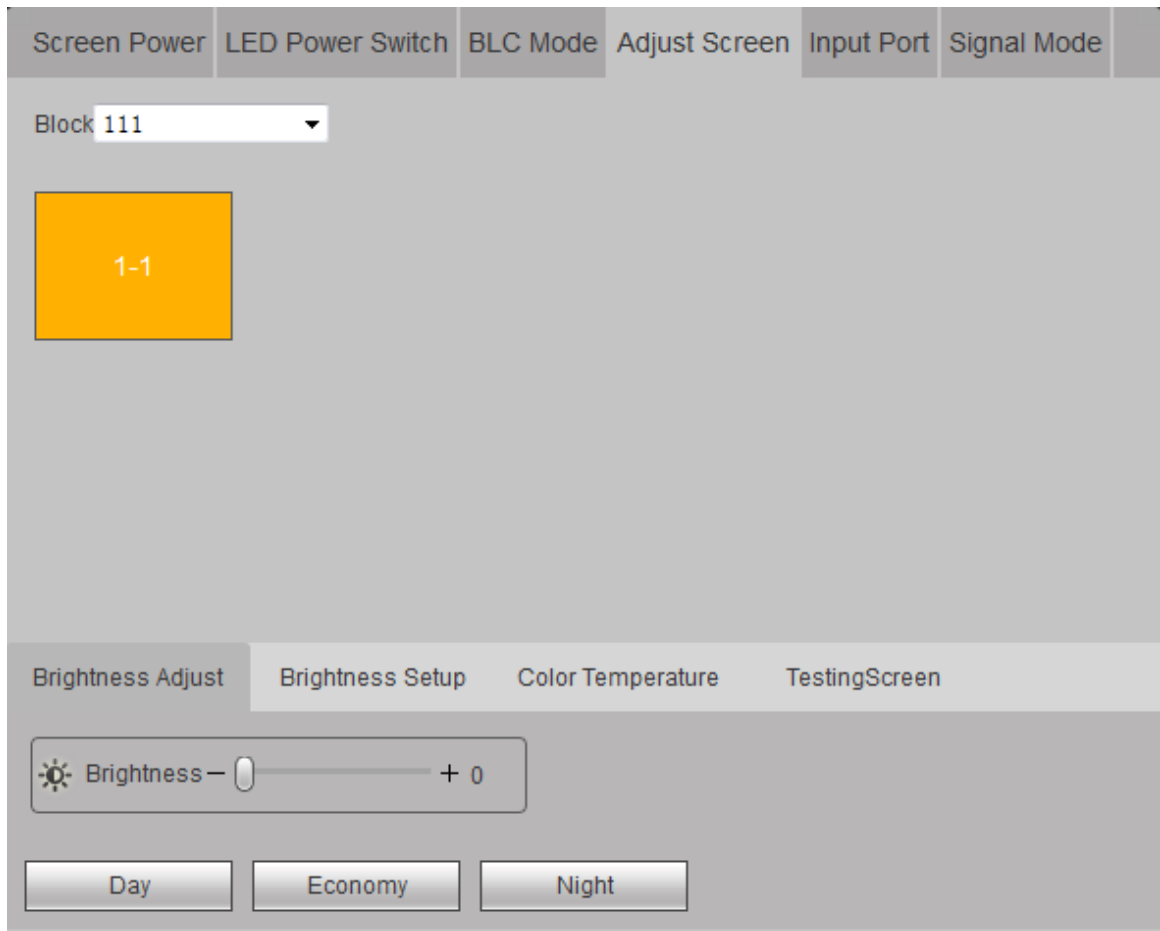


Figure 3-26

Please set screen display parameters according to actual conditions. Adjustable parameter types depend on specific hardware.

3.3.11.5 Input Port

Set input source signal type of the screen.

Select "Input Port" tab, and the system displays Figure 3-27.

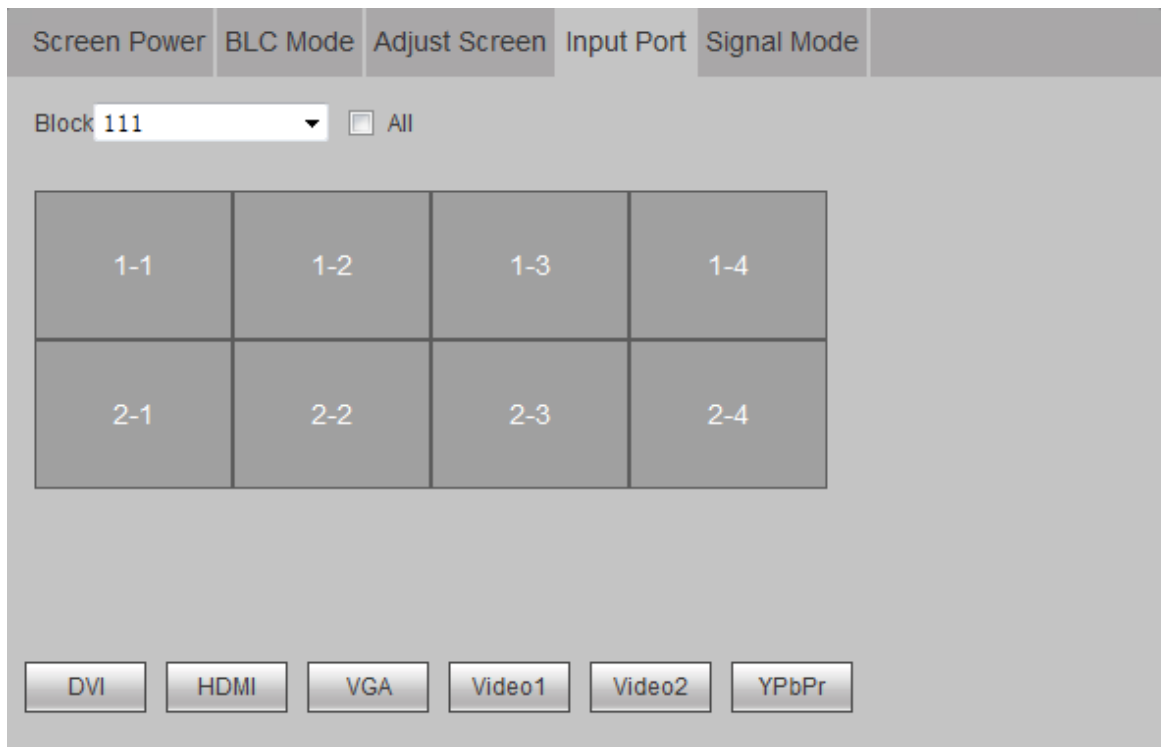


Figure 3-27

Select “DVI”, “HDMI”, “VGA”, “Video1”, “Video2” and “YPbPr” according to your need.

3.3.11.6 Signal Mode

According to your actual need, installation personnel enables signal mode for supplementary display. In some cases, the image achieves better synchronism in “Enhance” mode.



Note

This function is available to specified screen type only.

Select “Signal Mode” tab, and the system displays Figure 3-28.

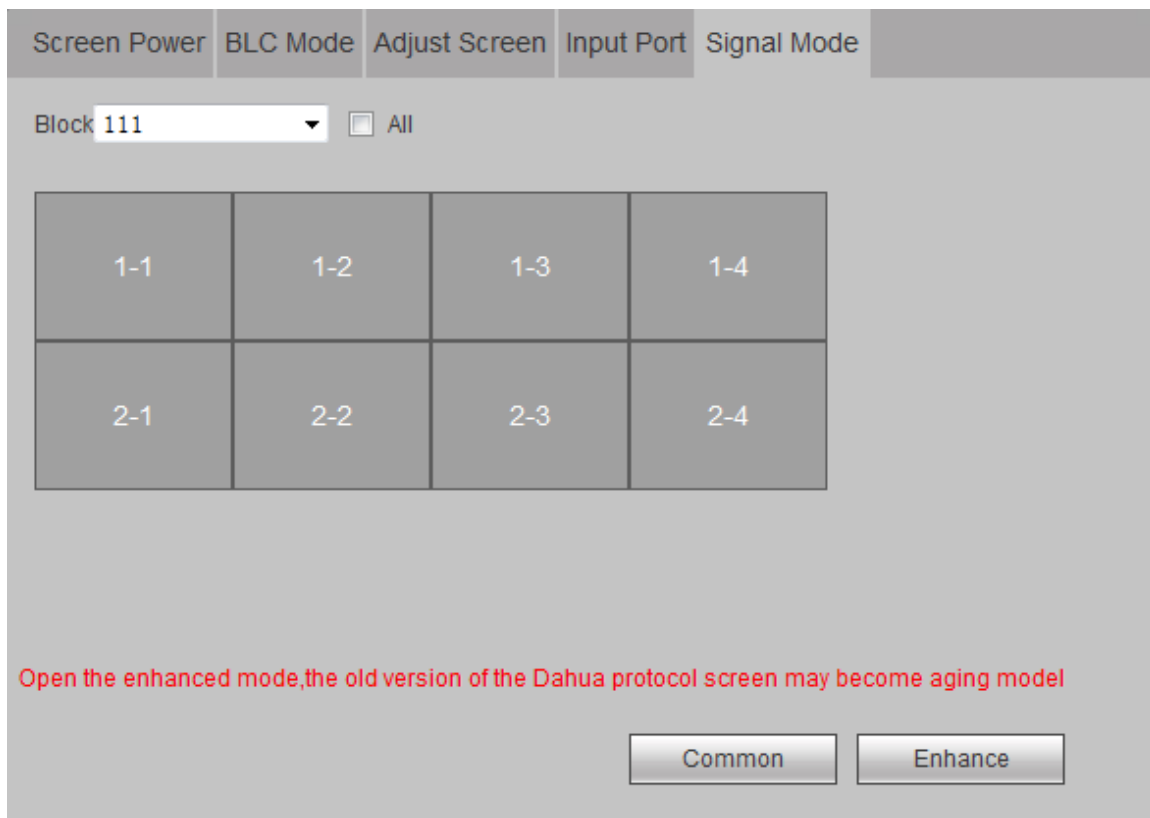


Figure 3-28

Select “Common” or “Enhance” according to actual conditions.



Note

Image effect is better in “Enhance” mode.

3.3.12 Advanced Function

Set advanced function. For example, control PTZ, configure virtual LED and OSD overlaying, set digital scale and decoding strategy, adjust signal parameter and display screen ID.

3.3.12.1 PTZ Control

PTZ control is to control direction (including up, down, left, right, upper left, lower left, upper right and lower right), focus, zoom and iris of PTZ device.



Note

- The device supports to control PTZ device through remote network or local RS485 serial port line.
- With local RS485 serial port line, please ensure device wiring is correct, and configure relevant parameters in “Parameter Setup” interface.

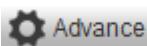
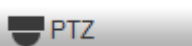
Select display window unit of the signal, click  > , and the system displays “PTZ Control” interface, as shown in Figure 3-29.



Figure 3-29

- In the dropdown list, select the step, select direction key with mouse, long press left mouse button to send corresponding action command. Release the mouse to stop controlling.
- The rightmost direction key can control PTZ menu.

3.3.12.2 Virtual LED

Customize and divide an area on video wall, input characters with any format, and realize scrolling LED on the screen.

Step 1 Click  Advance, and then click  LED, as shown in Figure 3-30.

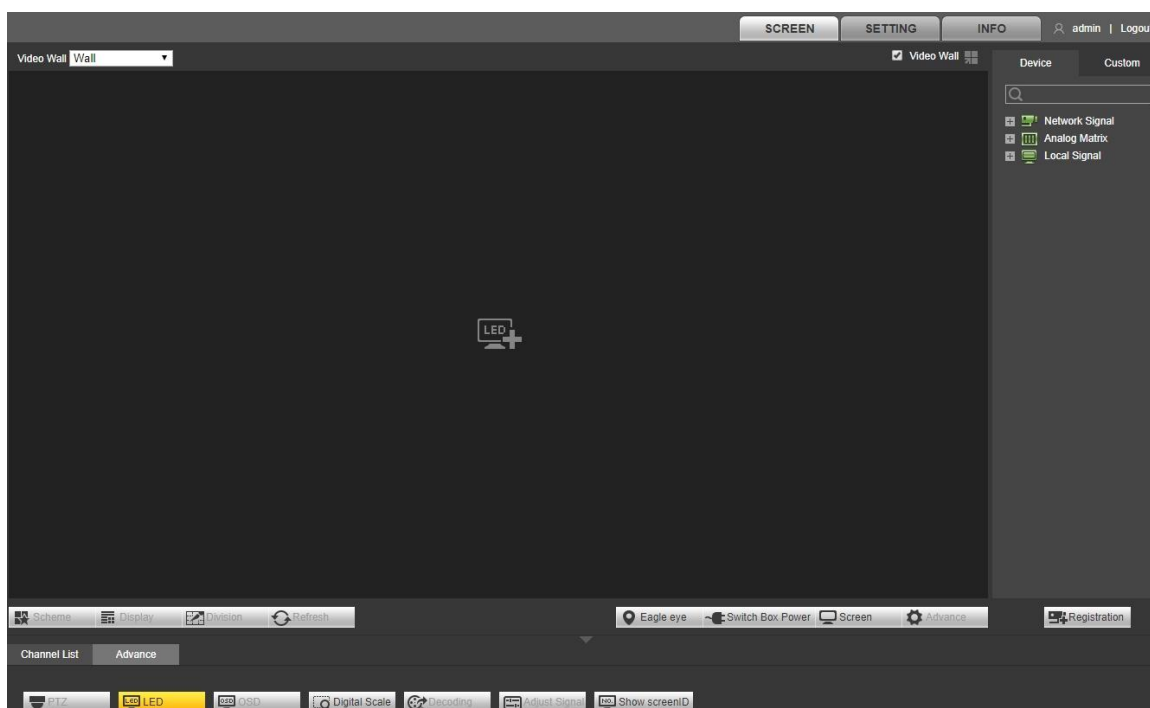


Figure 3-30

Step 2 Click .

The system displays “LED” interface, as shown in Figure 3-31.

Figure 3-31

Step 3 Configure parameters by reference to Table 3-2.

Parameter	Description
Title	Input the title of virtual LED, which will be displayed on video wall.
W/H	Input background width and height of virtual LED.
X/H	Input coordinate of virtual LED.
Transparence	Set transparence of virtual LED, ranging from 0 to 128.
Back Color	Set background color of virtual LED, input 6-digit RGB value manually or click color area to select.
Type	Set title type as "Text" or "Time".
Display Way	Set display way of virtual LED title as "Horizontal" or "Vertical".
Text Align	Set alignment of the title in the background as "Left", "Center" or "Right".
Roll Mode	Set roll mode of LED title on the screen, including "Left to right" or "Right to left".
Roll Speed	Set roll speed of LED title, ranging from 0 to 5.  Note It is static text when the speed is 0.
Font	Set font size of the title, ranging from 0 to 100.
Pitch	Set character pitch of the title, ranging from 0 to 5.
Font Type	Set font type of the title as "Simsun" or "FZHTFW".
Font Color	Set color of the title. Input 6-digit RGB value manually or click color area to select.
Enable	Select to display the title on video wall or not. - Tick the checkbox, click "OK" to save it, and the title will be displayed on video wall. - Cancel the selection, click "OK" to save it, and the title will be displayed on Web window, rather than on video wall.

Table 3-2

Step 4 Click “OK”.

Virtual LED displays title content, as shown in Figure 3-32

 Note

- Move the mouse onto virtual LED, hold left mouse button and move, so as to move virtual LED to any position.
- Click virtual LED, and drag control point of any direction, so as to change virtual LED size.

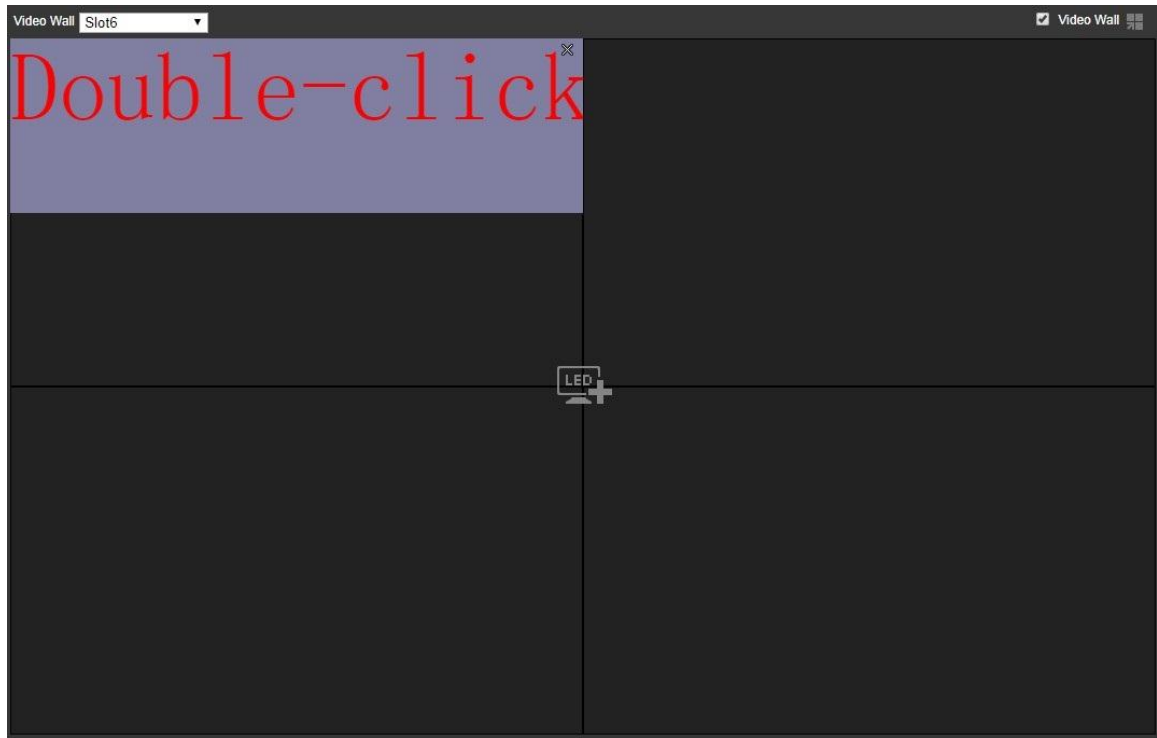


Figure 3-32

Step 5 Select “Virtual LED” tab of “Display”. The system displays Figure 3-33

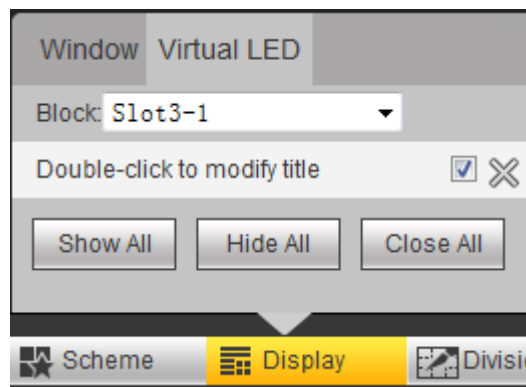


Figure 3-33

- Click “Show All” to show all virtual LEDs on video wall.
- Click “Hide All” to close all virtual LEDs on video wall.
- Click “Close All” to delete all virtual LEDs.
- Tick the checkbox to enable single virtual LED, or click “x” to delete single virtual LED.

3.3.12.3 OSD

Customize OSD overlaying effect of local signal; overlay time title, channel title and other info onto video image.

Step 1 Select local signal (rather than other signals) window, and click .

The system displays “OSD” interface, as shown in Figure 3-34.

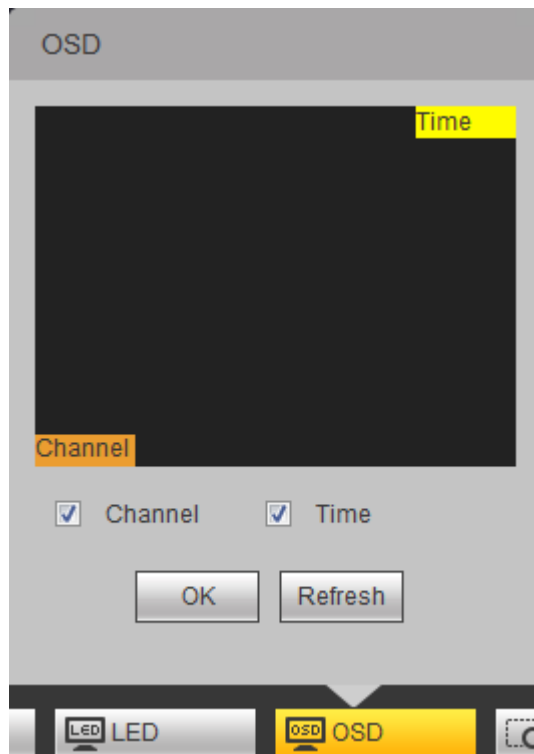


Figure 3-34

Step 2 Select channel title and time title according to actual needs; drag the title to any position.

Step 3 Click “OK” to complete

3.3.12.4 Digital Scale

Control the display area with mouse and mouse wheel; scale up the partial image of network signal and local signal on the video wall.

Step 1 Select display window unit of the signal, click .

The system displays “Digital Scale” interface, as shown in Figure 3-35.

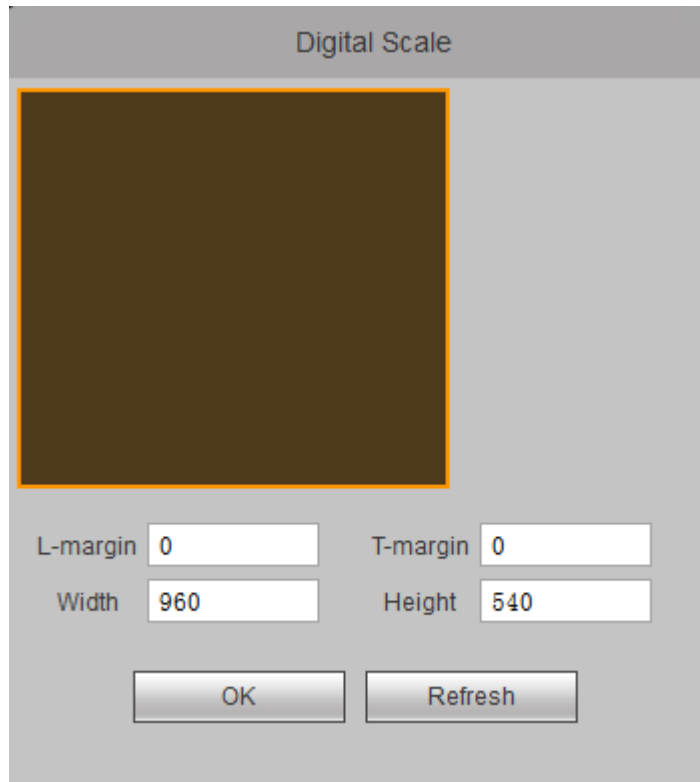


Figure 3-35

Step 2 According to need, adjust display position and size of any images cut on the window.

 Note

Multiple cut images can be spliced.

Step 3 Click “OK” to complete the settings.

3.3.12.5 Decoding

Adjust window image fluency by dragging the slider, and keep balance between decoding real-timeness and fluency (this function is available to network signal only).

Step 1 Select network signal window, click  Decoding .

The system displays “Decoding” interface, as shown in Figure 3-36.

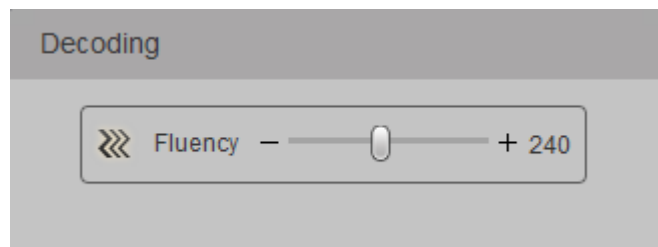


Figure 3-36

Step 2 Set fluency according to needs.

3.3.12.6 Adjust Signal

Adjust contrast, brightness, saturation, T-margin, B-margin, L-margin and R-margin of local signal (rather than other signals).

VGA, CVBS, DVI and HDCVI support this function. VGA and CVBS support “Auto Adjust” function, but DVI and HDCVI don’t support margin adjustment.

Select window unit of signal source, click  **Adjust Signal** and the system displays Figure 3-37 or Figure 3-38 according to different types.

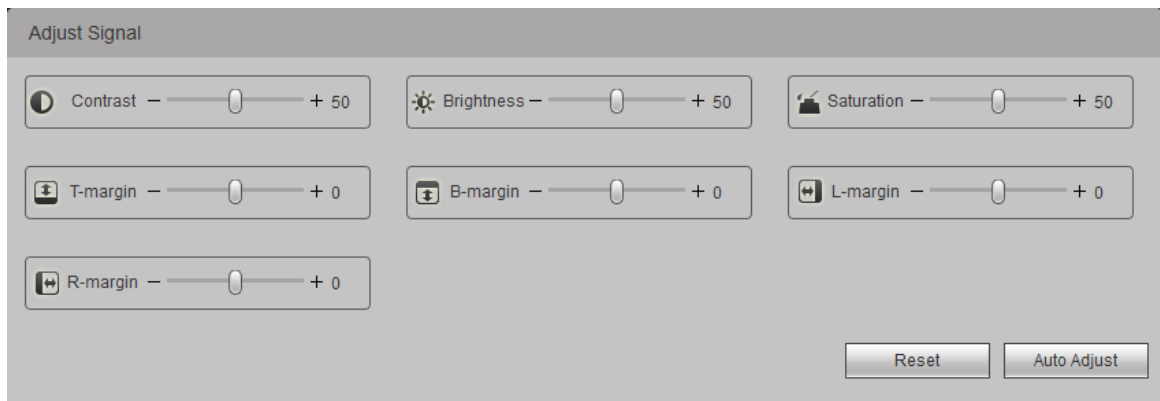


Figure 3-37

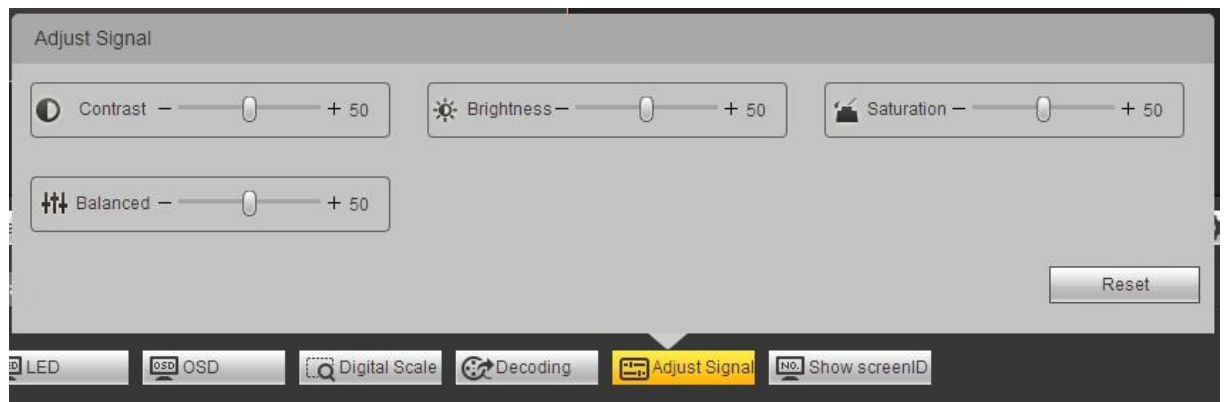


Figure 3-38

Contrast, brightness, saturation and balanced control range from 0 to 100. The margin adjustment ranges from -50 to 50.

3.3.12.7 Show Screen ID

Click  **Show screenID** to show screen ID on the video wall. Click it again to hide the screen ID.

3.4 Setting

In “Setting” tab, complete system setting, network setting, event management, signal management, display management and additional configuration.

3.4.1 System Setting

Set the system, including general setting, account management, default, import & export, auto maintenance, system upgrade, background picture, fan control, assistant tool and global setup.

3.4.1.1 General Setting

Set basic info about the device, including device info, system time and date format.

3.4.1.1.1 General Setting

Set the device name, number and other info.

Step 1 Select “Setting > Setting > General > General”.

The system displays “General” interface, as shown in Figure 3-39.

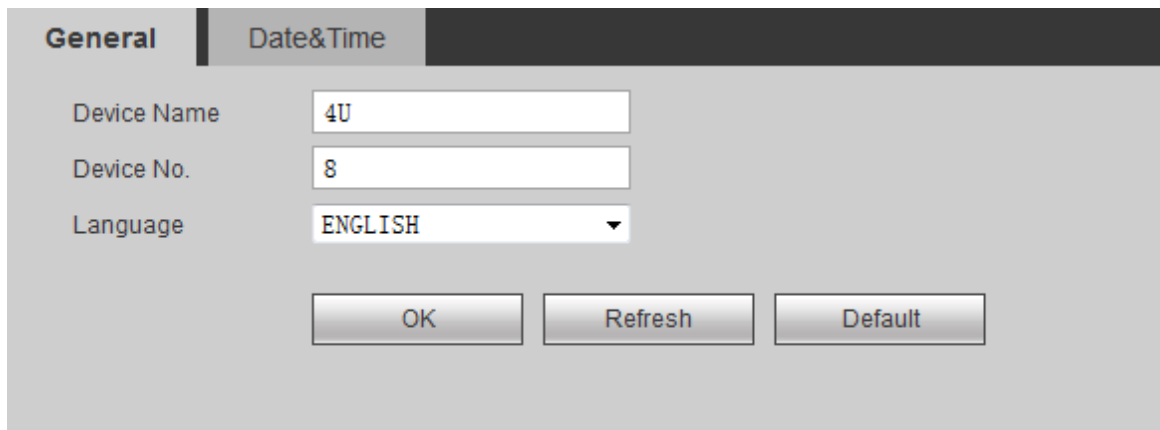


Figure 3-39

Step 2 Set “Device Name” and “Device No.”; select “Language”.

Step 3 Click “OK” to complete the setting.



The device will reboot automatically after changing the language.

3.4.1.1.2 Date & Time

Set system date of the device, and choose to enable NTP (Network Time Protocol) or not. After NTP is enabled, the device synchronizes time with NTP server automatically.

Step 1 Select “Setting > Setting > General > Date & Time”.

The system displays “Date & Time” interface, as shown in Figure 3-40.

Figure 3-40

Step 2 Configure parameters by reference to Table 3-3.

Parameter	Description
Data Format	Select date format in dropdown list.
Time Format	Select time format in dropdown list.
System Time	Set device system time. Click “Sync PC” to make time synchronize with PC.
DST	Tick “DST” to enable DST (daylight-saving time).
DST Type	Select DST type, including “Date” and “Week”.
Start Time/End Time	- If “DST Type” is “Date”, input year, month, day, start time and end time. - If “DST Type” is “Week”, select month, week, week, start and end time in the dropdown list.
NTP	Tick “NTP” to enable NTP sync function.
Time Zone	Select time zone.
Server	Input server address or domain name.
Port	Input NTP server port no.
Interval	Set update interval, as how often it shall sync with NTP server.

Table 3-3

Step 3 Click “OK” to complete the setting.

3.4.1.2 Account Management

Account management of this device adopts user and user group. Basic info about user and user group can be managed (only by those who have account management authority).

- Username and user group length cannot exceed 15 characters which only contain letter, number and underline.

- User password can be 8–32 non-null characters; it consists of at least 2 types among capital letters, small letters, numbers and symbols (except “”, “”, “”, “.” and “&”). User can modify password of his/her own and of others.
- By default, there are max. 63 users and 19 groups.
- Account management has two levels: user and group. Group name and user name cannot be repeated. One user can only belong to one group. .
- Currently logged in user cannot change his/her own authority.

During initialization, default user is admin, who is the default system administrator.

3.4.1.2.1 User

Manage user info. For example, add, modify and delete user; modify user password.

Select “Setting > Setting > Account > User”. The system displays “User” interface, as shown in Figure 3-41.

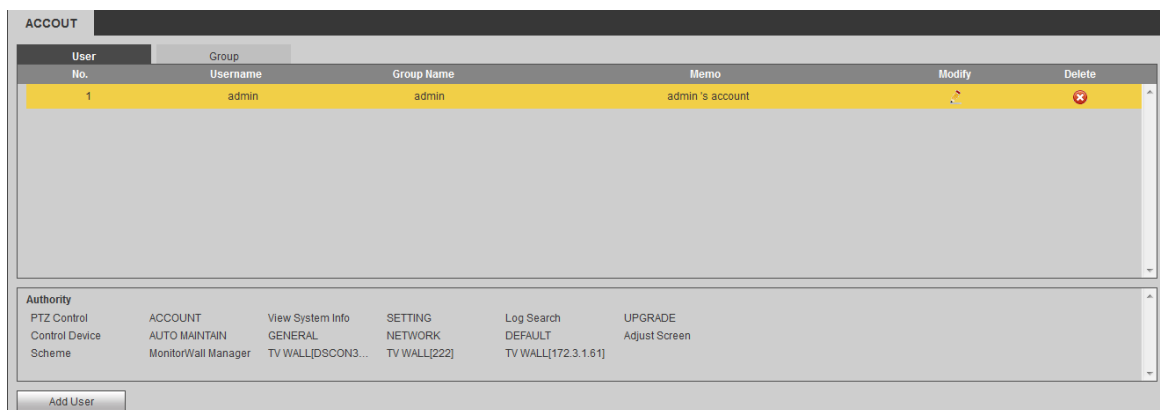


Figure 3-41

Add User

Add user to the group and set user authority.

“Admin” user with the highest authority in the system cannot be deleted.

Step 1 Click “Add User”.

The system displays “Add User” interface, as shown in Figure 3-42.

Add User

Username:

Password:

Low Middle High

Confirm Password:

Group: **admin**

Memo:

Authority

☒ All	☒ PTZ Control	☒ ACCOUNT	☒ View System Info*	☒ SETTING*
☒ Log Search	☒ GENERAL	☒ UPGRADE	☒ Control Device	☒ AUTO MAINTAIN
☒ Scheme	☒ NETWORK	☒ MonitorWall Manager	☒ DEFAULT	☒ Adjust Screen
☒ TV WALL[172.3.1.61]	☒ TV WALL[DSCON3000]	☒ TV WALL[222]		

Note: item with '*' is parent directory.

OK Cancel

Figure 3-42

Step 2 Input “Username”, “Password” and “Confirm Password”, select “Group” and fill in “Memo”.

Note

- Once a user selects a group, user authority can only be a subset of the group, and cannot go beyond authority property of the group.
- To facilitate user management, it is recommended that general user’s authority should be lower than advanced user’s authority.

Step 3 In “Authority”, select the user’s authority to operate the system.

Tick the checkbox to enable this function.

Tick “All” to select all authorities.

Select TV walls, so the user has the authority to operate the TV walls. Max. 16 TV walls can be selected.

Step 4 Click “OK” to complete adding user.

Modify User

Step 1 Click corresponding to the user that shall be modified.

The system pops up “Modify User” interface, as shown in Figure 3-43.

Figure 3-43

Step 2 Modify user info according to actual needs.

Step 3 Click “OK” to put configurations into effect.

Modify Password

Step 1 Tick “Modify Password”.

Step 2 Input the old password, new password and confirm password.

Step 3 Click “Save”.

Delete User

Click  corresponding to the user that shall be deleted, so as to delete the user.

3.4.1.2.2 Account

In the entire network, user authority may be different. Users with the same authority can be classified as one group, in order to facilitate user info maintenance and management. Add, delete groups and modify group password.

Select “Setting > General > Account > Group”. The system displays “Group” interface, as shown in Figure 3-44. Add, delete groups and modify group password. Please refer to “3.4.1.2.1 User” for details.

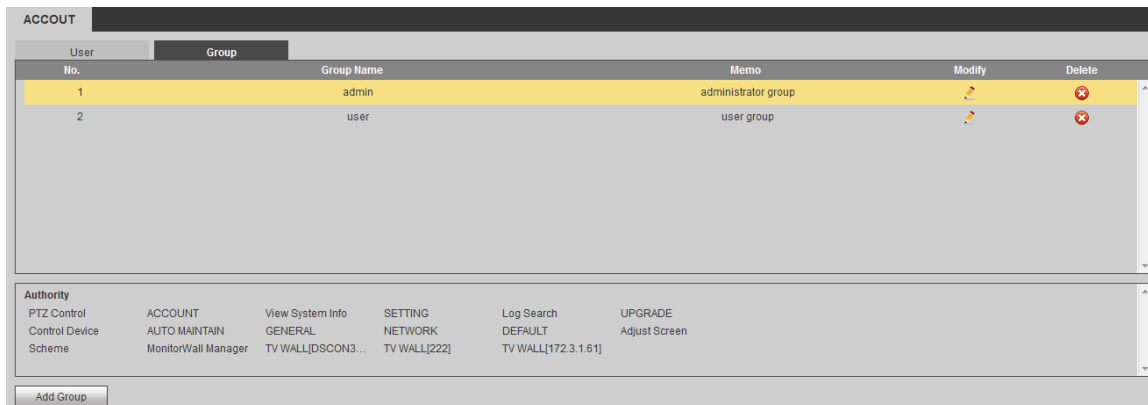


Figure 3-44

3.4.1.3 Default

In case of abnormal operation and configuration error of the device, try to solve problems by restoring defaults. The system will restore default factory settings. Please select specific items according to actual conditions.

Step 1 Select “Setting > Setting > Default”.

The system displays “Default” interface, as shown in Figure 3-45.

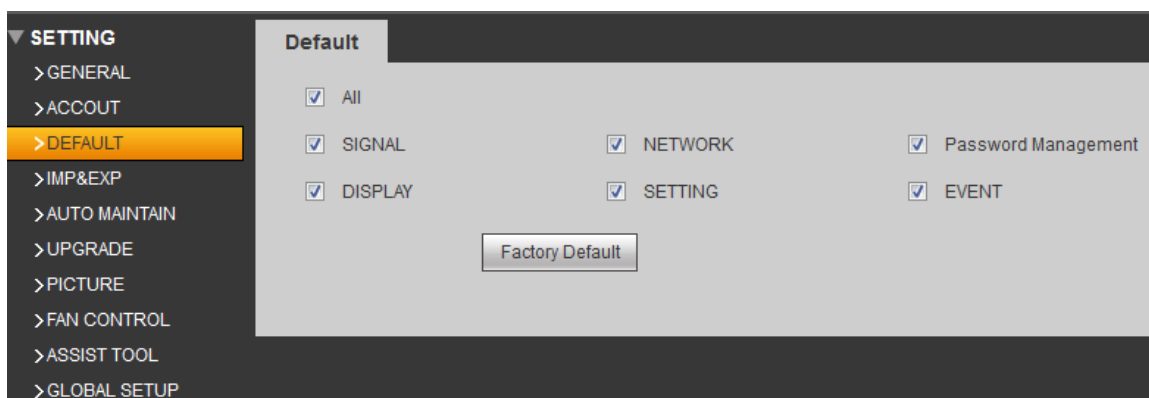


Figure 3-45

Step 2 Select the parameter items that shall be restored default settings.

- Tick the checkbox, meaning this parameter shall restore factory default settings.
- Tick “All” to select all items.
- After selecting “Network”, IP address will be restored to default IP (192.168.1.108). Please be careful.

Step 3 Click “Factory Default”. Pop up a prompt dialog box.

Step 4 Click “OK” to restore default settings.

After restoration, the device will reboot automatically and go to WEB login interface.

3.4.1.4 Import & Export

Export config file to computer or USB device for backup. When the device goes wrong or needs to restore the config environment, import the config file to restore config quickly.

Select “Setting > Setting > IMP & EXP”. The system displays “IMP & EXP” interface, as shown in Figure 3-46.

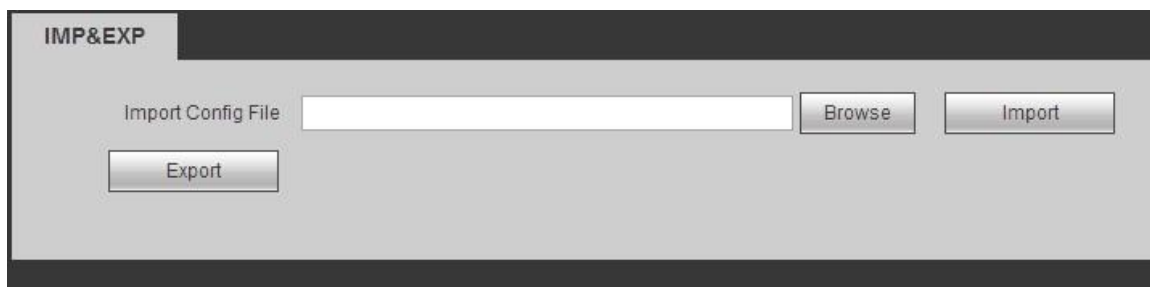


Figure 3-46

- Click “Browse” to select config file, and click “Import” to import config file.



The device will reboot automatically after successful import.

- Click “Export” and select storage path to export config file.

3.4.1.5 Auto Maintain

Carry out maintenance of the system, including reboot, shutdown and auto reboot.

Select “Setting > Setting > Auto Maintain”. The system displays “Auto Maintain” interface, as shown in Figure 3-47.

- For manual reboot, click “Reboot”, and the system will be rebooted immediately.
- Click “Shutdown”, and the system will be shut down immediately.
- Select “Auto Reboot”, set week and time, and then click “OK”.
- SSH is used by technicians to open background debugging port.

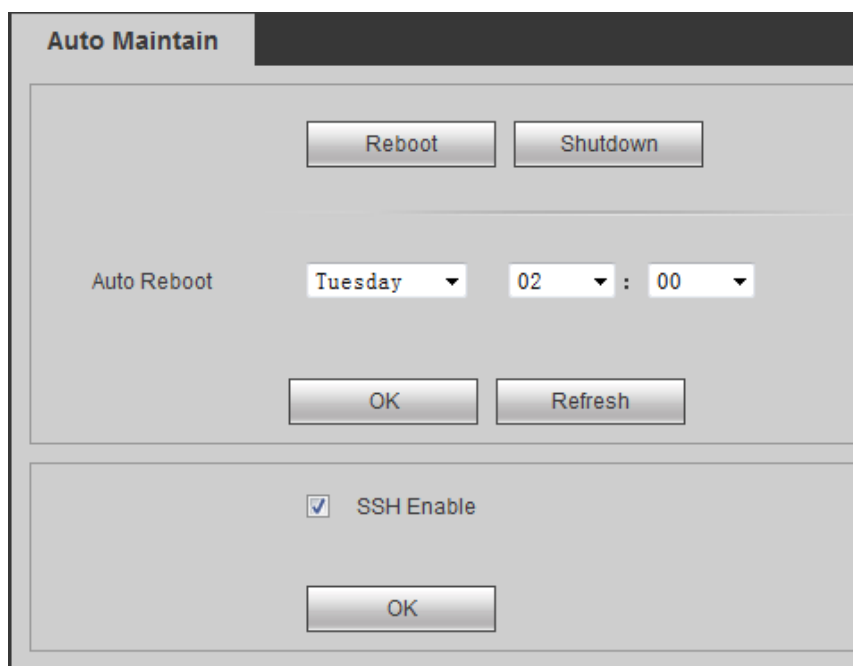


Figure 3-47

3.4.1.6 System Upgrade

Copy upgrade file to a computer which has logged into WEB interface. Import the upgrade file to upgrade the system version.



Caution

- Please use the correct upgrade package, otherwise the upgrading may fail. The file format is .bin, such as General_DSC3000_Chn_UPDATE_SDA1_MIN_FPGA_V2.615.0000.1.R.160718.BIN.

- If upgrading fails, please reboot device and then select the correct upgrading package.

Step 1 Select “Setting > Setting > Upgrade”.

The system displays “Upgrade” interface, as shown in Figure 3-48.

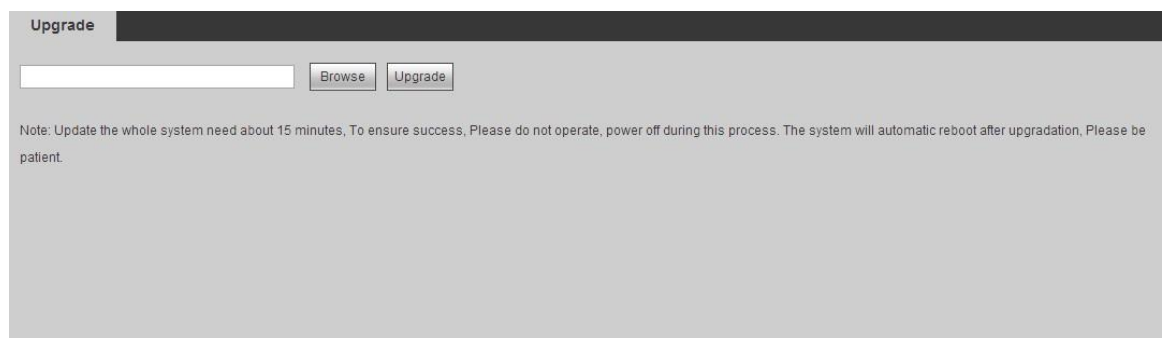


Figure 3-48

Step 2 Click “Browse” and select upgrade file.

Step 3 Click “Upgrade” to upgrade the device. A progress bar will show the upgrade process.

According to system prompt, when upgrade file has been successfully uploaded, the device will automatically reboot. Please do not power off the device and be patient until reboot is completed.

3.4.1.7 Background Picture

Upload a background picture to the system and set it to be screen background.

Step 1 Select “Setting > Setting > Picture”.

The system displays “Picture” interface, as shown in Figure 3-49.

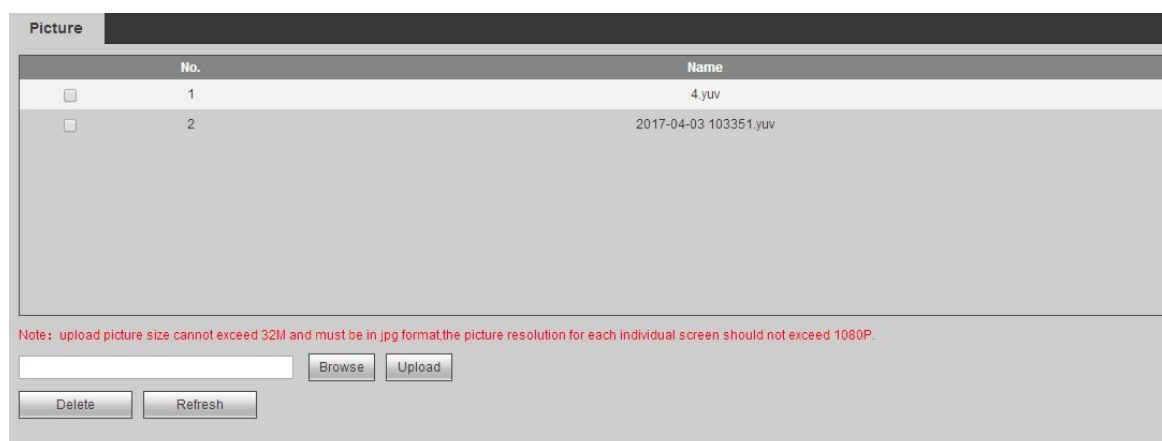


Figure 3-49

Step 2 Click “Browse” and select local picture.

Step 3 Click “Upload” to upload the local picture to the controller.

 Note

- Max. 10 background pictures can be uploaded.
- Click “Delete” to delete an undesired picture.
- After background picture is successfully uploaded, select pictures in video wall setup.
Please refer to “3.4.5.1 Video Wall” for details.

3.4.1.8 Fan Control

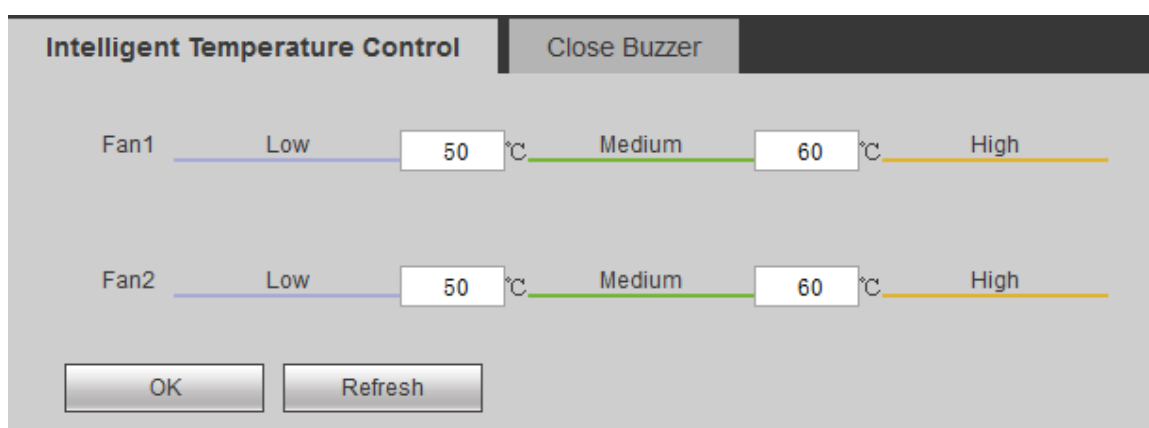
Set intelligent temperature control and buzzer of the system.

3.4.1.8.1 Intelligent Temperature Control

Set different temperature ranges according to fan speed, in order to trigger different fan speed levels.

Step 1 Select “Setting > Setting > Fan Control > Intelligent Temperature Control”.

The system displays “Intelligent Temperature Control”, as shown in Figure 3-50.



Fan	Low	Medium	High
Fan1	50 °C	60 °C	
Fan2	50 °C	60 °C	

Figure 3-50

Step 2 Set temperature.



Fan speed includes three levels: high speed, medium speed and low speed. Different temperature ranges trigger different fan speeds.

Step 3 Click “OK” to complete the settings.

3.4.1.8.2 Close Buzzer

Set to close the buzzer and set alarm time. In case of alarm, the system sends buzzing sound to alarm.

Step 1 Select “Setting > Setting > Fan Control > Close Buzzer”.

The system displays “Close Buzzer”, as shown in Figure 3-51.

The interface has a title bar with 'Intelligent Temperature Control' and 'Close Buzzer'. Below the title bar, there is a 'Time Setup' label followed by a text input field containing '120' and a range '(0~600s)'. A red notice states: 'Notice:Set to 0, then delay off function is disabled.' At the bottom, there are two buttons: 'OK' and 'Close Buzzer'.

Figure 3-51

Step 2 Set buzzer closing delay time, with the range of 0s–600s.

Step 3 Click “OK” to complete the settings.



- When the time is set to be 0, the delay off function is disabled, and the system will buzz all the time.
- Click “Close Buzzer” to disable the buzzer alarm function.

3.4.1.9 Assistant Tool

Network sniffer means to intercept, retransmit, edit and dump the data packages sent and received through network, in order to check network security.

In case of network failure, execute network sniffer at the interface, download the sniffer file to local device, and provide it to technical support personnel to analyze network status.

Step 1 Select “Setting > Setting > Assist Tool”.

The system displays “Network Sniffer”, as shown in Figure 3-52.

The interface is titled 'Network Sniffer'. It contains four configuration fields: 'Ethernet' (dropdown menu showing 'Net Card Bind'), 'IP Address' (text input field), 'Protocol' (dropdown menu showing 'All'), and 'Port' (text input field). A 'Start Sniffer' button is located to the right of the 'Port' field. Below these fields is a table with columns: 'Name', 'Size', 'Type', 'Download', 'Rename', and 'Delete'. The table body is currently empty.

Figure 3-52

Step 2 Set “Ethernet”, “IP Address”, “Protocol” and “Port”, and click “Start Sniffer”.

Step 3 Click “Stop Sniffer” after a while.

The system displays the sniffed data packets, as shown in Figure 3-53.

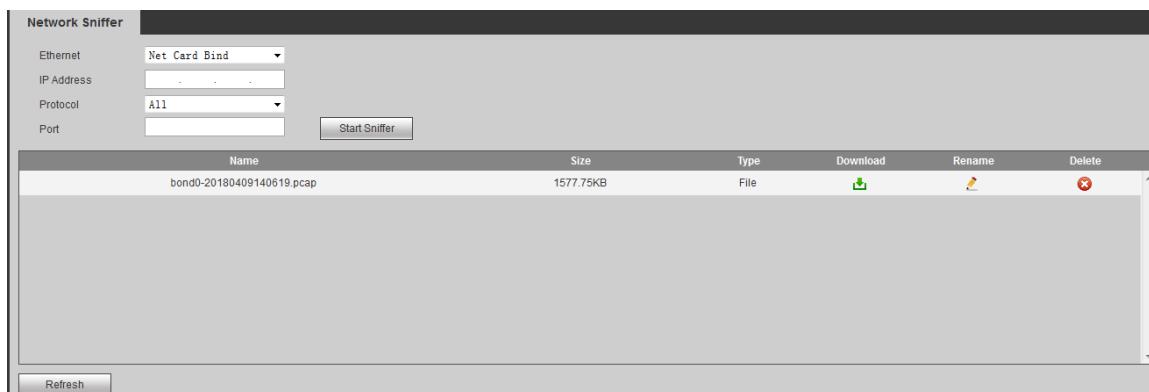


Figure 3-53



- Click to download the file.
- Click to rename the file.
- Click to delete the file.

3.4.1.10 Global Setup

Enable global setup or not, including “HDMI Dec Platform Netcard Pull Stream”, “HDMI Dec Device Netcard Pull Stream” and “IVS Rule”.

- HDMI Dec Platform Netcard Pull Stream/HDMI Dec Device Netcard Pull Stream: After it is enabled, HDMI decoding card platform or device supports to pull stream from netcard, and thus alleviates internal storage pressure resulting from pulling stream from master control.
- IVS Rule/Tracking Box: After it is enabled, the camera enables smart frame rule and tracking box function. And embedded multi-screen controller background enables display function, so the system selects a moving object with a green frame and tracks it. When the object triggers alarm zone limited by blue rule line, the rule line turns red and flickers.
- Adjust Win Rect Enable: After it is enabled, if window pixel is very small on a physical screen, the window and adjacent windows will automatically align with borders of physical screen, in order to prevent blue seams.

Step 1 Select “Setting > Setting > Global Setup”.

The system displays “Global Setup” interface, as shown in Figure 3-54.

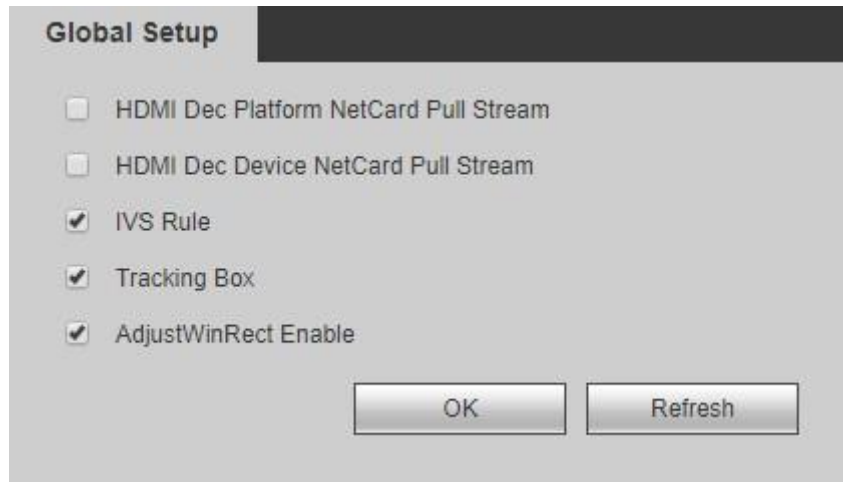


Figure 3-54

Step 2 Select the functions you want to enable.

Step 3 Click “OK” to complete the settings.

3.4.2 Network Setting

Set network parameters of the device, and ensure that the device can communicate with other devices in the network.

3.4.2.1 TCP/IP

3.4.2.1.1 TCP/IP

According to network planning, set IP address and DNS server info etc. of the device.

 Note

Before you set network, make sure that the devices have been correctly connected to the network.

- If there is no router device, please assign IP address of the same segment.
- If there is router in the network, set corresponding gateway and subnet mask.

Step 1 Select “Setting > Network > TCP/IP > TCP/IP”.

The system displays “TCP/IP” interface, as shown in Figure 3-55.

TCP/IP

Port

HTTPS

Network Mode

Fault-tolerance

Ethernet Card

Net Card Bind

Mode

☒ Static
☐ DHCP

IP Version

IPv4

IP Address

172 . 3 . 3 . 211

Subnet Mask

255 . 255 . 0 . 0

Default Gateway

172 . 3 . 0 . 1

Preferred DNS Server

0 . 0 . 0 . 0

Alternate DNS Server

0 . 0 . 0 . 0

MAC Address

Card 1

e0 . 50 . 8b . e6 . 19 . 81

Card 2

e0 . 50 . 8b . e6 . 19 . 81

OK

Refresh

Default

Figure 3-55

Step 2 Configure parameters by reference to Table 3-4.

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

Parameter	Description
Network Mode	Configure network mode as follows: • Multi-address Both Ethernet cards are used independently; Ethernet card 1 or Ethernet card 2 can request HTTP and RTSP etc. service provided by the device. It is necessary to set a default Ethernet card (which is Ethernet card 1 by default), in order to request network service initiated by DHCP, Email and FTP terminals. It is deemed that the network is disconnected if one Ethernet card is disconnected during network status check. • Fault tolerance All Ethernet cards use one IP address, and only one Ethernet card works under normal conditions. If working Ethernet card breaks down, the other Ethernet card is enabled automatically to ensure smooth network. It is deemed that the network is disconnected only when both Ethernet cards are disconnected during network status check. Both Ethernet cards need to be in the same LAN. • Load balance All Ethernet cards use one IP address, and all of them work together to bear network load; the bound network throughputs are basically the same. If one Ethernet card breaks down, the other Ethernet card works normally. It is deemed that the network is disconnected only when both Ethernet cards are disconnected during network status check. Both Ethernet cards need to be in the same LAN.
Ethernet Card	Default card binding.
Mode	• Select static mode, you need to manually set IP, subnet mask and default gateway. • Select DHCP mode and it will search IP automatically.
IP Version	Select IPv4.
IP Address	IP address of the device.
Subnet Mask	Please fill in subnet mask according to IP address of the device.
Default Gateway	Please fill in default gateway according to IP address of the device.
Preferred DNS Server	Please fill in IP address of preferred DNS server.
Alternate DNS Server	Please fill in IP address of alternate DNS server.

Table 3-4

Step 3 Click “OK” to complete the setting.

3.4.2.1.2 Port

Set the max. connection and port number to visit embedded multi-screen controller through client (including WEB client and PC client) simultaneously.

Step 1 Select “Setting > Network > TCP/IP > Port”.

The system displays “Port” interface, as shown in Figure 3-56.

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		

Figure 3-56

Step 2 Configure every port value by reference to Table 3-5.

Parameter	Description
Max. Connection	Quantity of clients that are allowed to login simultaneously (such as WEB client, platform client and mobile phone client etc.). It ranges from 1 to 128 and default value is 128.
TCP Port	Communication service port of TCP protocol, to be set according to the user's actual needs. Default TCP port is 37777.
UDP Port	The user's data package protocol port, to be set according to the user's actual needs. Default UDP port is 37778.
HTTP Port	HTTP communication port, to be set according to the user's actual needs. Default HTTP port is 80. If other value is set, please add port number to the address during login with browser.

Table 3-5



Note

Except "Max. Connection", modification of other parameters will take effect after reboot.

Step 3 Click "OK" to complete the setting.

3.4.2.1.3 HTTPS

At HTTPS setting interface, create server certificate or download root certificate and set port number, so PC is able to login through HTTPS. In this way, ensure communication data security; guarantee user info and device security with reliable stable technology.

Step 1 Select "Setting > Network > TCP/IP > HTTPS".

The system displays "HTTPS" interface, as shown in Figure 3-57.

TCP/IP	Port	HTTPS
☐ Enable Https		
Https Port	443	(128~65535)
OK Refresh		
Create Server Certificate Download Root Certificate		

Figure 3-57

Step 2 Tick “Enable Https” and enter “Https Port”. Default port is 443.

Step 3 Click “OK” to save the settings.

 Note

- If you use this function for the first time or change device IP, execute “Create Server Certificate” again.
- If you use HTTPS for the first time after changing computer, execute “Download Root Certificate” again.

3.4.2.2 IP Filter

Set IP host (IP host refers to a device with IP address) that visits embedded multi-screen controller. After setting, enable “Trusted Sites”, and only designated IP host in “Trusted Sites” can login WEB interface successfully. Enable “Blocked Sites”, and IP host in “Blocked Sites” fails to login WEB interface, in order to strengthen network and data security of the device.

Step 1 Select “Setting > Network > IP Filter”.

The system displays “IP Filter” interface, as shown in Figure 3-58.

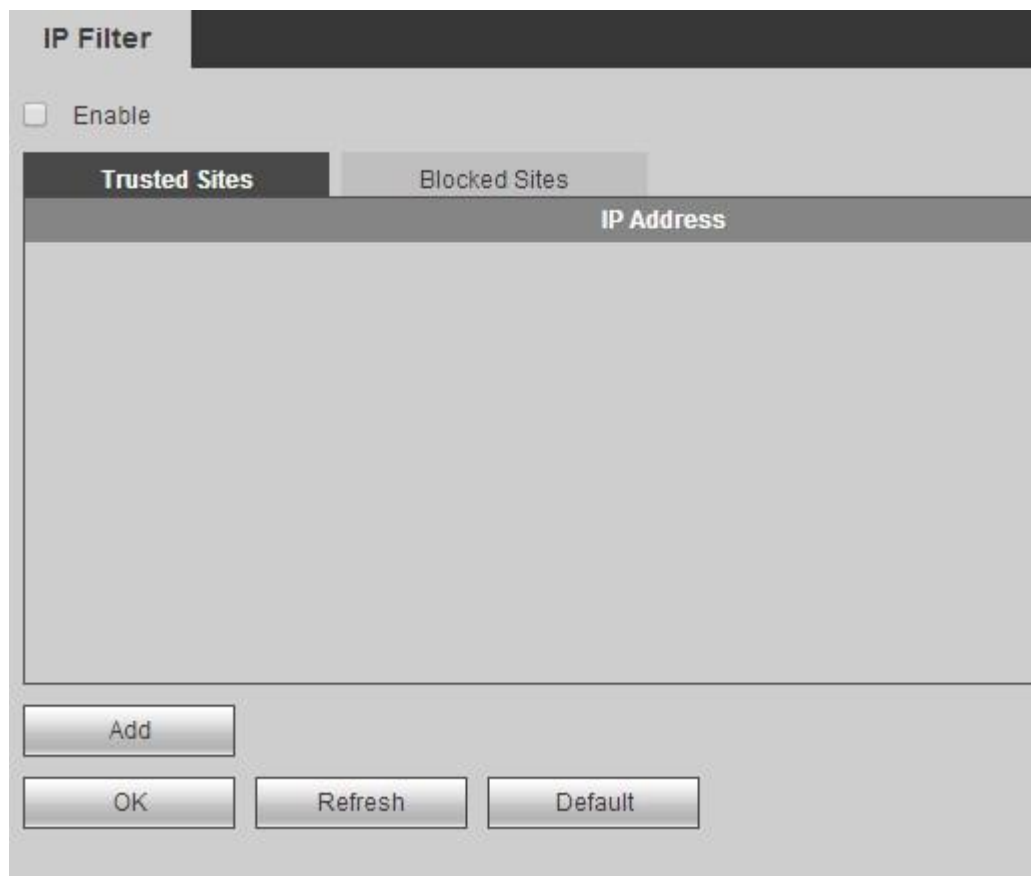


Figure 3-58

Step 2 Tick “Enable”; select “Trusted Sites” or “Blocked Sites”.

- Select “Trusted Sites”, click “Trusted Sites” tab and add trusted sites.
 - 1) Click “Add” and configure IP address in the pop-up dialog box by reference to Table 3-6.

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

Parameter	Description
IP Address	Enter IP address of host you want to add.
IP Segment	Enter start IP and end IP of segment you want to add.
IPv4	IP address adopts IPv4 format, such as 172.16.5.10.

Table 3-6

- 2) Click “OK” to put configuration into effect.
IP host in “Trusted Sites” can login WEB interface of the device successfully.
- Select “Blocked Sites”, click “Blocked Sites” tab and add blocked sites.
 - 1) Add the blocked sites by reference to Table 3-6.
 - 2) Click “OK” to put configuration into effect.
The system displays “Login Failed” if IP host in “Blocked Sites” logins the WEB interface.

Step 3 Click “OK” to complete the setting.

3.4.2.3 EMAIL

Set SMTP server info, enable Email sending function, so the system will send Email to the user in case of network abnormality.

Step 1 Select “Setting > Network > Email”.

The system displays “Email” interface, as shown in Figure 3-59.

Email

☐ Enable

SMTP Server

Port

☐ Anonymous

Username

Password

Sender

Encryption Type

Title ☒ Attachment

Receiver

Interval Sec.(0~3600)

☐ Health Mail Min. (30~1440)

Figure 3-59

Step 2 According to actual needs, configure parameters by reference to Table 3-7.

Parameter	Description
Enable	Tick it to enable SMTP function.
SMTP Server	IP address of mail server that conforms to SMTP protocol.
Port	Port number of mail server that conforms to SMTP protocol. It is 25 by default.
Anonymous	Support anonymous login into anonymous Email server. It is not required to enter username, password and sender.
Username	Username of Email box that sends the Email.
Password	Password of Email box that sends the Email.
Sender	Address of Email box that sends the Email.
Encryption	Select SSL, TLS or NONE.

Parameter	Description
Type	
Title	Email title, user-defined.
Attachment	Tick it to send Email with snapshot pictures.
Receiver	Enter the Email receiving address. Send to three receivers at most.
Interval	Mailing interval. "0" means no interval. After setting the interval, when alarm, video detection and abnormality event triggers Email, Email won't be sent immediately upon triggering the alarm signal, but will be sent according to intervals of the same type of event, in order to avoid huge email due to frequent abnormality event and alleviate pressure of Email server.
Health Mail	Health mail checks whether mail link is successful with the test info sent by the system. Enable this function and set health mail interval, the system will send mail test info at the set interval.
Test	Test whether mail receiving and sending function works normally. With correct configuration, the mailbox can receive the test mail. Before test, please save mail config info.

Table 3-7

Step 3 Click "OK" to complete the setting.

3.4.2.4 UPnP

After building a mapping relation between LAN and WAN with UPnP (Universal Plug and Play), with Internet IP address, WAN user can visit the device in LAN directly.

Precondition

- Log onto the router, and set IP address of WAN port of the router, to connect WAN.
- The router enables UPnP function.
- Connect the device with LAN port of the router, to connect LAN.
- Select "Main Menu > Setting > Network > TCP/IP", set "IP Address" to be LAN IP of the router (such as 192.168.1.101), or select "DHCP" to get IP address automatically.

Operating Step

Step 1 Select "Setting > Network > UPnP".

The system displays "UPnP" interface, as shown in Figure 3-60.

UPnP

Port Mapping: ☐ On ☒ Off

Status: Disable

Router LAN IP: 0 . 0 . 0 . 0

WAN IP: 0 . 0 . 0 . 0

No.		Server Name	Protocol	Internal Port	External Port	Modify	Delete
1	☒	HTTP	TCP	80	80		
2	☒	TCP	TCP	37777	37777		
3	☒	UDP	UDP	37778	37778		
4	☒	RTSP	UDP	554	554		
5	☒	SNMP	UDP	161	161		

Add OK Refresh Default

Figure 3-60

Step 2 Enable UPnP function, select “On” of “Port Mapping” and refer to Table 3-8.

Parameter	Description	
Port Mapping	Select port mapping switch.	
Status	Display UPnP status. - It displays “Off” in case of mapping failure. - It displays “On” in case of mapping success.	
Router LAN IP	LAN port address of router.	Obtain IP address automatically after mapping success.
WAN IP	WAN port address of router.	
Port Mapping Table	Correspond with router UPnP mapping table. - Server name: network server name. - Protocol: protocol type. - Internal port: port of this device that needs mapping. - External port: the port mapped on the router.  Note - Try to use no. 1024–5000 port for external port; avoid famous port 1–255 and system port 256–1023, in order to prevent conflict. - To deploy multiple devices in the same LAN, please plan the port mapping, and prevent multiple devices from mapping to the same external port. - During port mapping, ensure that the mapped port is not occupied or limited. - TCP and UDP internal and external ports shall be consistent and shall not be modified.	
Modify	Click  to modify external port of corresponding server.	

Table 3-8

Step 3 Click “OK” to complete UPnP setting.

In the browser, enter “*http://WAN IP: external port no.*” to visit LAN device with corresponding port no. in the router.

3.4.3 Event Management

Set alarm mode in case of network abnormality. When network goes wrong during operation, the system carries out alarm linkage action.

Step 1 Select “Setting > Event > Net”.

The system displays “Net” interface, as shown in Figure 3-61.

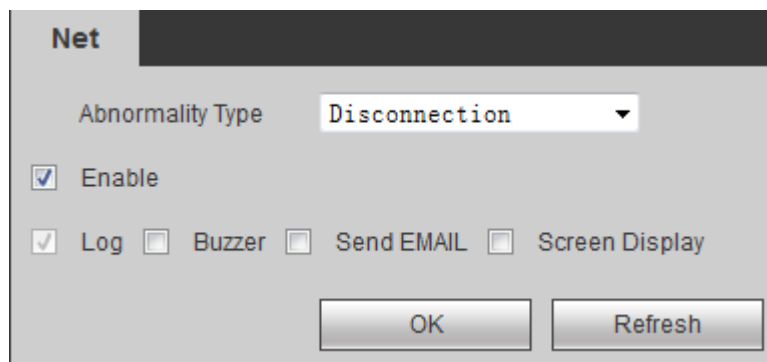


Figure 3-61

Step 2 Select “Abnormality Type” according to actual needs (disconnection, IP conflict and MAC conflict).

 Note

The system enables network abnormality alarm function by default.

Step 3 Select alarm type, including “Buzzer”, “Send Email” and “Screen Display”.

 Note

Email address shall be set before enabling “Send Email” function. Please refer to “3.4.2.3 EMAIL” for details.

Step 4 Click “OK” to complete the setting.

3.4.4 Signal Management

Manage analog matrix, remote device, local channel and signal group.

3.4.4.1 Matrix Management

Add analog matrix, bind input channel of embedded multi-screen controller with output channel of matrix, set matrix protocol and thus manage the matrix device.

3.4.4.1.1 Analog Matrix

As a video signal switching device, analog matrix with multi-channel input end and output end is able to connect multi-channel analog video image and multiple analog display devices. Add analog matrix according to matrix address code, matrix protocol, matrix type and so on.

Step 1 Select “Setting > Signal > Matrix > Analog Matrix”.

The system displays “Analog Matrix” interface, as shown in Figure 3-62.

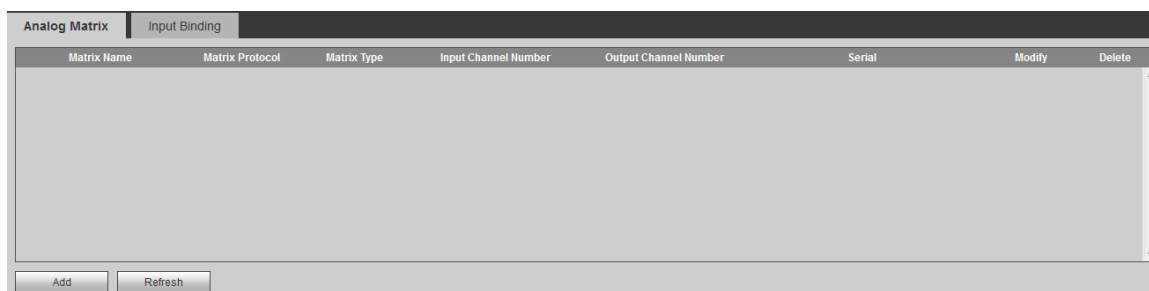


Figure 3-62

Step 2 Click “Add”.

The system displays “Add” interface, as shown in Figure 3-63.

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

Figure 3-63

Step 3 Configure parameters by reference to Table 3-9.

Parameter	Description
Matrix Name	Named by user.
Address Code	Matrix address code.
Matrix Protocol	According to the connected matrix, select protocol.
Matrix Type	According to the connected matrix, select type.
Input Channel Number	Input channel number of the matrix.
Output Channel Number	Output channel number of the matrix.
Serial	Select serial port to control the matrix. • COM0 corresponds to RS232 port. • COM1 corresponds to RJ45-1 port. • COM2 corresponds to RJ45-2 port. • COM3 corresponds to RJ45-3 port. • COM4 corresponds to RS485 port.
Baud Rate	Baud rate of COM serial port.
Odd/Event Parity	Parity bit of COM serial port protocol.
Data Bit	Data bit of COM serial port protocol.
Stop Bit	Stop bit of COM serial port protocol.

Table 3-9

Step 4 Click “OK”.

The system displays the added analog matrix, as shown in Figure 3-64.

Matrix Name	Matrix Protocol	Matrix Type	Input Channel Number	Output Channel Number	Serial	Modify	Delete
11	ADT	VGA	16	16	COM0:96008N1		

Figure 3-64

3.4.4.1.2 Input Binding

Set input binding according to the connection between output channel of matrix and input port of embedded multi-screen controller.

Step 1 Select “Setting > Signal > Matrix > Input Binding”.

The system displays “Input Binding” interface, as shown in Figure 3-65.

No.	Signal Type	Input Card No.	Channel No.	Corresponding Device	Device Output Channel
1	VGAD/VI	0:9	1	N/A	N/A
2	VGAD/VI	0:9	2	N/A	N/A
3	VGAD/VI	0:9	3	N/A	N/A
4	VGAD/VI	0:9	4	N/A	N/A

Figure 3-65

Step 2 Select “Support Signal Type” column, and in dropdown list of “Corresponding Device” column, select matrix device. In dropdown list in “Device Output Channel”, select actual matrix output channel no., which is connected with corresponding channel no. of acquisition board. It shall be consistent with actual device connection.

Note

Matrix in “Corresponding Device” is the matrix added in “3.4.4.1.1 Analog Matrix”.

Step 3 Click “Save”.

3.4.4.2 Registration

After adding network signal, embedded multi-screen controller can receive and manage video stream transmitted by network signal, and thus realize distributed advantage of the network. Add, modify and delete network signal; set abnormality handling mode.

Note

Decoding board is needed for the device to output network signal to video wall.

Select “Setting > Signal > Registration”. The system displays “Registration” interface, as shown in Figure 3-66.

The screenshot shows a 'Registration' window with an 'Abnormal' settings panel and a table of registered devices.

Abnormal Settings Panel:

- Abnormal Mode: Last Frame (dropdown)
- Reserved Status: Always Reserved (dropdown)
- Time Setting: (input field) (5-120)s
- OK button

Registered Devices Table:

No.	IP Address	Port	Device Name	Manufacturer	Type
1	171.2.2.13	37777	171.2.2.13	Private	ITC
2	171.2.3.62	37777	171.2.3.62	Private	IPC
3	171.2.3.212	37777	171.2.3.212	Private	ITC
4	172.3.3.214	37777	172.3.3.214	Private	DVR
5	171.2.2.11	37777	171.2.2.11	Private	ITC
6	171.2.2.17	37777	171.2.2.17	Private	ITC
7	171.2.2.18	37777	171.2.2.18	Private	ITC

Bottom Panel:

- Buttons: Device Search, Add, Delete, Manual Add, Refresh, Export, Import, Template
- Display Filter: N/A (dropdown)
- Search Added Device(IP): (input field)

Figure 3-66

Abnormality Handling

Set abnormality handling mode in case that network signal subjects to abnormality.

Step 1 Configure abnormality handling by reference to Table 3-10.

Parameter	Description
Abnormal Mode	Set abnormality handling mode according to needs. - Last frame: the screen reserves the last frame at the time of disconnection. - Black screen: the screen turns black after disconnection. - No stream: the device displays no stream.
Reserved Status	When abnormal mode selects the last frame, set the reserved status. - Always Reserved: the screen always reserves the last frame. - Reserved Stage: the screen reserves the last frame within the set time, and then turns black.
Time Setting	When reserved status is “Reserved Stage”, the reserved time of the last frame is set to be 5s–120s.

Table 3-10

Step 2 Click “OK” to complete the setting.

Device Search

Step 1 Click “Device Search”.

The interface displays searched devices in the network.

Note

In “Display Filter” drop-down box, select device type and search according to type.

Step 2 Select devices that shall be added.

Step 3 Click “Add”.

Manual Add

Step 1 Click “Manual Add”.

The system displays “Manual Add” interface, as shown in Figure 3-67.

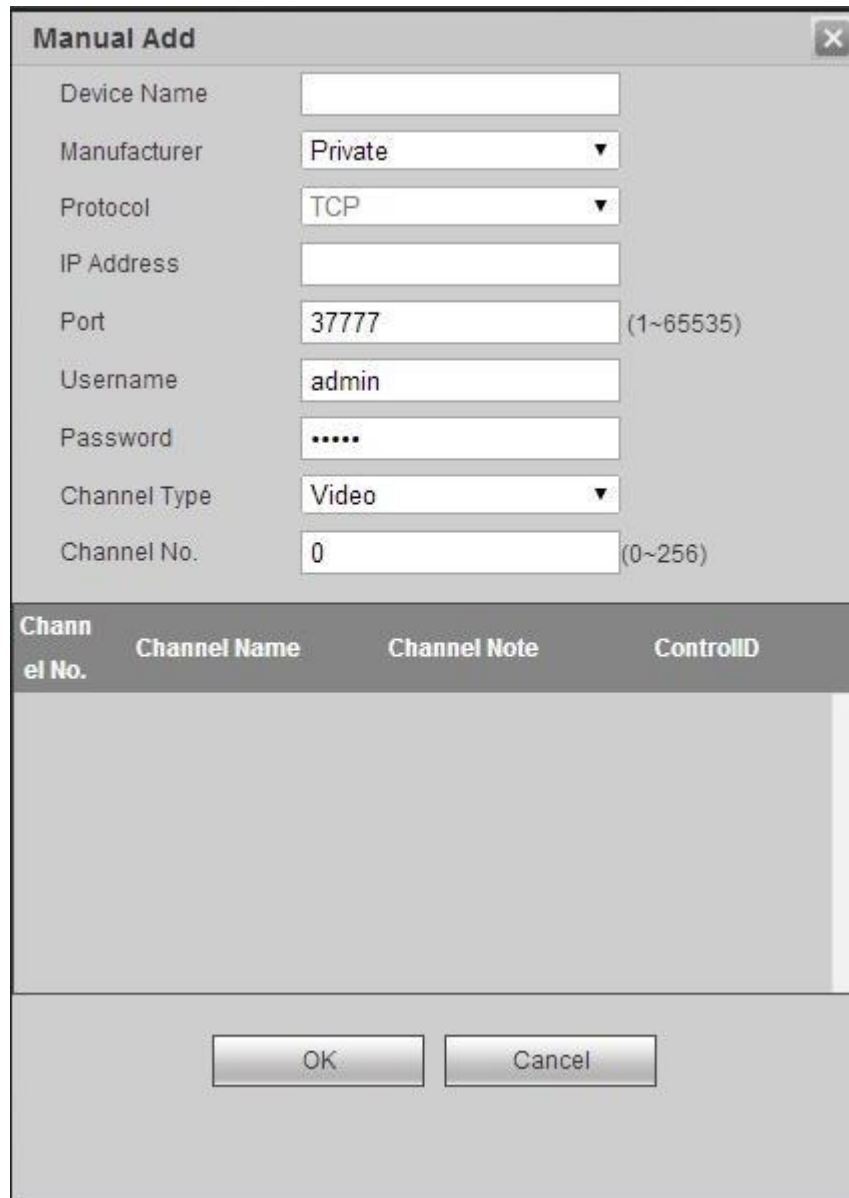
The screenshot shows a 'Manual Add' dialog box. It contains several input fields: 'Device Name' (text), 'Manufacturer' (dropdown menu showing 'Private'), 'Protocol' (dropdown menu showing 'TCP'), 'IP Address' (text), 'Port' (text with value '37777' and range '(1~65535)'), 'Username' (text with value 'admin'), 'Password' (text with masked characters '.....'), 'Channel Type' (dropdown menu showing 'Video'), and 'Channel No.' (text with value '0' and range '(0~256)'). Below these fields is a table with columns 'Channel No.', 'Channel Name', 'Channel Note', and 'ControlID'. The table is currently empty. At the bottom of the dialog are 'OK' and 'Cancel' buttons.

Figure 3-67

Step 2 Configure parameters by reference to Table 3-11.

 Note

Different types of manufacturers need to configure different parameters. Please refer to actual configuration.

Parameter	Description
Device Name	Enter device name.

Parameter	Description
Manufacturer	Match the device.  Note - If manufacturer selects “General”, output video to video wall via url address that supports rtsp stream. - If manufacturer selects “VNC”, output real-time image of PC desktop with VNC server end to video wall.
Protocol	Select protocol according to added device.
IP Address	IP address of remote device.
Port	TCP port number of remote device.
Username	Username of remote device.
Password	Password corresponding to username of remote device.
Channel Type	It is video by default.
Channel No.	Channel number of the device.

Table 3-11

Step 3 Select corresponding channel no.; preview channel video in “Preview”.

Step 4 Click “OK”.

Template Downloading

In template, enter info of the device you want to import, and you can batch add network signal.

Obtain template as follows:

Step 1 Click “Template”.

The system pops up “File Downloading” dialog box.

Step 2 Click “Save” and select a path to save the template.

Step 3 Click “Save”.

Download the template to local PC. Downloaded template is “.csv” file, as shown in Figure 3-68.

Channel Name	Logic No.	Channel No.	Control No.	Device Name	Device Type	Protocol	HTTP Port	TCP Port	RTSP Port	Username	Password	IP Address	Device ID	URL
--------------	-----------	-------------	-------------	-------------	-------------	----------	-----------	----------	-----------	----------	----------	------------	-----------	-----

Figure 3-68

Import

Batch add network signal by importing config.

Step 1 In downloaded template, fill in device info you want to import, and save.

Step 2 Click “Import Config”.

Step 3 Select file path, and import the completed template.

The list displays the imported network signals, and the system prompts “Operated successfully”.

Export

By exporting config, the added network signals can be saved in local PC in the form of “.csv” file.

Step 1 Click “Export”.

Step 2 Click “Save” and select a path to save the exported file.

Step 3 Click “Save”.

Export “.csv” file. In the exported file, view the added network signal info, including channel name and logical number and so on.

Delete Network Signal

In the added signal list, select the network signal you want to delete; click “Delete” to delete it.

3.4.4.3 Local Channel

Set abnormality handling mode of local signal, modify channel name and control ID, and set signal acquisition mode.

 Note

In case of DVI or VGA acquisition card, signal acquisition mode can be set.

- DVI: adopt DVI acquisition mode.
- VGA: adopt VGA acquisition mode.
- Auto switch: recognize signal source type automatically, and select corresponding acquisition mode.

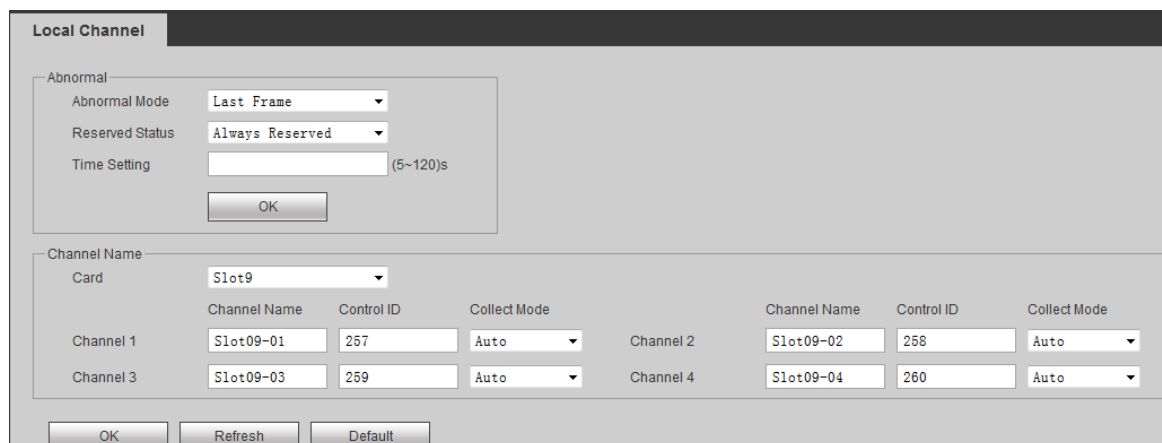


Figure 3-69

Abnormality Handling

Set abnormality handling mode in case that local signal subjects to abnormality.

Step 1 Configure abnormality handling by reference to Table 3-12.

Parameter	Description
Abnormal Mode	Set abnormality handling mode according to needs. • Last Frame: the screen reserves the last frame at the time of disconnection. • No Signal: the device displays no signal.

Parameter	Description
Reserved Status	When abnormal mode selects the last frame, set the reserved status. - Always Reserved: the screen always reserves the last frame. - Reserved Stage: the screen reserves the last frame within the set time, and then turns to no signal status.
Time Setting	When reserved status is “Reserved Stage”, the reserved time of the last frame is set to be 5s–120s.

Table 3-12

Step 2 Click “OK” to complete the setting.

3.4.4.4 Signal Group

Customize signal groups. In “Signal Group” tab, display the added group and signal sources in the group. Signal group can output signals to video wall, and carry out loop playback.

Step 1 Select “Setting > Signal > Signal Group”.

The system displays “Signal Group” interface, as shown in Figure 3-70.

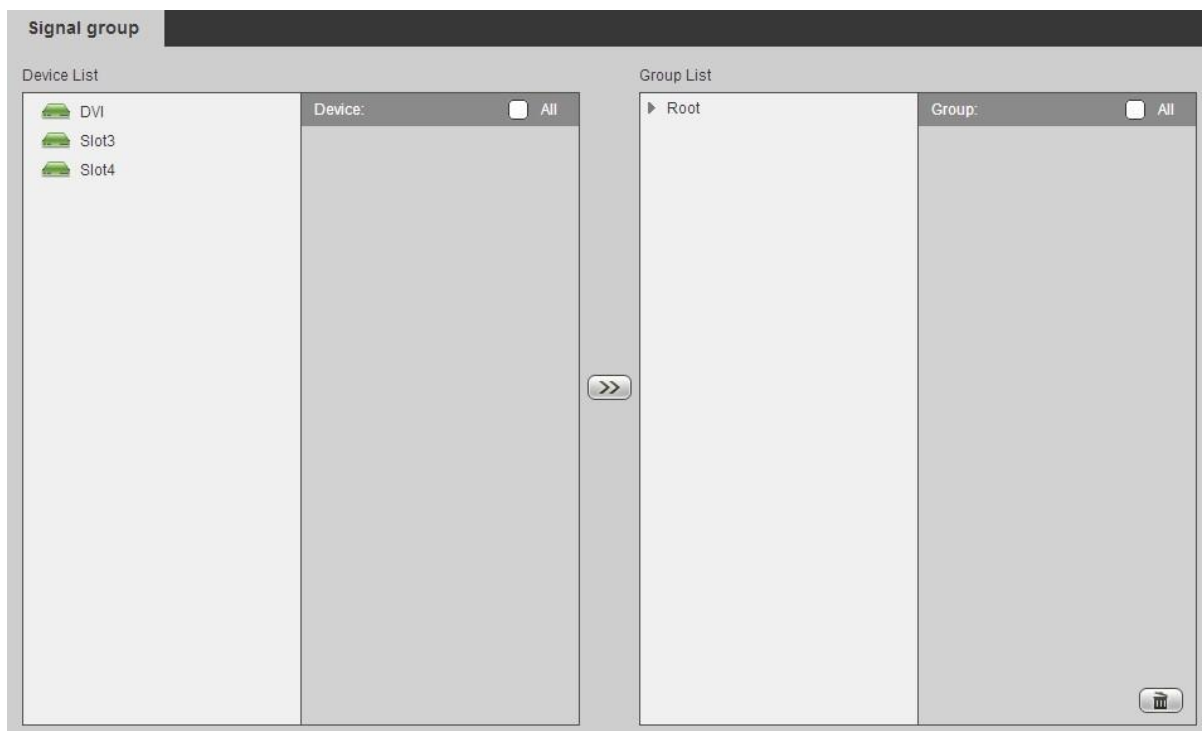


Figure 3-70

Step 2 Select “Root” in “Group List”, and click  to build a group under Root.

 Note

- Click  after the group, modify group name and click  to save.
- Click  to continue to add groups.

Step 3 In “Device List”, select a device that needs to be added. After selecting the device, its channels will be displayed in “Device”.

Step 4 Select a channel that needs to be added, and click  to add it successfully.

After adding it successfully, the group and its info will be displayed under “Custom” tab in “Screen” interface.

- Select the group name, and click  to delete the group.
- Select the group name, so all selected channels in the group will be displayed in “Sub-group” list. Select a channel and click  to delete the channel.

3.4.5 Display Management

Configure video wall, set screen background color, screen timer, switch box, output mode, preview & monitor and smart pull stream.

3.4.5.1 Video Wall

Configure video walls according to actual quantity and splicing of screens; output signals to video wall.

Select “Setting > Display > Video Wall”. The system displays “Video Wall” interface, as shown in Figure 3-71.

 Note

- The system supports to configure maximum 16 video walls.
- Select “Sync First” to synchronize the screen.

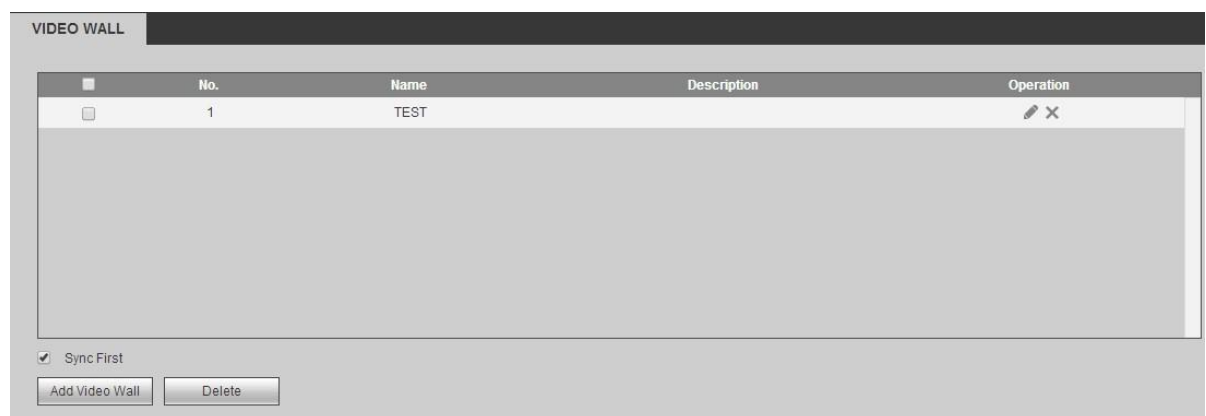


Figure 3-71

Add Video Wall

Step 1 Click “Add Video Wall”.

The system displays “Layout Config” interface, as shown in Figure 3-72.

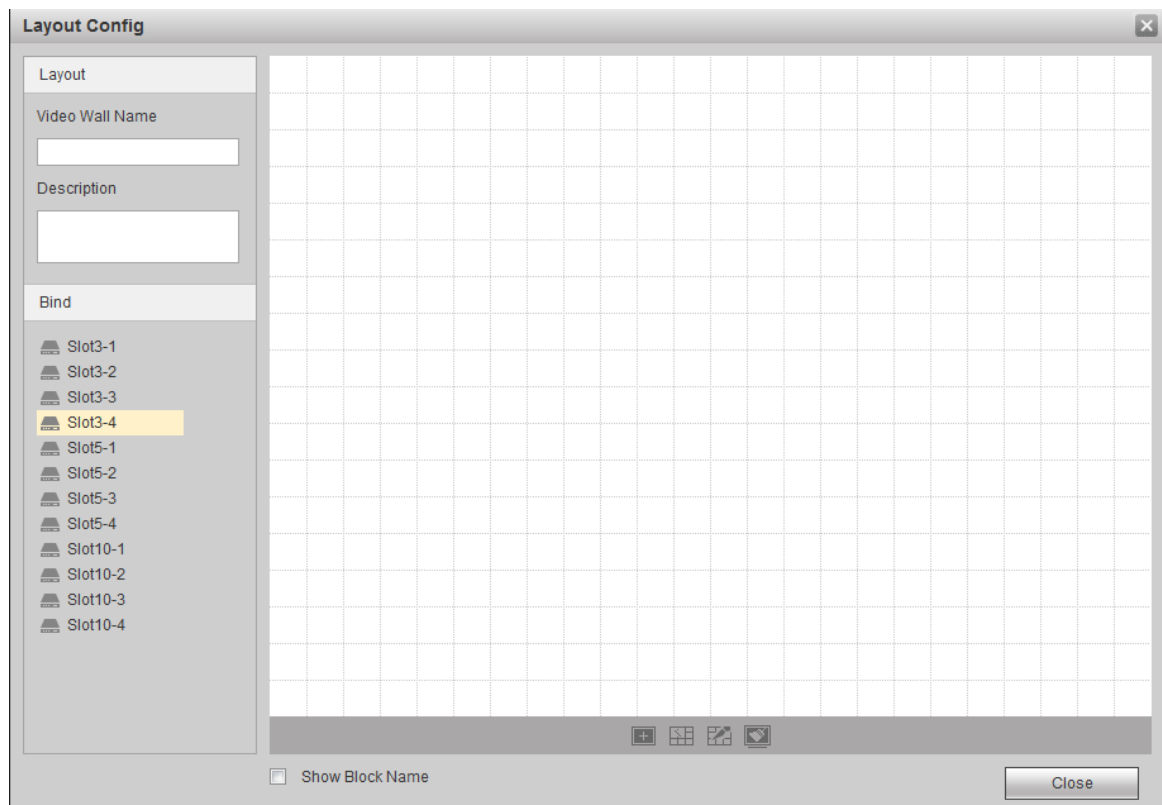


Figure 3-72

Step 2 Input "Video Wall Name" and "Description".

Step 3 Click .

The system displays "Video Wall Setup" interface, as shown in Figure 3-73.

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 ControlID
1-1	11	10-1	1920 * 1080	0	73
2-1	12	10-3	1920 * 1080	0	75

OK Cancel

Figure 3-73

Step 4 Configure parameters according to actual needs, by reference to Table 3-13 and Table 3-14.

Parameter	Description
Block Name	Be named by the user.
Layout	Configure block layout and quantity of splicing screen.
Device Type	Display device type, such as LCD, DLP and etc.
Control Protocol	Display device control protocol.
Screen Resolution	Device output resolution.
Communication Port	Device output serial port, COM1–COM3.
Baud Rate	Baud rate of communication serial port.
Odd/Even Parity	Parity bit of communication serial port protocol.
Data Bit	Data bit of communication serial port protocol.
Stop Bit	Stop bit of communication serial port protocol.
Background	Upload local picture by reference to “3.4.1.7 Background Picture”. After selection, if the video wall is not configured, the picture is displayed as the background.
Block Control ID	Block number in serial central control command.
DVI Port	Connection relation between device output port and display screen input port, click the row and select from the dropdown list.

Parameter	Description
Step	Adjust frame rate, with ms as delay unit. Adjust the step to synchronize the image.
Screen Control ID	Each screen number in serial central control command.

Table 3-13

Control Protocol	DVI Input Port	VGA Input Port	RGB Input Port	Video Input Port
Dahua	5	2	3	0
Samsung	24	20	10	12
Zhongda	3	2	5	4

Table 3-14

Step 5 Click “OK”.

If Device Type is LED_NEW, Screen Resolution is 960*540@60, and Output Port is output channel of LED decoding sending card, the system displays “Video Wall Setup” interface, as shown in Figure 3-74.

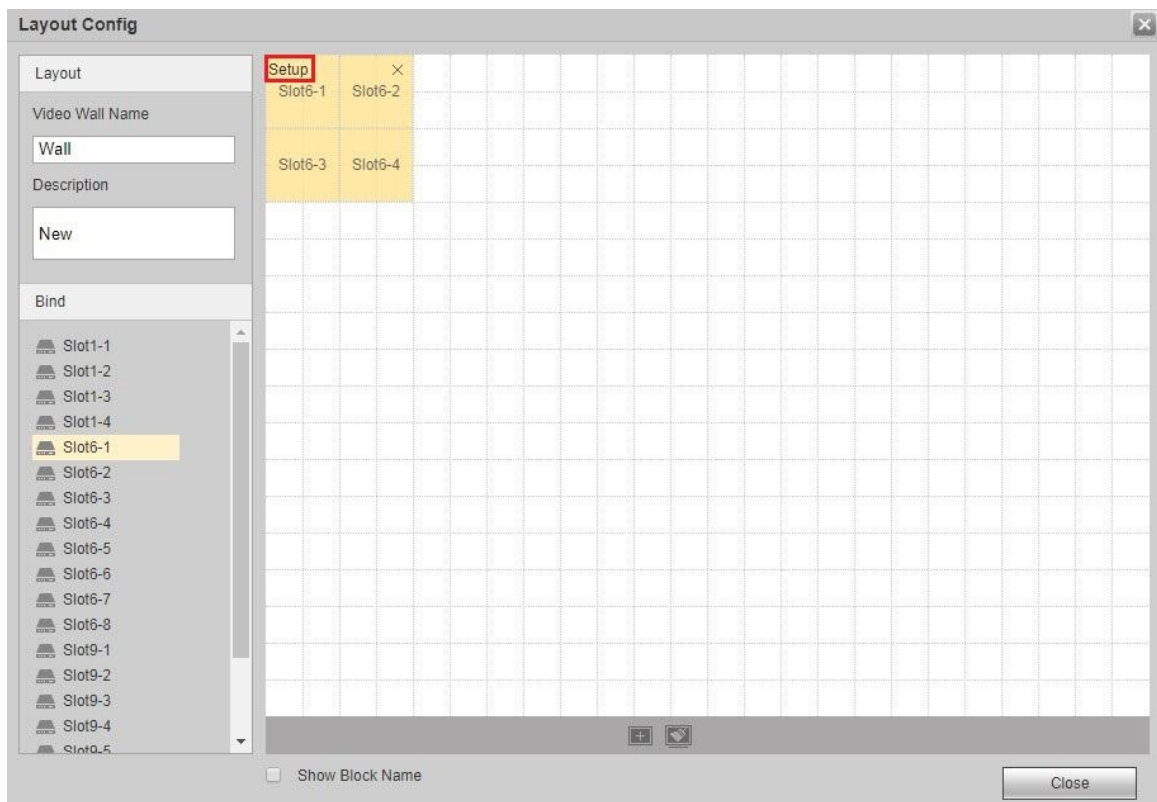


Figure 3-74

Step 6 (Optional) Click “Setup” in the red box.

The system displays “Sending Card Number” interface, as shown in Figure 3-75.

Figure 3-75

Step 7 (Optional) Configure rows and columns of receiving card according to actual situation, as shown in Figure 3-76.

Figure 3-76

Step 8 (Optional) One Ethernet port can be bound with multiple receiving cards. Connect the receiving cards that want to connect Ethernet port according to on-site environment, as shown in Figure 3-77.

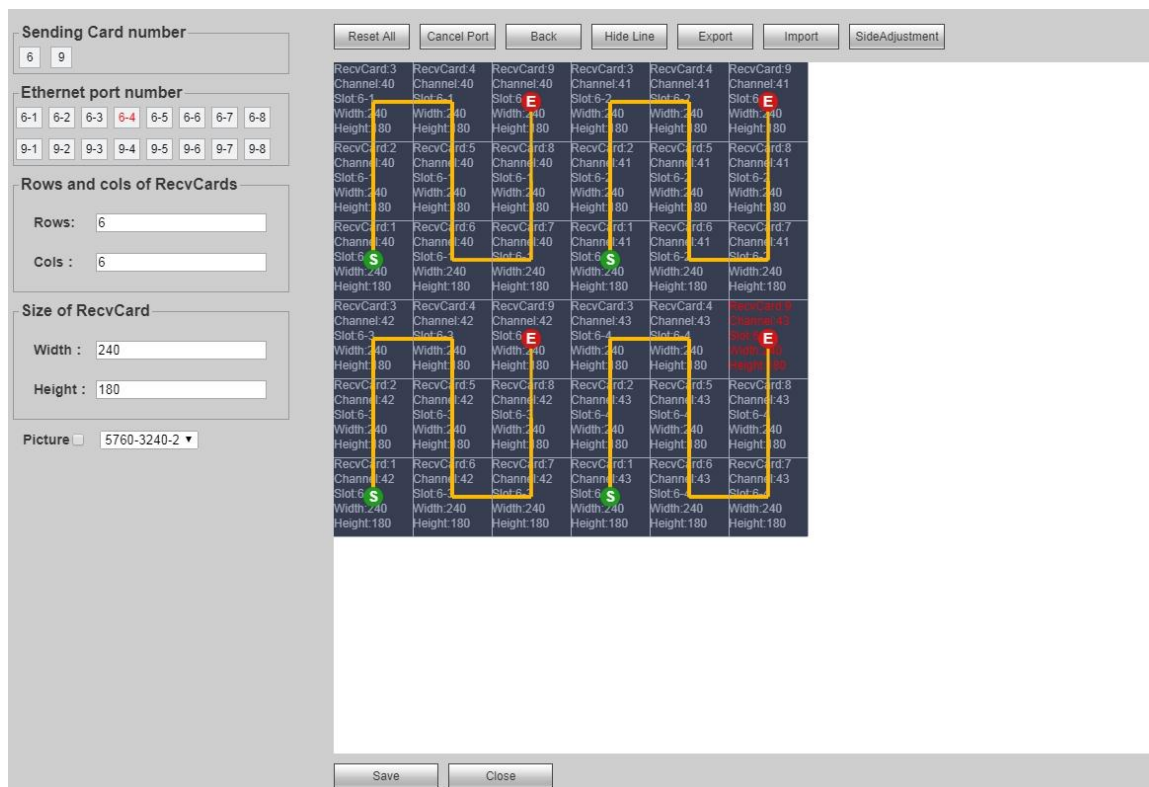


Figure 3-77



- The first 4 Ethernet ports of sending card are one group, while the last 4 Ethernet ports are one group. Receiving cards corresponding to each group (4 Ethernet ports or some Ethernet ports) shall form a rectangle respectively.
- Groups are spliced in the unit of rectangle. Receiving cards of group 1 can not be mixed with receiving cards of group 2 to form a rectangle.

Parameter	Description
Width	Width and height of receiving card. The system displays actual size of receiving card.
Height	
Picture	Select the check box, and select a picture from the drop-down list. Refer to "3.4.1.7 Background Picture" to upload the picture.
Reset all	Click "Reset all", so all lines of receiving cards will disappear. Please connect them again as you want.
Cancel port	Click "Cancel port", so all lines of receiving cards corresponding to present Ethernet port will disappear. Please connect them again as you want.
Back	Click "Back", so the last line you have drawn will disappear, and the line goes back to previous receiving card.
Hide Line	Click "Hide Line", so lines of receiving cards will be hided, but lines are still effective.
Export	Click "Export" to export the line configuration file of present receiving card.
Import	Click "Import" to import the line configuration file of receiving card quickly and complete the line.
Side Adjustment	Click "Side Adjustment" to adjust brightness and darkness of four edges and four points of LED screen box and lamp panel, and improve the vision. Click "Send to hardware" to send the configurations to LED screen and put them into effect.

Table 3-15

Step 9 (Optional) Click “OK” to complete the settings.

Step 10 Repeat Step 3 – Step 5 to add more screens.



Note

- Select screens and click to integrate multiple screens.
- Select splicing screens and click to split them.
- Click to clear all the added screens.

Step 11 Click “Close”.

Modify Video Wall

Click corresponding to the video wall that needs modification, and modify “Video Wall Name” and config info in the pop-up “Layout Config” interface. Specific operation methods are consistent with “Add Video Wall”.

Delete Video Wall

Click corresponding to the video wall that needs deletion, or tick the checkbox in the left of the video wall, click “Delete” to delete the video wall.

3.4.5.2 Screen Back Color

Set screen background color.

Step 1 Select “Setting > Display > Screen Back Color”.

The system displays “Screen Back Color” interface, as shown in Figure 3-78.

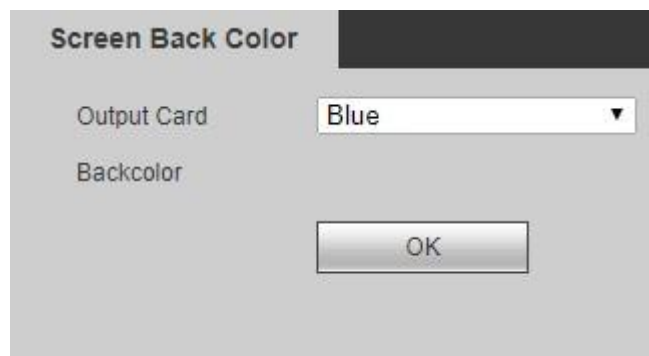


Figure 3-78

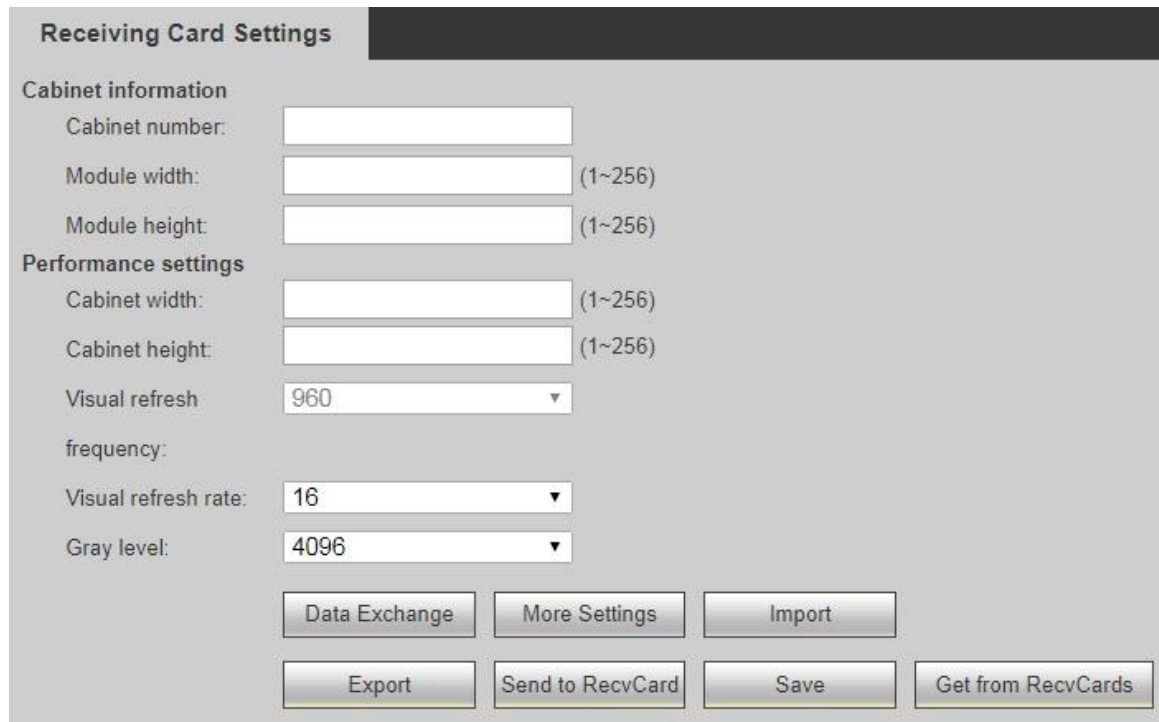
Step 2 Configure Output Card Backcolor to be “Black” or “Blue”.

Step 3 Click “OK” to complete the settings.

3.4.5.3 RECVCARD Setting

Configure parameters of receiving card.

Select "Setting > Display > RECVCARD SETTING". The system displays "Receiving Card Settings" interface, as shown in Figure 3-79.



The "Receiving Card Settings" interface is a web-based configuration page. It features a dark header bar with the title "Receiving Card Settings". Below the header, the page is divided into two main sections: "Cabinet information" and "Performance settings".

Cabinet information:

- Cabinet number: [Text input field]
- Module width: [Text input field] (1~256)
- Module height: [Text input field] (1~256)

Performance settings:

- Cabinet width: [Text input field] (1~256)
- Cabinet height: [Text input field] (1~256)
- Visual refresh frequency: [Dropdown menu] (960)
- Visual refresh rate: [Dropdown menu] (16)
- Gray level: [Dropdown menu] (4096)

At the bottom of the interface, there are seven buttons arranged in two rows:

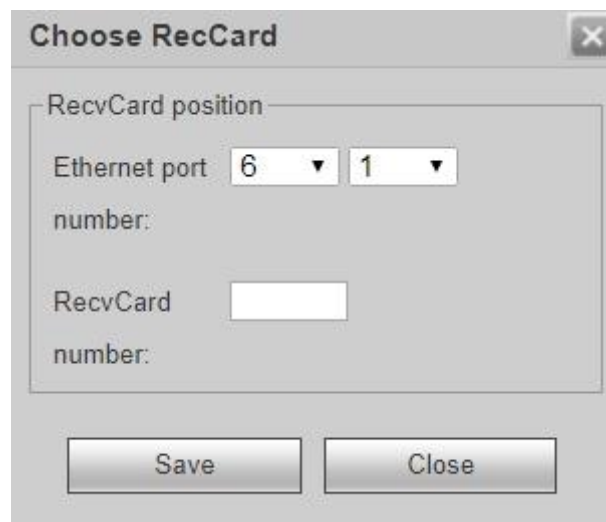
- Row 1: Data Exchange, More Settings, Import
- Row 2: Export, Send to RecvCard, Save, Get from RecvCards

Figure 3-79

Modify Parameters of Receiving Card

Step 1 Click "Get from Recv Card".

The system displays "Choose Rec Card" interface, as shown in Figure 3-80.



The "Choose RecCard" interface is a small dialog box with a title bar and a close button (X). It contains the following fields and buttons:

- RecvCard position:** A label above the Ethernet port and RecvCard number fields.
- Ethernet port:** A dropdown menu showing "6" and a text input field showing "1".
- RecvCard number:** A text input field.
- Buttons:** "Save" and "Close" buttons at the bottom.

Figure 3-80

Step 2 Select Ethernet port number, configure RecvCard number, and then click "Save".

The system displays "Receiving Card Settings" interface, as shown in Figure 3-81.

Figure 3-81

Step 3 Modify parameters of receiving card according to actual conditions. Please refer to Table 3-18 for specific parameter descriptions.

Parameter	Description
Cabinet number	Cabinet number is determined by Ethernet port number.
Module width	Module width and height ranges from 1 to 256.
Module height	
Cabinet width	Receiving card cabinet width and height ranges from 1 to 256.
Cabinet height	
Visual refresh frequency	The speed of LED screen to refresh the picture. The higher refresh frequency is, the more stable the picture becomes.
Visual refresh rate	Configure visual refresh rate.
Gray level	Select gray level according to actual condition. The higher gray level is, the better picture level will be.

Table 3-16

Step 4 Click "More Settings".

The system displays "More Settings" interface, as shown in Figure 3-82.

More Settings

Module chips

Chip mode: Common chip ▼ OE Polarity: Lowly effective ▼

Module information

Scanning modes: Unknown ▼ Scan

Data Groups: 1 ▼

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

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

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

save close

Figure 3-82

Step 5 Configure parameters as you want.



Parameters on this interface is professional. Please contact relevant technicians to configure and debug.

Step 6 Click "Save" to complete the settings.

Step 7 Click "Send to RecvCard".

Step 8 Click "Data Files Issued (.json)" to complete the settings.

Data Exchange

Receiving card consists of several data groups that display corresponding data images. Data groups are arranged in sequence, and you can adjust their sequence.

Step 1 Click "Data Exchange".

The system displays "Data Group Exchange" interface, as shown in Figure 3-83.

Data Group Exchange

☒ Enable Data Group Exchange

☒ Send To All RecvCards

Ethernet port number 6 1 Recv card number 1

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

save close

Figure 3-83



The system selects "Enable Data Group Exchange" by default.

Step 2 Select Ethernet port number and Recv card number.

Step 3 Adjust data group sequence as you want.

Step 4 (Optional) Select "Send to All Recv Cards", to send data group sequence of this receiving card to all receiving cards.

Step 5 Click "Save" to complete data group exchange.

Import

Import configuration file of receiving card into the system, to configure the receiving card quickly.

Step 1 Click "Import".

The system displays "Import" interface, as shown in Figure 3-84.

Import

Subfield Table:

bit.txt:

L S9929 IP Table:

dm0.txt:

dm1.txt:

dm2.txt:

pm.dat:

Module Coordinate:

pixel_coord.txt:

Parameter Config:

*.json:

Figure 3-84

Step 2 Click "Browse" to upload the configuration file.



Get configuration file from professional technicians.

Step 3 Click "Save" to complete uploading.

Step 4 Click "Send to RecvCard".

Step 5 Click "Cfg Files Issued (.txt/.dat)" to complete the settings.

More Operations

- Export configuration: Click "Export". The system will export configuration parameters of receiving card in the form of .json/.txt/.dat.
- Save: After modifying parameters of receiving card, click "Save" to save the data. After LED screen is power-off, the modified data is still saved.



If configuration is not saved, parameters of receiving card will restore defaults after LED screen is power-off.

3.4.5.4 Screen Adjustment

Adjust LED screen parameters, including Gamma and brightness.

Gamma adjustment: Change Gamma value to match gray scale of the screen, compensate color difference among different screens, and thus present the same effect.

Step 1 Select "Setting > Display > Screen Adjust".

The system displays "Screen adjustment" interface, as shown in Figure 3-85.



Figure 3-85

Step 2 Click "Acquire".

The system displays "Recv Cards Selection" interface, as shown in Figure 3-86.



Figure 3-86

Step 3 Select Ethernet port and click "Save".

The system acquires parameter information about LED screen.

Step 4 Click "Custom Gamma".

The system displays "Gamma adjustment" interface, as shown in Figure 3-87.

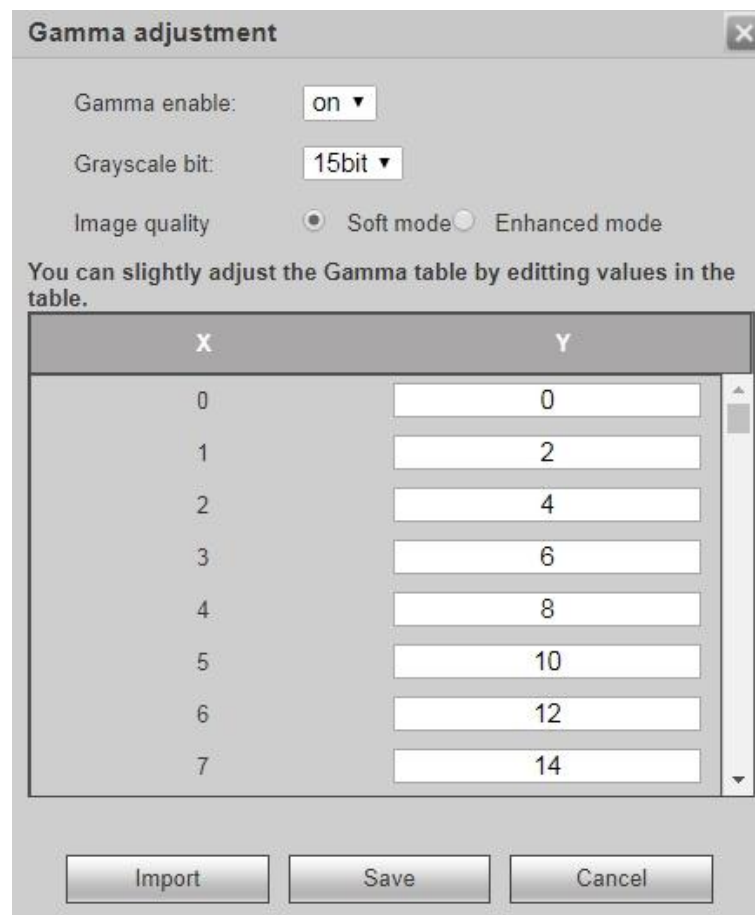


Figure 3-87

Step 5 Configure parameters according to actual conditions. Please refer to Table 3-17 for specific parameter descriptions.

Parameter	Description
Gamma enable	Select to enable Gamma adjustment function or not.
Grayscale bit	Select grayscale bit, which is 15-bit by default.  Grayscale bit is determined by chip of actual video wall. Please consult LED professionals.
Image quality	Select image quality, including soft mode and enhanced mode. - Soft mode: It is recommended to use soft mode in not so bright surroundings, to get a real effect. - Enhanced mode: It is recommended to use enhanced mode in bright surroundings.
Gamma table	Tune the values in Gamma table according to actual condition.

Table 3-17

Step 6 Click "Save" to complete the settings.



- Click "Import" to import Gamma table, and tune the values quickly.
- Please contact technical support personnel for Gamma table.

Step 7 Drag brightness slider to adjust screen brightness.

Step 8 Click "Send to Output Port" to send parameters to receiving card of output port, and put configurations into effect.



- Click "Send to All Walls" to send to all receiving cards.
- Click "Send to Single Wall" to send to all receiving cards of single video wall.

3.4.5.5 Screen Control

Control LED screen. For example, turn on/off the screen, freeze, self-testing and auto dedamp.

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

The system displays "Screen Control" interface, as shown in Figure 3-88.



Figure 3-88

Step 2 Click "Acquire".

The system displays "Choose RecCard" interface, as shown in Figure 3-89.



Figure 3-89

Step 3 Select Ethernet port number, and then click "Save".

The system acquires LED parameter information.

Turn on/off the screen

Turn on/off the screen corresponding to one output port or all output ports.

Step 1 Select "Turn on/off the screen", as shown in Figure 3-90.



Figure 3-90

Step 2 Turn on or off the screen.

Step 3 Click "Send to Single Wall" to control the screen corresponding to single output port.



- Click "Send to All Walls" to control the screen corresponding to all output ports.
- Click "Send to Single Wall" to control the screen corresponding to single output port.

Freeze

Freeze the screen corresponding to single output port or all output ports.

Step 1 Select "Freeze", as shown in Figure 3-91.

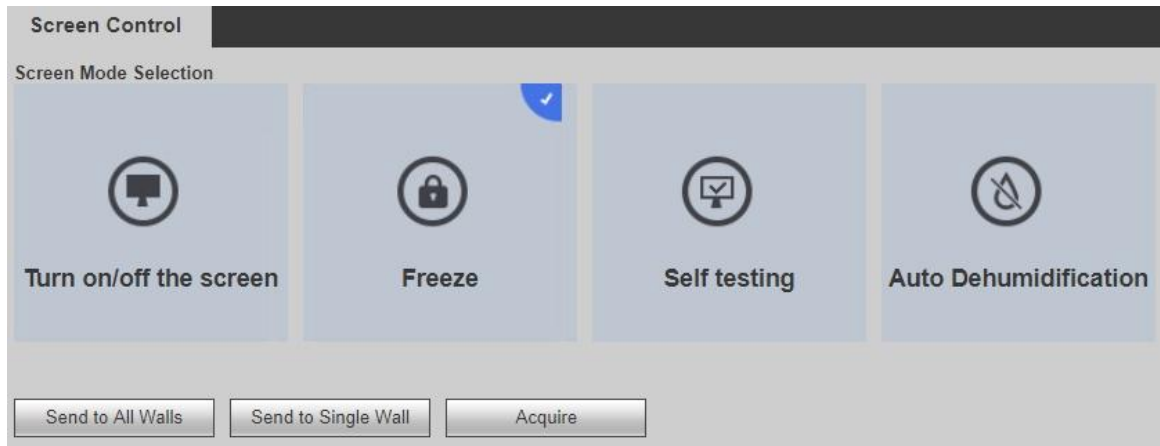


Figure 3-91

Step 2 Click "Send to All Walls".

Freeze all walls, and only display the last frame.



- In "Self-testing" mode, select "Normal" to unfreeze the screen.
- Click "Send to Single Wall" to freeze the screen of single wall.

Self-testing

Control single output port or all output ports to carry out self-testing and check if the screen has problems in display.

Step 1 Select "Self-testing", as shown in Figure 3-92.

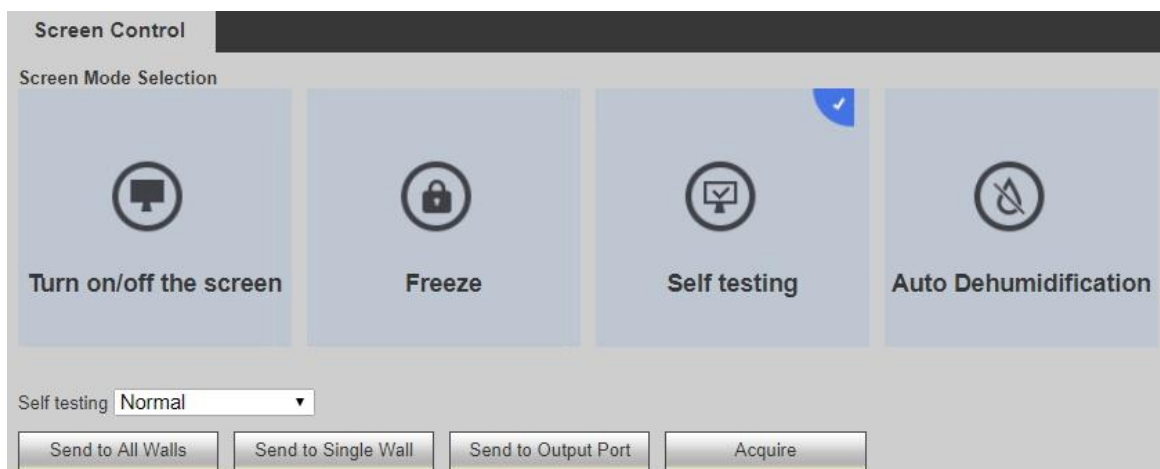


Figure 3-92

Step 2 Select self-testing type.

Step 3 Click "Send to Output Port" to control the corresponding screen to carry out self-testing.



- Click "Send to All Walls" to control screens corresponding to all output ports to carry out self-testing.
- Click "Send to Single Wall" to control screen of single wall to carry out self-testing.

Auto Dehumidification

Turn on or turn off auto dehumidification function of screens corresponding to single output port or all output ports. After the function is turned on, LED screen starts from black screen and increases brightness by one level every hour. It takes about 24 hours to remove dampness from LED, and protect LED from dampness damages.

Step 1 Select "Auto Dehumidification", as shown in Figure 3-93.

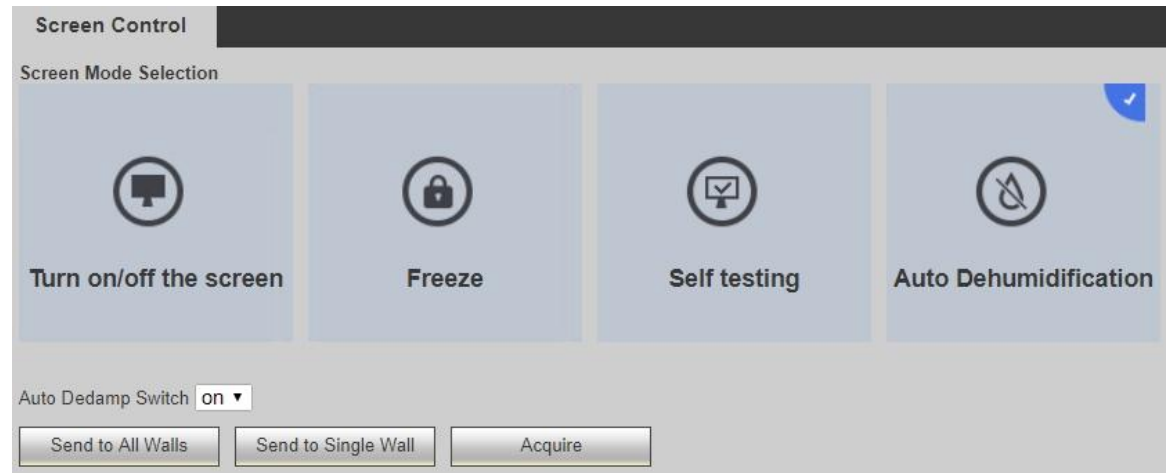


Figure 3-93

Step 2 Turn on or turn off auto dehumidification function.

Step 3 Click "Send to Single Wall" to control auto dehumidification function of the screen corresponding to single wall.



Click "Send to All Walls" to control auto dehumidification function of screens corresponding to all output ports.

3.4.5.6 Correction Coefficient

Import correction coefficient file into the system, refer to the file when you creates a video wall and thus correct screen hardware coefficient.

Step 1 Select "Setting > Display > Correction".

The system displays "Correction Coefficient" interface, as shown in Figure 3-94.

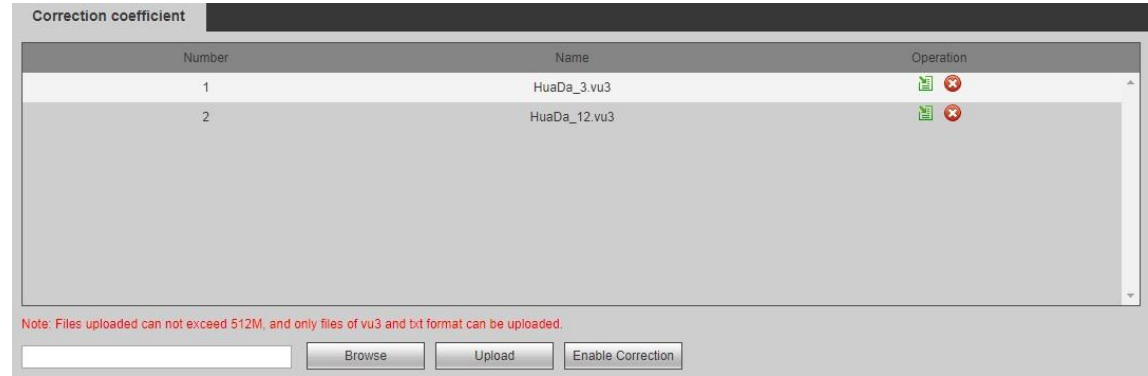


Figure 3-94

Step 2 Click "Browse" to select local correction coefficient file.



Correction coefficient file is provided after correction with professional correction device. Please get the file from professional technicians.

Step 3 Click "Upload".

Upload the correction coefficient file to the system.

Step 4 Click "Enable Correction".

The system displays "Enable Correction" interface, as shown in Figure 3-95.

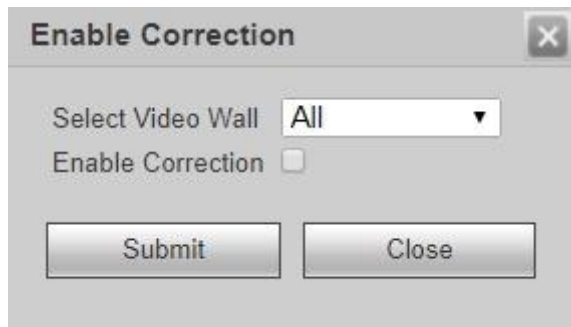


Figure 3-95

Step 5 Select the wall you want to enable the correction function.



Select "All" to apply to all walls.

Step 6 Select "Correction Enable".

Step 7 Click "Submit" to complete the settings.

3.4.5.7 Screen Timer

Configure scheduled on/off time for every screen, so as to turn on/off every screen within the set time period.



Note

Screen timer function only applies to LCD screen. For LED screen timer, please refer to "3.4.5.5 Screen Control".

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

The system displays "Screen Timer" interface, as shown in Figure 3-96.

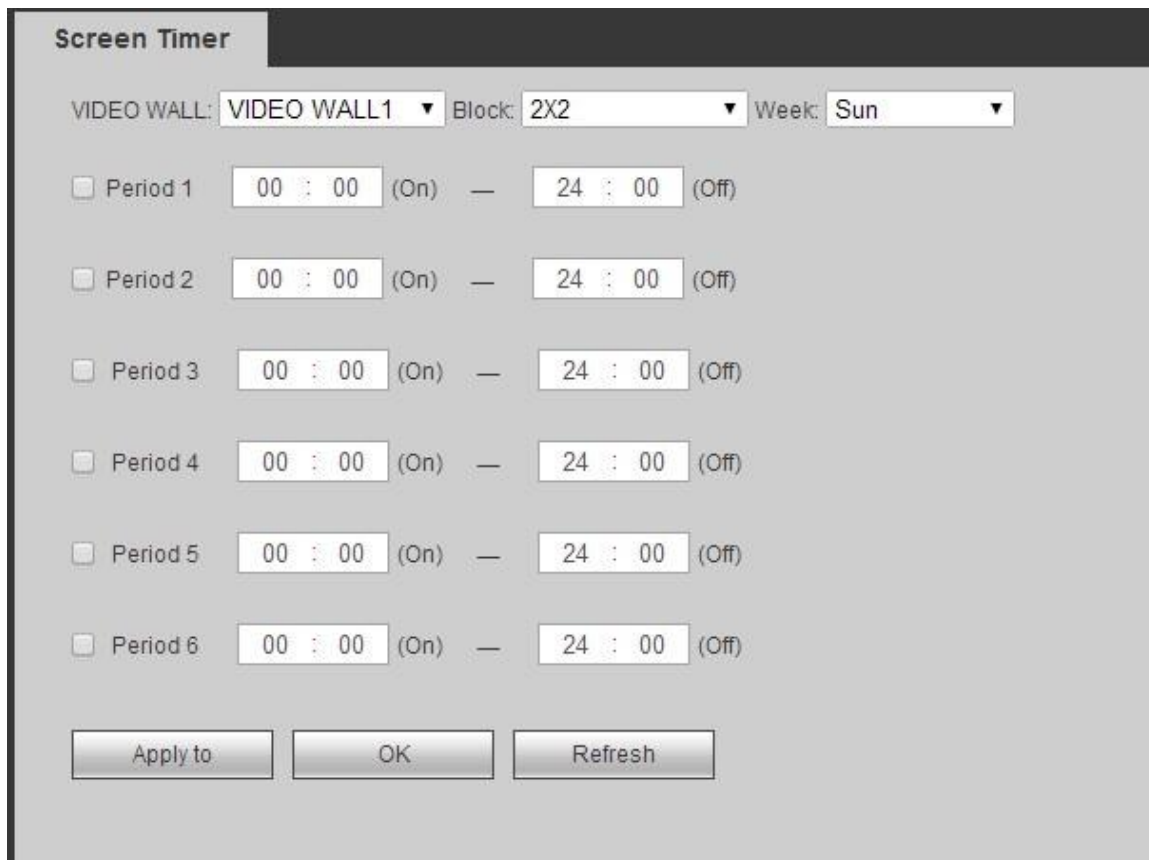


Figure 3-96

Step 2 Select “Video Wall”, “Block” and “Week”. Select one period from 6 periods, tick the checkboxes and set the period.

Step 3 Click “OK”.

Step 4 (Optional) Click “Apply to”, and pop up Figure 3-97.

The set period can be applied to other weeks. Select corresponding checkbox and click “OK”.

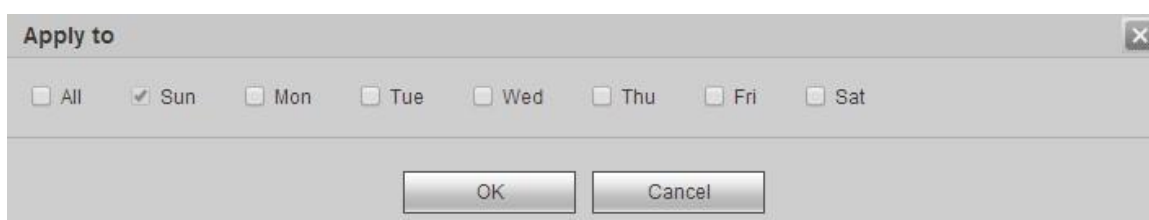


Figure 3-97

3.4.5.8 Switch Box

Connect the device and switch box serial line, enable switch box function and configure relevant serial parameter, so as to control power of switch box.

Step 1 Select “Setting > Display > Switch Box”.

The system displays “Switch Box” interface, as shown in Figure 3-98.

Figure 3-98

Step 2 Configure parameters according to actual needs, by reference to Table 3-18.

Parameter	Description
Enable	Tick the check box to enable switch box function.
Power Mode	Power quantity of switch box is 1–8.
Serial	Device serial port, COM0–COM4.
Baud Rate	Select corresponding baud rate.
Data Bit	4–8.
Stop Bit	Including stop bit 1, stop bit 1.5 and stop bit 2.
Odd/Even Parity	Parity type includes odd parity, even parity and N/A.
Control Protocol	It is PLC by default.
Device Type	Type of the device that is connected with switch box.

Table 3-18

Step 3 Click “OK” to complete the setting.

3.4.5.9 Output Mode

Set output mode and output protocol of decoding output channel.

- Output mode includes normal mode and 4K mode.
- Output protocol includes HDMI and DVI.

 Note

Only H.265 decoding card supports to set the output mode.

Step 1 Select “Setting > Display > Output Mode”.

The system displays “Output Mode” interface, as shown in Figure 3-99.

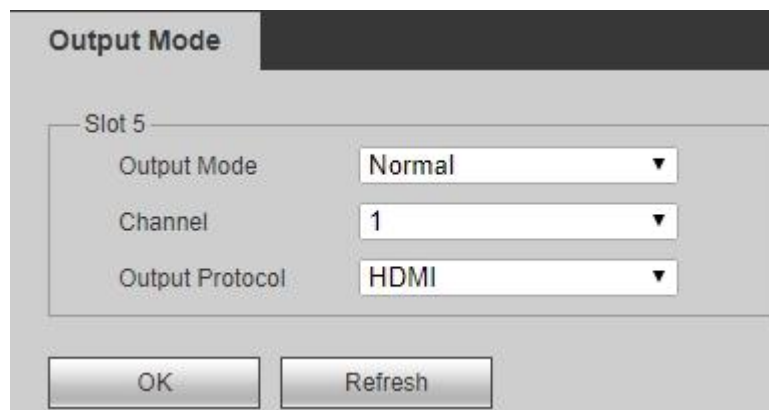


Figure 3-99

Step 2 Configure output mode, channel and output protocol.

Step 3 Click "OK" to complete the setting.

3.4.5.10 Preview & Monitor

Tick “Preview Enable” or “Monitor Enable” according to needs. With preview function, a small preview image will be displayed when the mouse is moved to network signal and local signal in device tree. With monitor function, network signal and local signal can be output to video wall window and preview images directly.

 Note

The system supports preview and monitor function when you log in with Firefox browser.

Step 1 Select “Setting > Display > Preview & Monitor”.

The system displays “Preview & Monitor” interface, as shown in Figure 3-100.

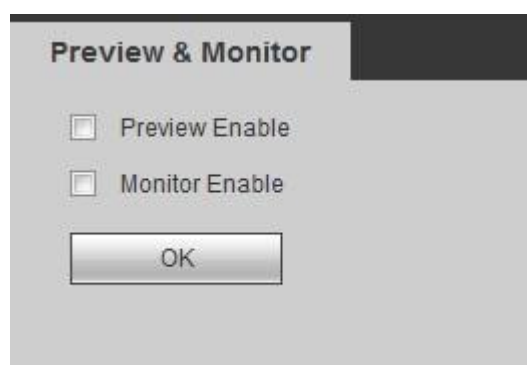


Figure 3-100

Step 2 Enable the preview and monitor function according to needs.

Step 3 Click "OK" to complete the setting.

3.4.5.11 Smart Pull Stream

The system pulls sub-stream automatically when actual resolution rate of the window is less than or equal to the set value.

Step 1 Select “Setting > Display > Smart Pull Stream”.

The system displays “Smart Pull Stream” interface, as shown in Figure 3-101.

Figure 3-101

Step 2 Configure parameters according to actual needs, by reference to Table 3-19.

Parameter	Description
TV Wall	Select TV wall according to needs.
Block	Select block according to needs.
Enable	Tick the check box to enable smart pull stream.
Resolution Width	Fill in window resolution width according to actual situation, with the range of 128–1920.
Resolution Height	Fill in window resolution height according to actual situation, with the range of 128–1080.

Table 3-19

Step 3 Click “OK” to complete the setting.

3.4.6 Additional Configuration

Configure extended functions, including center control and dispatch machine.

3.4.6.1 Center Control

After enabling center control function, a third-party system can control this device with serial port command, in order to switch scheme, turn on/off screen and output designated signal to the video wall.



Note

Please contact technical support to obtain center control command.

Step 1 Select “Setting > Additional > Center Control”.

The system displays “Center Control” interface, as shown in Figure 3-102.

Center Control

☐ Enable

Communication Port: COM0

Baud Rate: 115200 Data Bit: 8

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

OK Refresh

Figure 3-102

Step 2 Configure parameters according to actual needs, by reference to Table 3-20.

Parameter	Description
Enable	Tick the check box to enable center control function.
Serial	Device serial port, COM0–COM4.
Baud Rate	Select corresponding baud rate.
Data Bit	4–8.
Stop Bit	Including stop bit 1, stop bit 1.5 and stop bit 2.
Odd/Even Parity	Partiy type includes odd parity, even parity and N/A.

Table 3-20

Step 3 Click “OK” to complete the setting.

3.4.6.2 Dispatch Machine

After enabling dispatch machine function, a third-party system can control this device, in order to switch scheme and turn on/off screen.

Step 1 Select “Setting > Additional > Dispatch Machine”.

The system displays “Dispatch Machine” interface, as shown in Figure 3-103.

Dispatch Machine

Video Wall: Wall Block: Block ☐ All

☐ Enable

1-1

OK

Figure 3-103

Step 2 Select the TV wall and block that require setting.

Step 3 Select screen and tick “Enable”.



Note

Tick “All” to select all screens.

Step 4 Click “OK” to complete the setting.

3.5 Info

View device info; view or download the user’s manual.

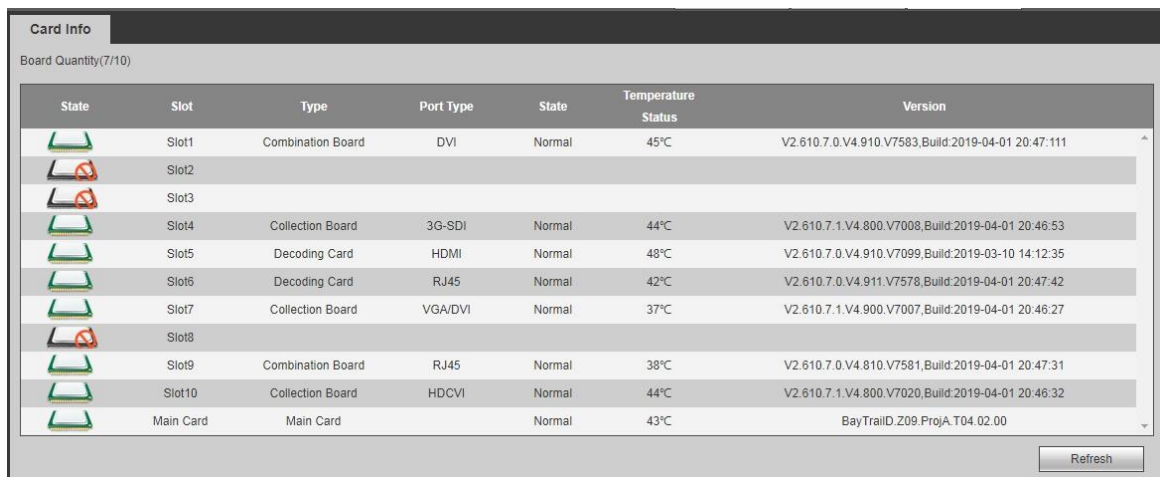
3.5.1 Device Info

View the info about the embedded multi-screen controller.

3.5.1.1 Card Info

View card status, type, port type and temperature status info.

Select “Info > Device Info > Card Info”. The system displays “Card Info” interface, as shown in Figure 3-104.



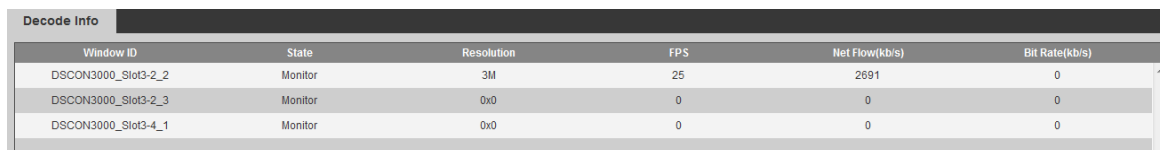
The screenshot shows the 'Card Info' interface with a table listing board information. The table has columns for State, Slot, Type, Port Type, State, Temperature Status, and Version. There are 11 rows of data, including Slot1 through Slot10 and a Main Card. Each row includes a small icon representing the board type and a 'Refresh' button at the bottom right.

State	Slot	Type	Port Type	State	Temperature Status	Version
	Slot1	Combination Board	DVI	Normal	45°C	V2.610.7.0.V4.910.V7583,Build:2019-04-01 20:47:111
	Slot2					
	Slot3					
	Slot4	Collection Board	3G-SDI	Normal	44°C	V2.610.7.1.V4.800.V7008,Build:2019-04-01 20:46:53
	Slot5	Decoding Card	HDMI	Normal	48°C	V2.610.7.0.V4.910.V7099,Build:2019-03-10 14:12:35
	Slot6	Decoding Card	RJ45	Normal	42°C	V2.610.7.0.V4.911.V7578,Build:2019-04-01 20:47:42
	Slot7	Collection Board	VGA/DVI	Normal	37°C	V2.610.7.1.V4.900.V7007,Build:2019-04-01 20:46:27
	Slot8					
	Slot9	Combination Board	RJ45	Normal	38°C	V2.610.7.0.V4.810.V7581,Build:2019-04-01 20:47:31
	Slot10	Collection Board	HDCVI	Normal	44°C	V2.610.7.1.V4.800.V7020,Build:2019-04-01 20:46:32
	Main Card	Main Card		Normal	43°C	BayTrailID.Z09.ProjA.T04.02.00

Figure 3-104

3.5.1.2 Decode Info

In “Info > Device Info > Decode Info”, view decoding info of every channel, local signal resolution and FPS, as shown in Figure 3-105.



The screenshot shows the 'Decode Info' interface with a table listing decoding information. The table has columns for Window ID, State, Resolution, FPS, Net Flow(kb/s), and Bit Rate(kb/s). There are 3 rows of data, all showing 'Monitor' state and '0x0' resolution.

Window ID	State	Resolution	FPS	Net Flow(kb/s)	Bit Rate(kb/s)
DSCON3000_Slot3-2_2	Monitor	3M	25	2691	0
DSCON3000_Slot3-2_3	Monitor	0x0	0	0	0
DSCON3000_Slot3-4_1	Monitor	0x0	0	0	0

Figure 3-105

3.5.1.3 Device Info

Obtain device information, and save the device information file to local device or flash drive.

Step 1 Select "Info > Device Info > Device Info".

The system displays "Device Info" interface, as shown in Figure 3-106.



Figure 3-106

Step 2 Select "Device Info".

Step 3 Click "Acquire".

On completion, the list displays .tar device information file.



Note

- Click  to save the file in local device or flash drive.
- Click  to rename the file.
- Click  to delete the file.

3.5.1.4 Device Status

View device network status, CPU status, fan status, power status and memory status.

Select "Info > Device Info > Device Status". The system displays "Device Status" interface, as shown in Figure 3-107.

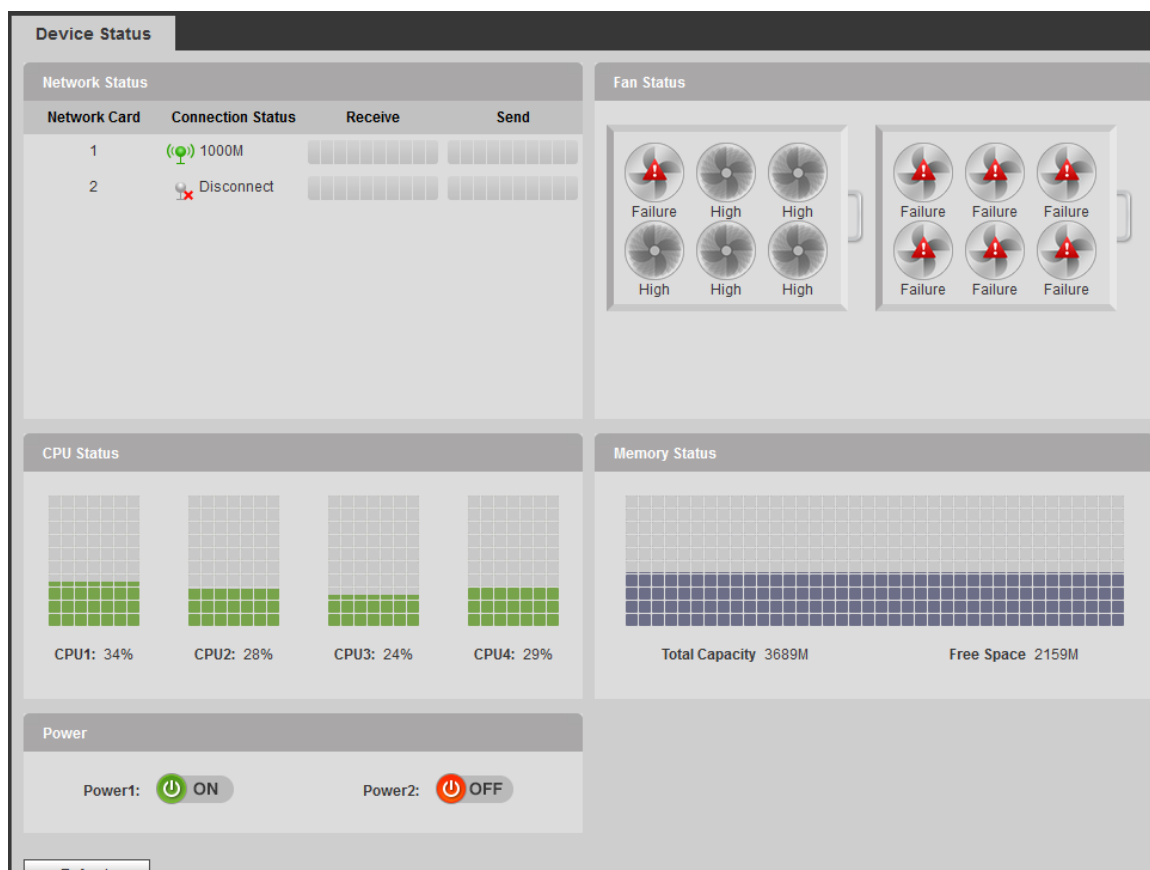


Figure 3-107

3.5.1.5 System Log

Search system log info according to time and type; backup the log to local PC.

Step 1 Select “Info > Device Info > System Log”.

The system displays “System Log” interface, as shown in Figure 3-108.

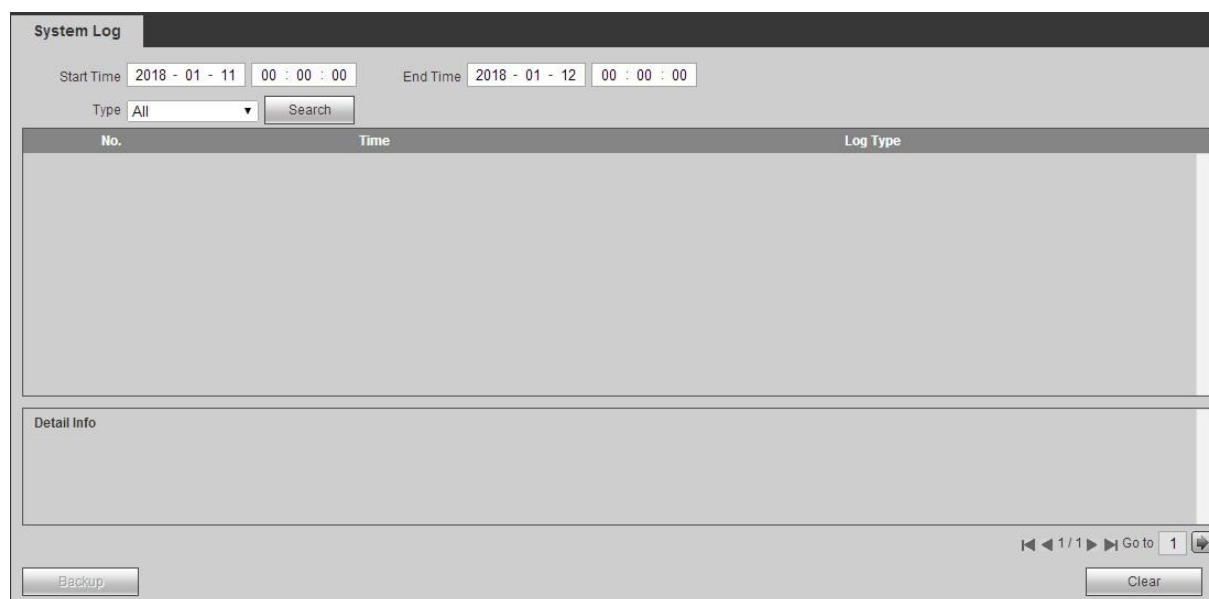


Figure 3-108

Step 2 Input “Start Time” and “End Time”, and select type.

Step 3 Click “Search”.

- Click “Backup” to back up the log to local PC.
- Click “Clear” to clear all logs within the selected time and according to selected type.

3.5.1.6 Online User

Select “Info > Device Info > Online User”. View online user’s username, user group, IP address and other basic info, as shown in Figure 3-109.

Online User					
	No.	Username	User Group	IP Address	User Login Time
☐	1	admin	admin	10.33.3.122	2018-01-11 13:55:58
☐	2	admin	admin	10.33.3.122	2018-01-11 13:39:41
Refresh					

Figure 3-109

3.5.1.7 Version Info

Select “Info > Device Info > Version Info” to view its version info.

3.5.2 Help

Select “Info > Help > User’s Manual” to view or download user’s manual.

3.6 Logout

Log out the current user. Password shall be input when you enter the menu for the next time.

4 Local Interface Config

4.1 General Operation

4.1.1 Bootup

Plug in power line, and press power switch on front panel. Power indicator turns on and device boots up followed by boot interface which lasts for 90s.

When you boot up device, please keep the following in mind:

- Make sure whether the supplied voltage is within 100-240V/47-63Hz. Turn on the device after you check power line connection.
- We recommend you to use power supply with stable voltage and little interference (refer to international standard), which help the device to work stably and last longer. This will also benefit external devices such as camera. UPS is the best choice if possible.

4.1.2 Shutdown

There are two shutdown methods.

- Enter “Main Menu > Shut down System”, and select “Shut down Device”.
- Press ON button on panel for 5s to shut down.



Caution

- Method 1 is recommended, in order to protect the device from accidental poweroff.
- After the device is shut down, unplug the device from power supply.

4.1.2.1 Outage Recovery

When the device is under working status, and there is an outage or forced shutdown, the system can automatically save and resume previous working status after power recovery.

4.1.2.2 Replace Button Battery

Please make sure to use the same type of battery if possible. Inspect the system time regularly and replace the battery once every year, to ensure accuracy of system time.



Caution

Before replacement, please export and save the system setting; otherwise, you may lose all the data!

4.1.3 Enter System Menu

Boot up the device.

Step 1 The system displays “Device Initialization” interface, as shown in Figure 4-1.

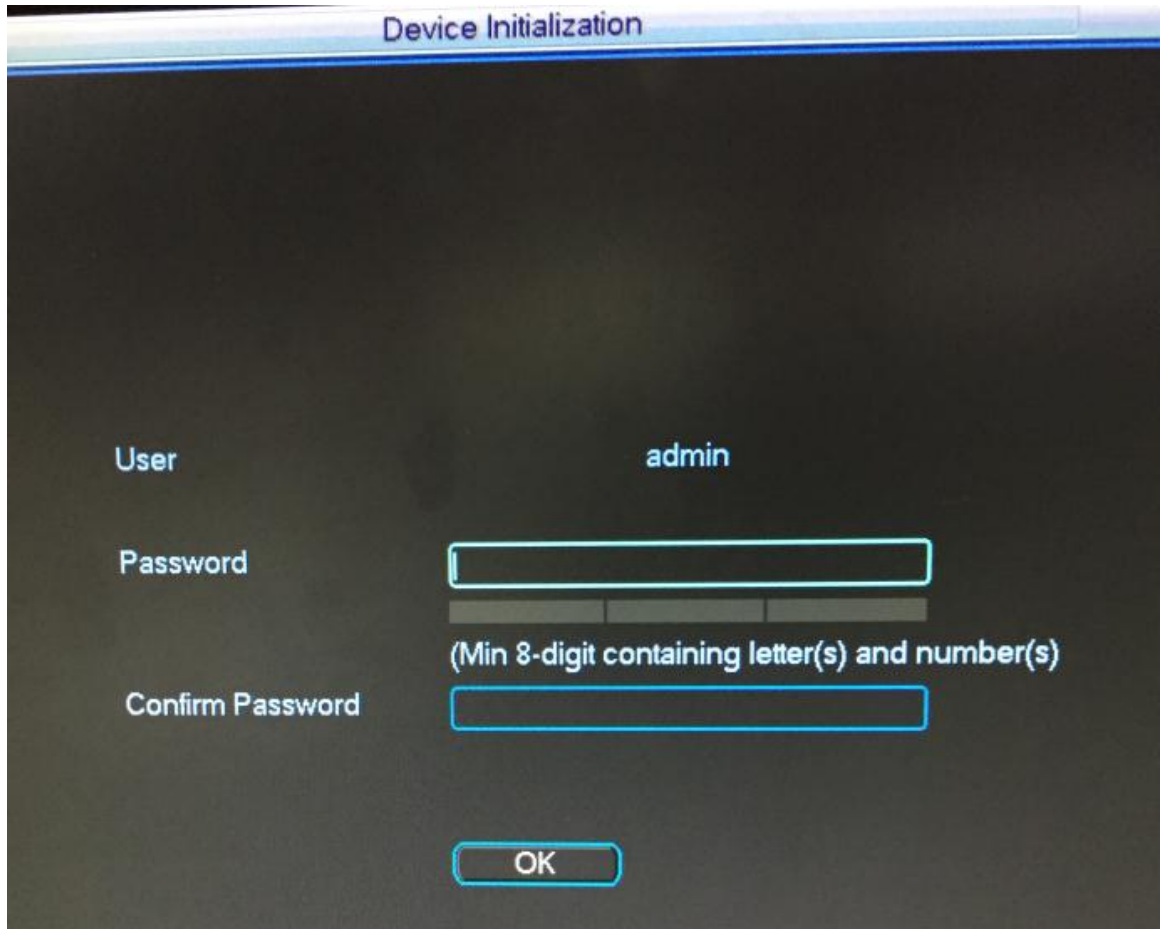


Figure 4-1

Step 2 Set admin user's password.



Note

Password can be 8 to 32 non-null characters; it consists of 2 types or over 2 types among capital letters, small letters, numbers and symbols (except “” , “[]” , “,” , “.” and “&”). “Password” and “Confirm Password” shall be the same. Please set a high-security password according to password strength prompt.

Step 3 Click “OK” to complete the setting.

Step 4 Click the right mouse button.

The system displays “System Login” interface, as shown in Figure 4-2.



Figure 4-2

Step 5 Enter password and click “OK” to login the system.

 Note

Password security measure: the device will alarm if wrong password is entered for 3 times within every 30 minutes, and the account will be locked if wrong password is entered for 5 times within every 30 minutes.

4.1.4 Homepage

After login, the system enters homepage as shown in Figure 4-3. Please refer to Table 4-1 for meaning of every icon.

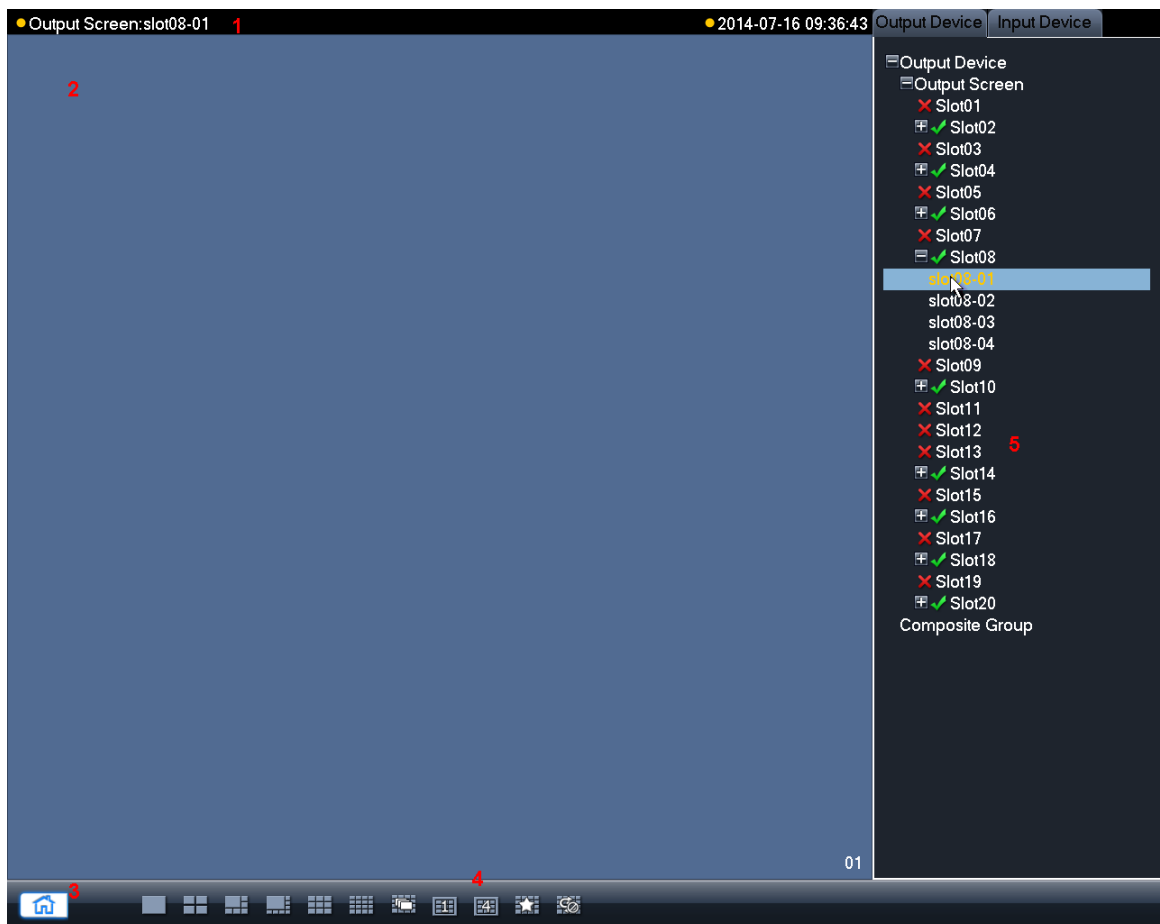


Figure 4-3

No.	Name	Function Description	
1	Present Output	Display present output slot name.	
2	Display Window	• Display split diagram of present output screen or composite video wall. • Click a channel. If its corresponding area turns yellow, it is selected successfully. • Support to display 1, 4, 6, 8, 9 and 16 channels simultaneously.	
3	Quick Menu		
4	Display Control Area	Display Mode Selection Area	Display mode: single channel, 4-channel, 6-channel, 8-channel, 9-channel and 16-channel available. (HD decoding card is different from SD decoding card) • Under single channel mode, you may select 1st to 16th channel. • Under 4-channel mode, you may switch among: 1st to 4th channel, 5th to 8th channel, 9th to 12th channel and 13th to 16th channel. • Under 6-channel mode, you may switch between 1st to 6th channel and 7th to 12th channel and 13th to 18th channel. • Under 8-channel mode, you may switch between 1st to 8th channel and 9th to 16th channel. • Under 9-channel mode, you may switch between 1st to 9th channel and 8th to 16th channel. • Under 16-channel mode, you may view all 16 channels at the same time.
			Independent display button. It allows an independent view of any window selected in a single screen or independent view plus crossing screen function in a composite video wall. To exit, you need to re-split and drag selected window.
			Split all composite video wall units into one.
			Split all composite video wall units into four.
			Favorites. Save combination of display channels which you often monitor.
			Tour button. Support tour decoding and on-wall.
5	Input and Output Device	Show input and output devices of each slot and channel. •  Click this button to switch to output device list. •  Click this button to switch to input device list.	

Table 4-1

4.1.5 Output Device Tree

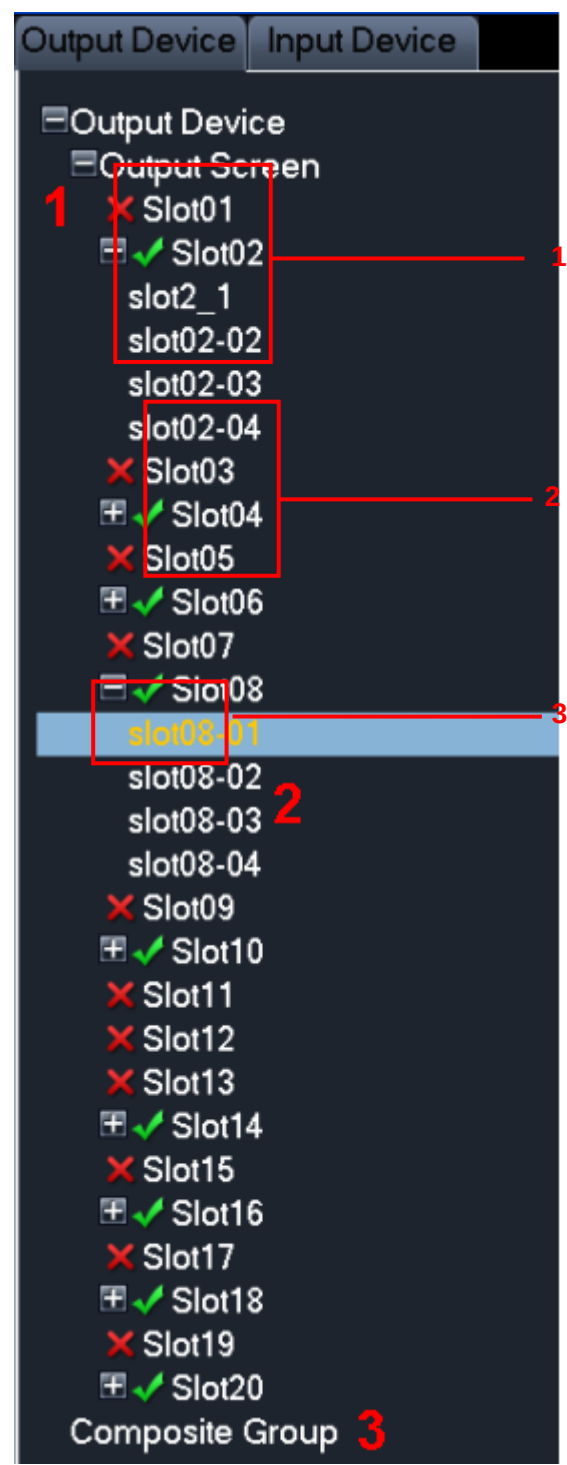


Figure 4-4

No.	Name	Function Description
1	Output Card List Area	List of output card inserted in slot. When an output card is inserted into current slot,  will appear. Click it to extend the list as  . Meanwhile, the current output card's corresponding output interface name will be listed.
2	Output Interface List	Display all output interface names under current output card. Switch display control area to current output interface, by double clicking on output interface

	Area	name to achieve control over displayed contents of current output interface.
3	Composite Video Wall List Area	Display current composite video wall list. Double click composite video wall to switch from display control area to current composite video wall to achieve control over displayed contents of current composite video wall.

Table 4-2

4.1.6 Input Device Tree

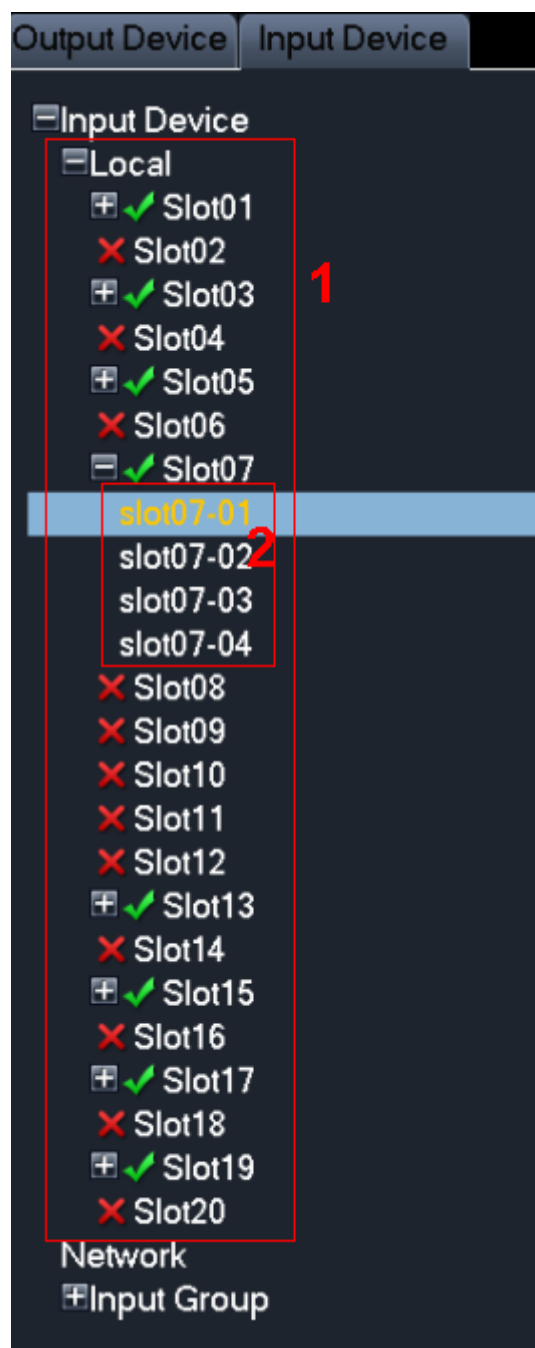


Figure 4-5

No.	Name	Function Description
1	Input Card	When there is input card, it will display  icon and you may click it to extend the list as  . Current input card name will be displayed.

2	Input Interface List Area	Display all input interface names under current input card. Select channel in control area. By double clicking input interface name, you may switch from local input channel to currently selected input channel.
---	---------------------------	---

Table 4-3

4.1.7 Display Setup

4.1.7.1 Input/Output Config

The controller has no output by default after first bootup. You may set it on main menu.

Step 1 In output list, double click output channel name, select split window and then its corresponding window turns yellow, as shown in Figure 4-6.

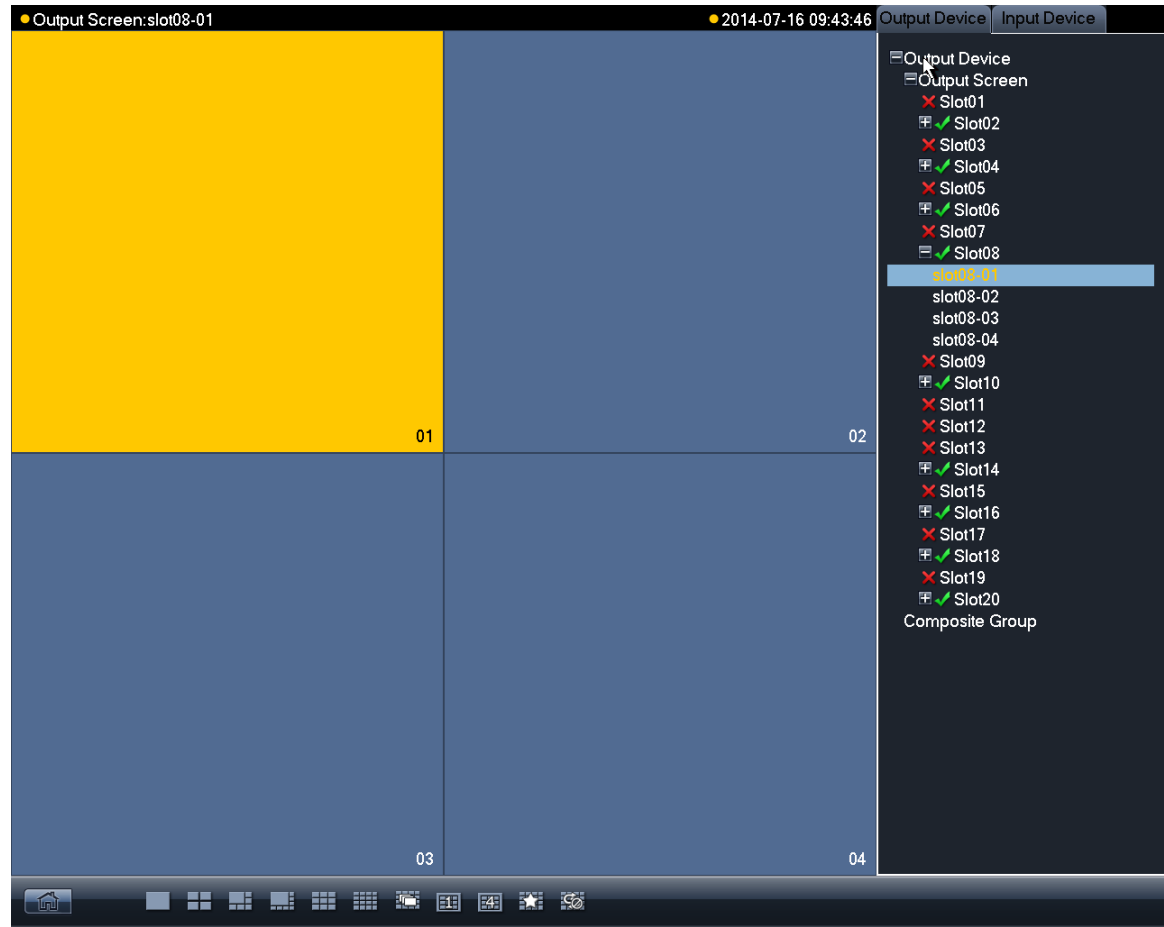


Figure 4-6

Step 2 Switch to input device list, double click corresponding input channel and then config signal source to output interface, as shown in Figure 4-7.

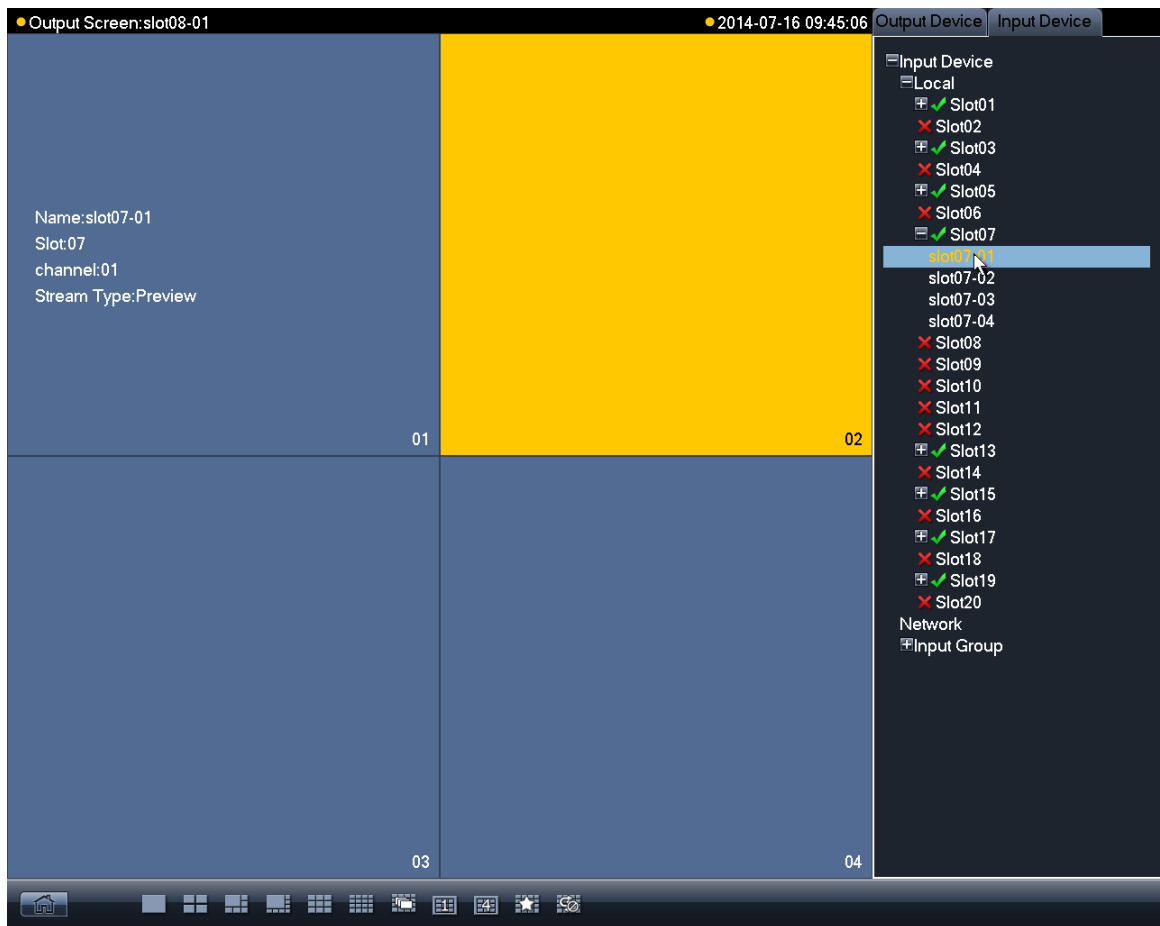


Figure 4-7

4.1.7.2 Menu Introduction

Click the right mouse button at homepage, and the system pops up functional menu, as shown in Figure 4-8. Please refer to Table 4-4 for details.

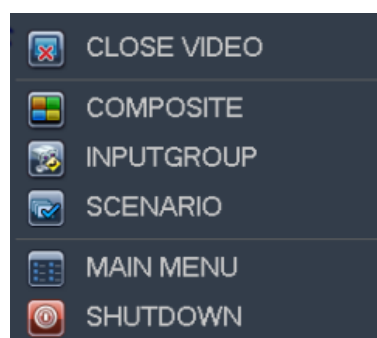


Figure 4-8

Name	Function Description
Close Video	Delete channel config of current output screen.
Composite	Enter composite screen interface to operate.

Name	Function Description
Input Group	Config input group. Display all signal info of input group on the present output screen. When signal source of input group is more than the max. split of output screen, auto tour starts.
Scenario	Config scenario. Save all output screen config of current device.
Main Menu	Display main menu.
Shutdown	Shut down the device.

Table 4-4

4.1.8 Input Group

Add self-defined input group, including local signal and network info. The added signals can be configured to every output channel of video wall.

Step 1 Click the right mouse button to select “Input Group”.

The system displays “Input Group” interface, as shown in Figure 4-9.

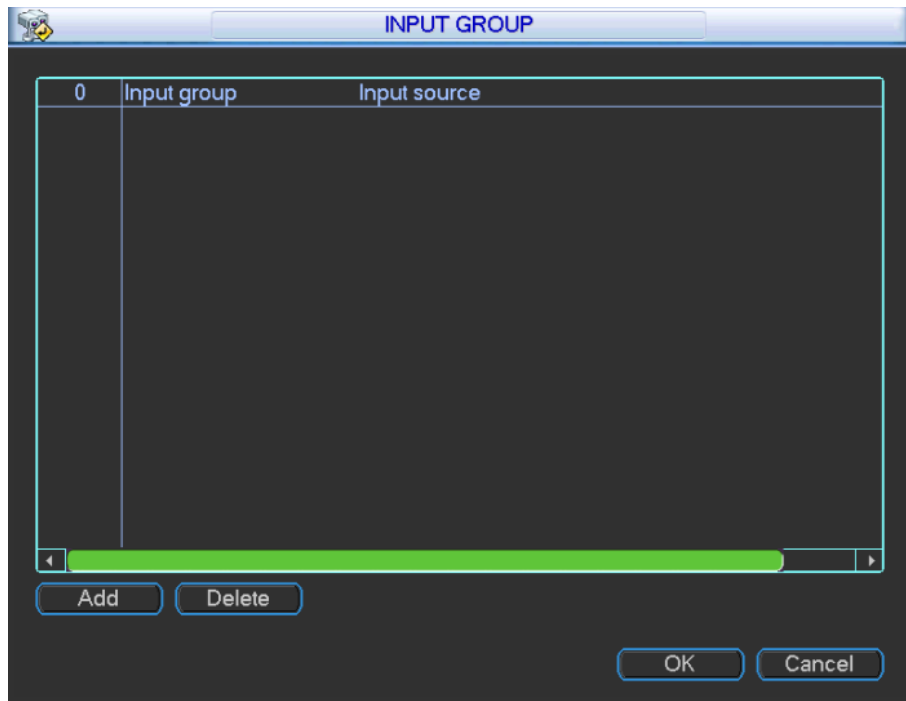


Figure 4-9

Step 2 Click “Add”.

The system displays “Add Input Group” interface, as shown in Figure 4-10.

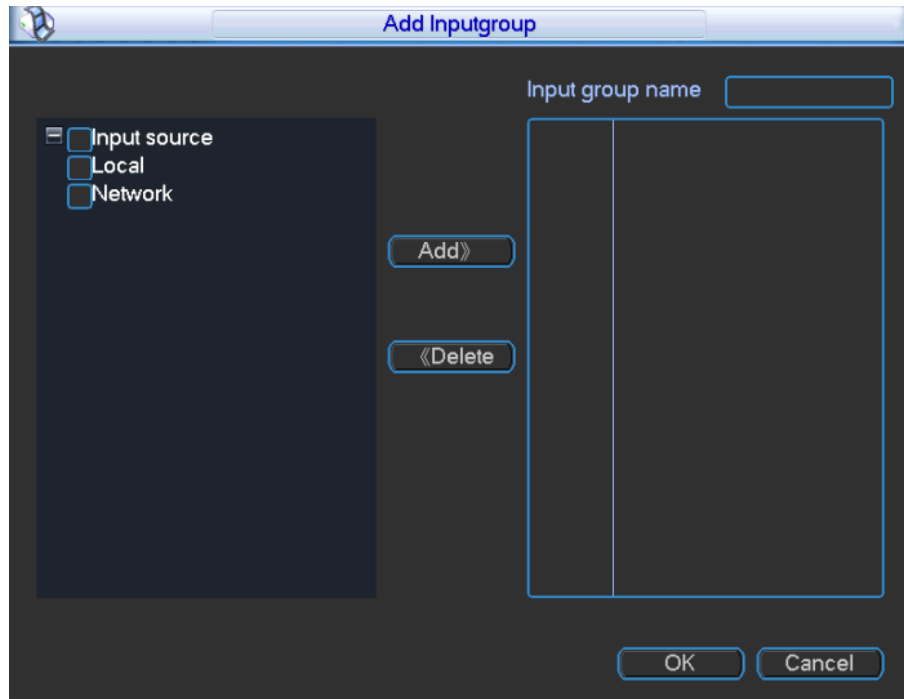


Figure 4-10

Step 3 Select local or network signal source to be added to input group, and click “Add”.

 Note

 means that it is selected.

Step 4 Enter “Input Group Name” and click “OK”, as shown in Figure 4-11.

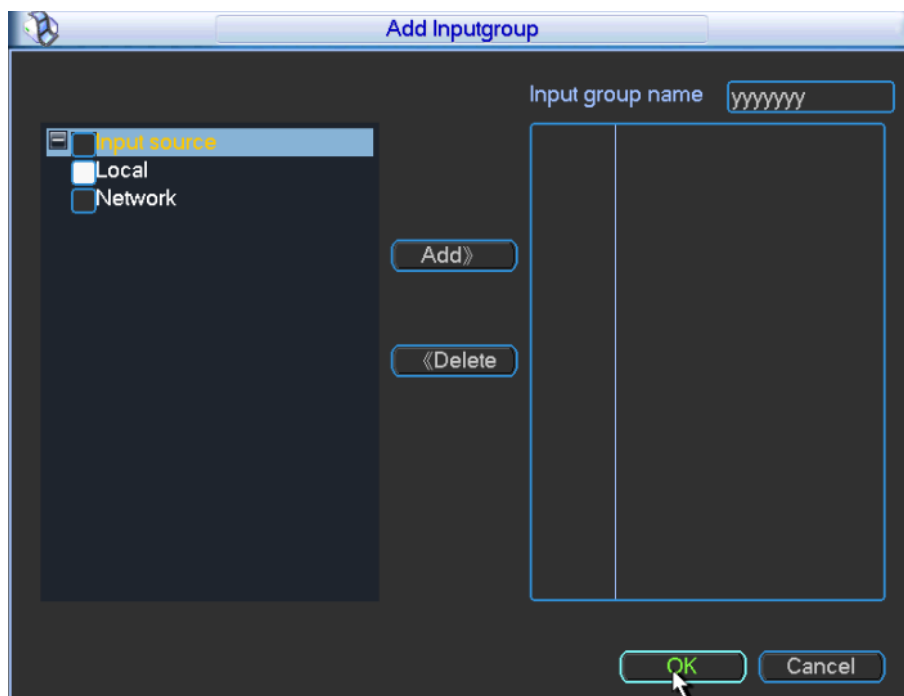


Figure 4-11

 Note

- Repeat above steps to add more input groups.
- Tick the check box corresponding to input group, and click “Delete” to delete the input group.

After adding, the system displays Figure 4-12.

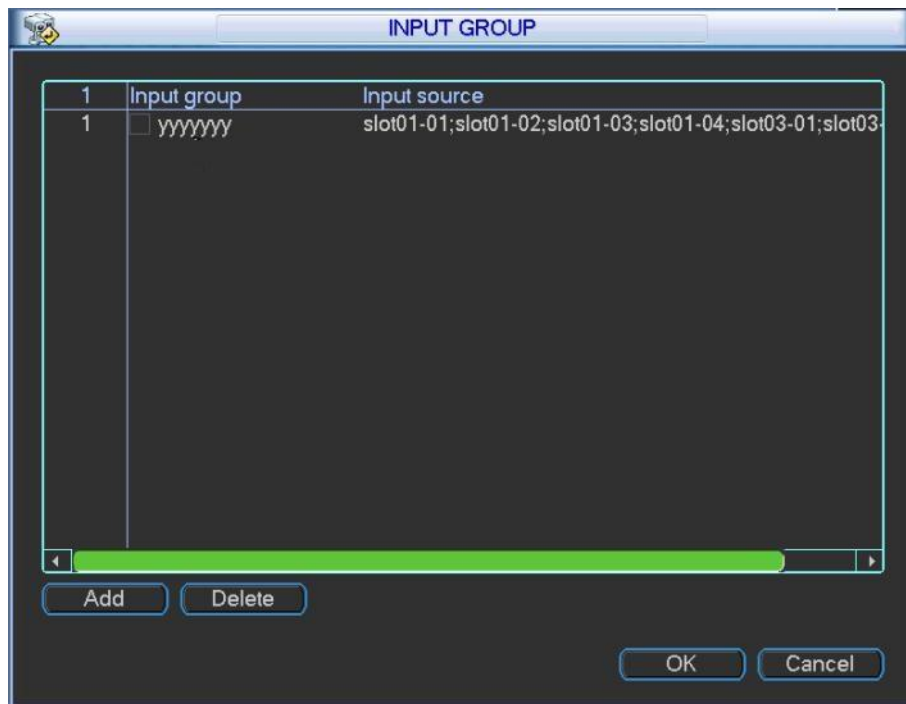


Figure 4-12

Step 5 Click “OK”.

The added input groups can be seen at the main interface, as shown in Figure 4-13.

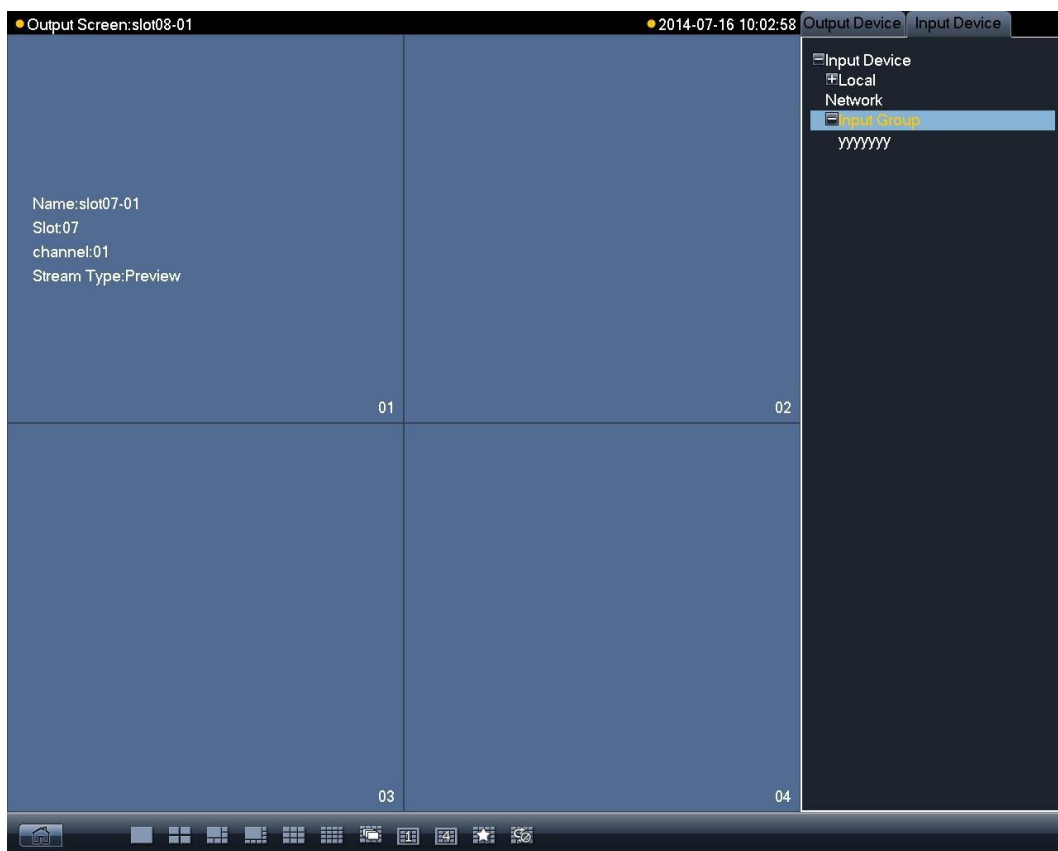


Figure 4-13

Step 6 In output list, double click output channel name and select one output channel. Its corresponding window turns yellow, as shown in Figure 4-14.

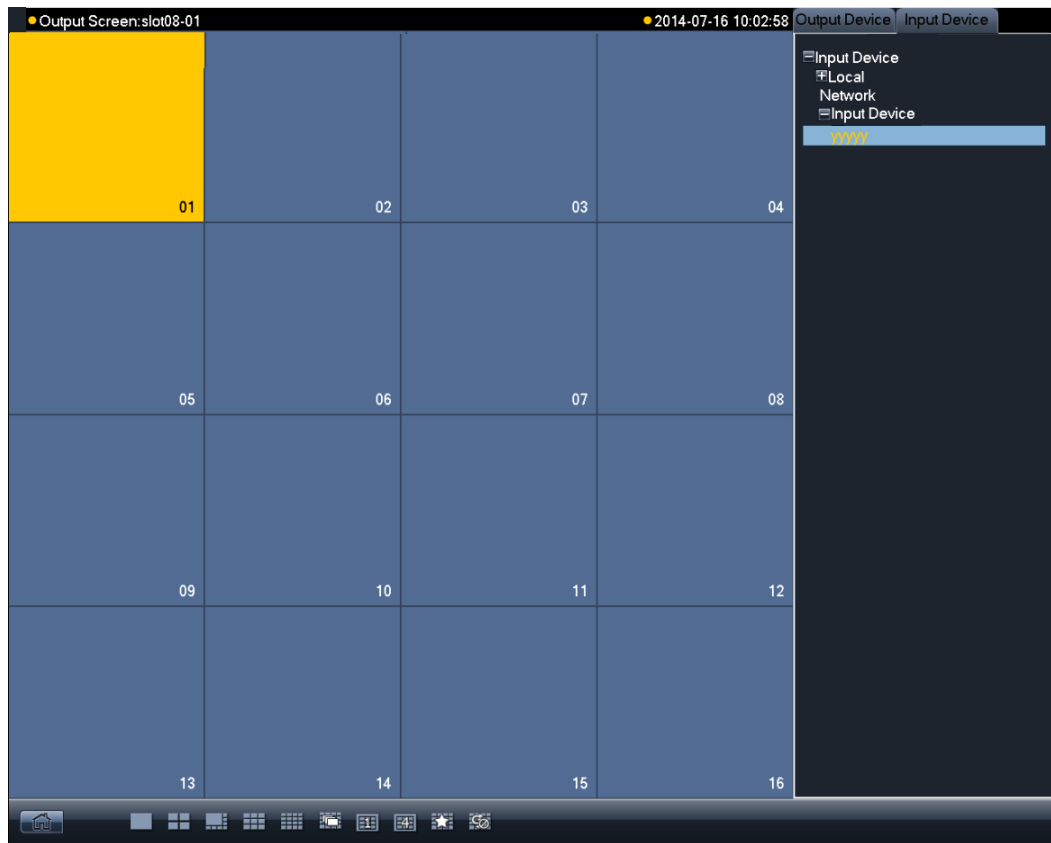


Figure 4-14

Step 7 Switch to input device list. Double click configured input group.
Configured signal source will appear on output channel, as shown in Figure 4-15.

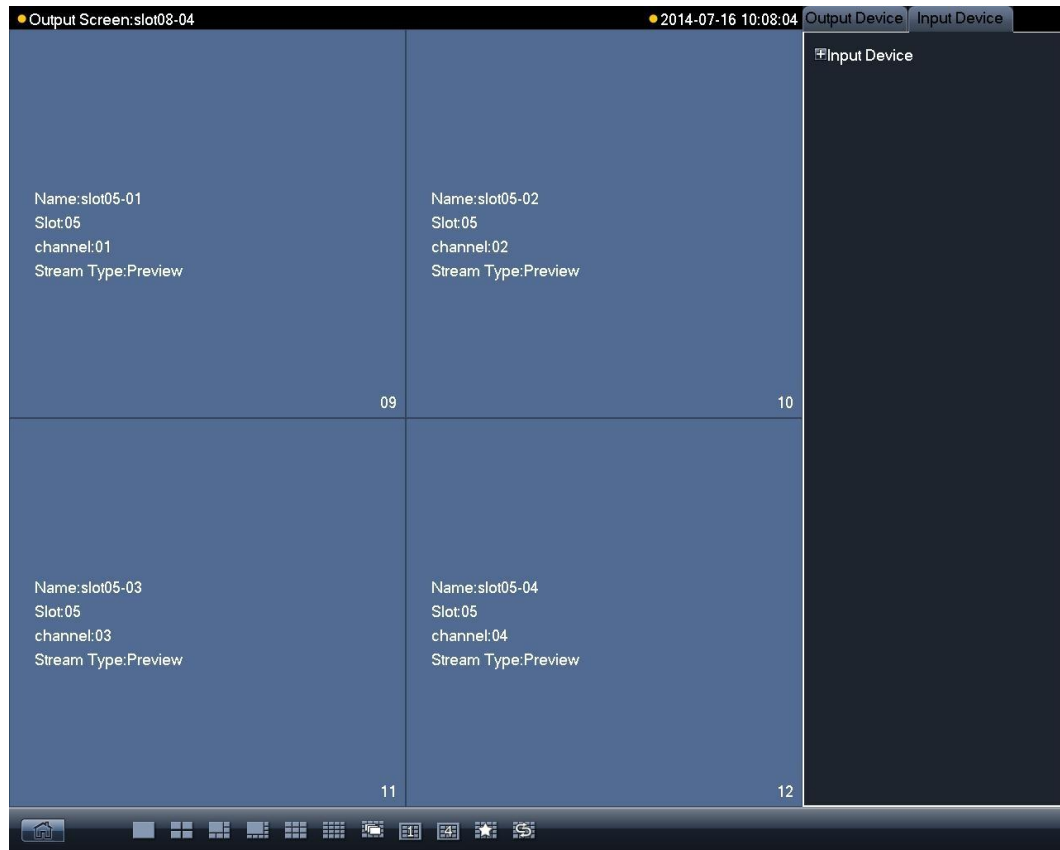


Figure 4-15



Note

When image quantity of input group is more than the max split of output screen, auto tour starts.

4.1.9 Scheme

Customize video wall layout, and save it as a scheme. Add, modify, delete and load the schemes.

Step 1 Click the right mouse button to select “Scheme”.

The system displays “Scheme” interface, as shown in Figure 4-16.

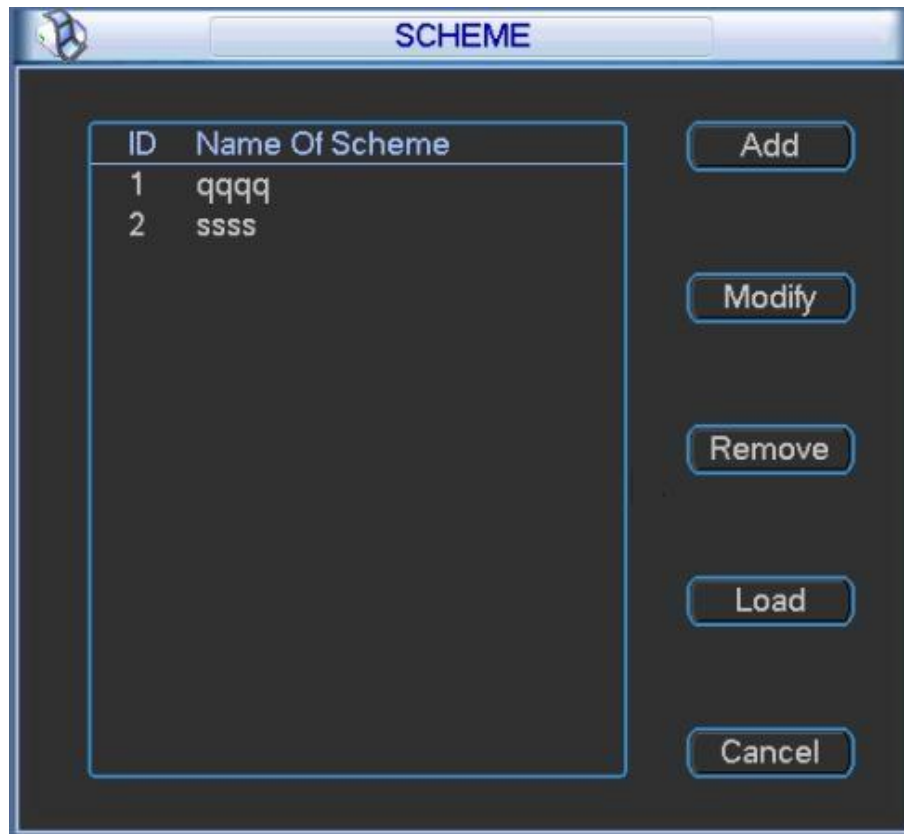


Figure 4-16

Step 2 Click "Add".

The system displays "Add Scheme" interface, as shown in Figure 4-17.

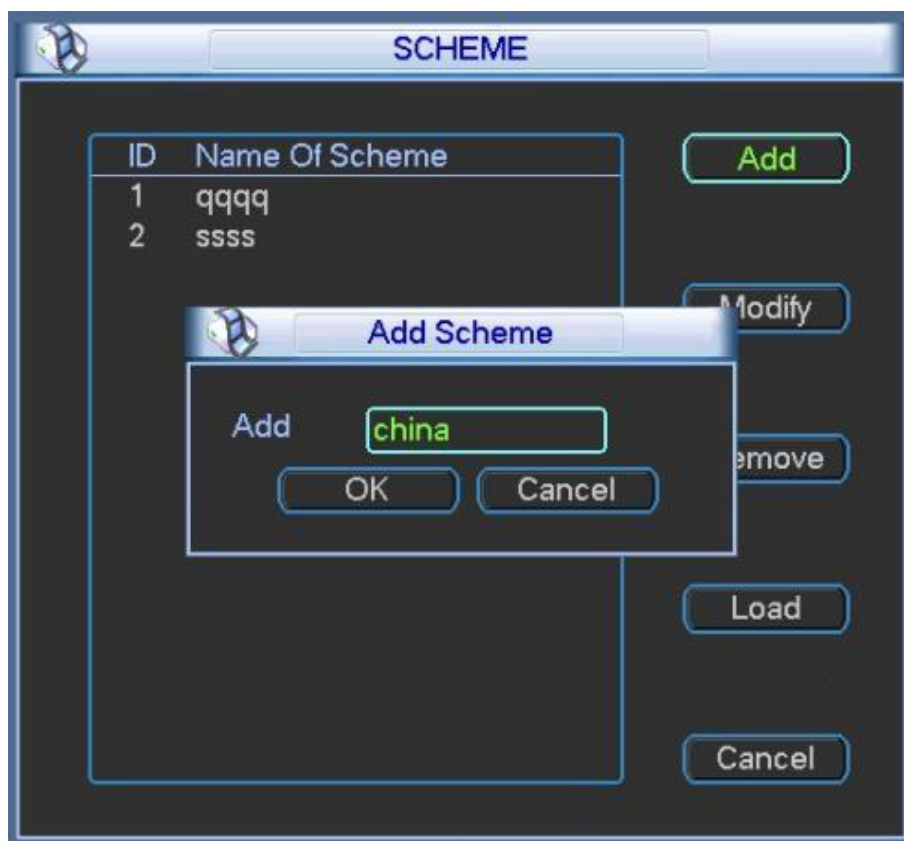


Figure 4-17

Step 3 Enter scheme name and click “OK”.

- Select a scheme and click “Modify” to rename it, as shown in Figure 4-18.



Figure 4-18

- Select a scheme and click “Delete” to delete it.
- Select a scheme and click “Load” to load it.

 Note

If the scheme is not configured, it cannot be saved.

4.2 Advanced Menu Operation

4.2.1 Menu Navigation

Main Menu	1 st Level Submenu	Note
Setting	General	It includes system time, video record saving method, local device No. and etc.
	RS232	Set serial function, baud rate and other parameters.
	Network	Set network address, video data transmission protocol and other parameters
	Display	Set input channel and output channel name.
	Default	All or some configs are restored to factory defaults.  Note User account config cannot be restored to defaults.

Main Menu	1 st Level Submenu	Note
Advanced	Abnormality	Set up alarm for abnormality event such as network disconnection, IP conflict and MAC conflict.
	Account	Maintain user group and user account.
	Auto Maintain	Set up auto maintenance items.
Info	Log	Display system log for important events; appoint log for event that requires record.
	Version	Display system hardware features, software version, release date and etc.
	Online User	View online user info.
	Status	View fan speed, card info and its temperature info, power source info, net percentage, CPU percentage and memory percentage.
Shutdown	-	Log off menu user, shut down system, reboot system and switch user.

4.2.2 Menu Operation

Main menu includes setting, advanced, info and shutdown, as shown in Figure 4-19.

 Note

- Setting in all submenus will take effect after being saved; otherwise, the setting is invalid.
- If a check box is filled with ☒ or ticked, then it is selected; otherwise, it is not selected. This note applies to the whole manual.

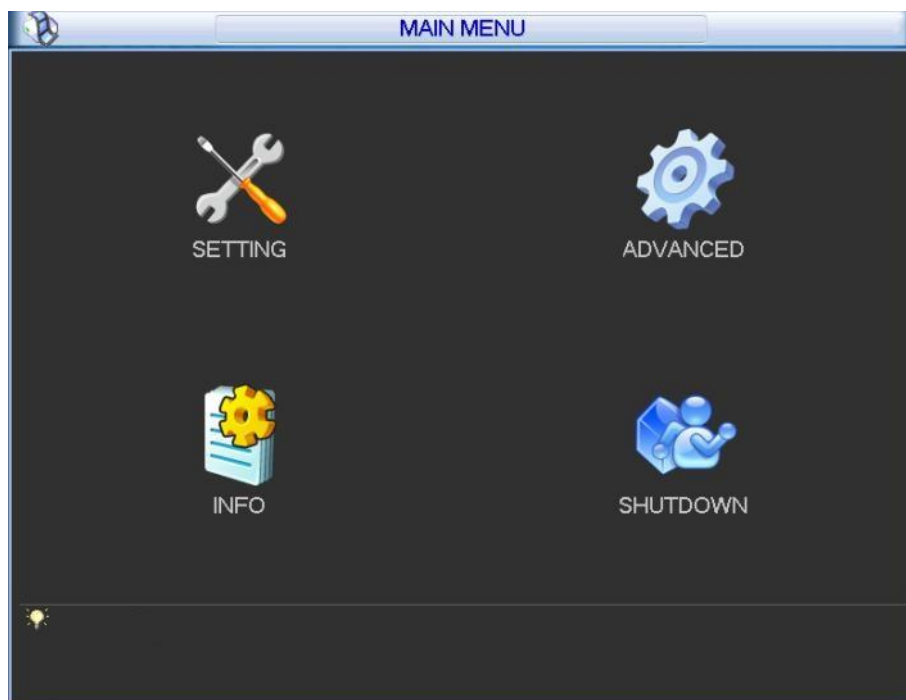


Figure 4-19

4.2.3 Setting

Submenu includes general, RS232, network, display and default, as shown in Figure 4-20.

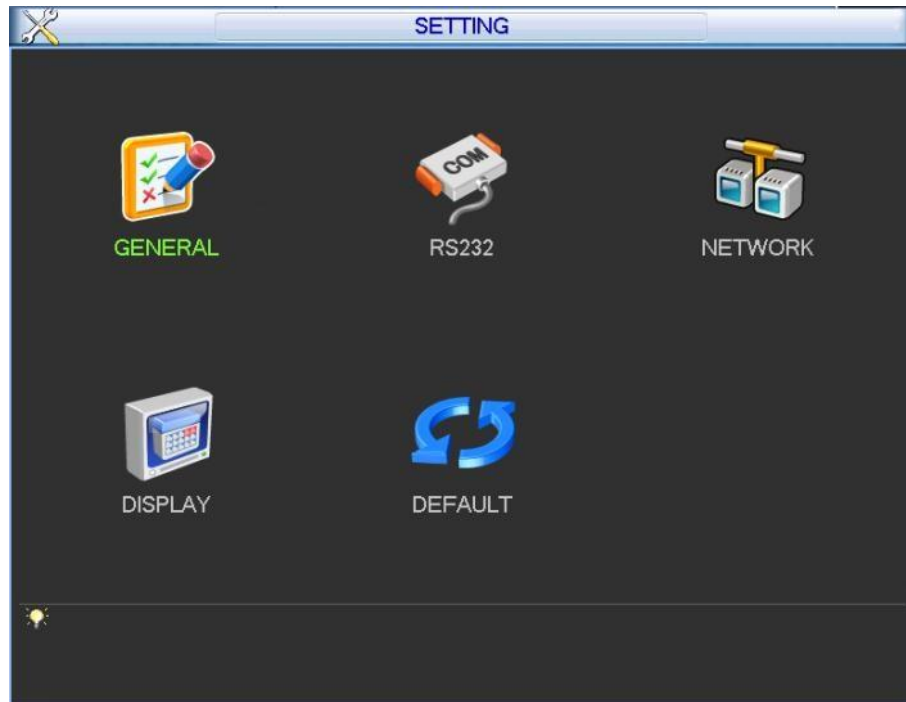


Figure 4-20

 Note

Only authorized user can enter system setting.

4.2.3.1 General

Set general info of the device, including device info, system time and data format.

Step 1 In main menu, select "Setting > General".

The system displays "General" interface, as shown in Figure 4-21.

The screenshot shows a 'GENERAL' configuration window with the following fields and controls:

- System Time:** 2014 - 07 - 16 10 : 18 : 01, with a 'Save' button.
- Date Format:** YYYY MM DD (dropdown), with a 'DST' checkbox and a 'Set' button.
- Date Separator:** - (dropdown).
- Time Format:** 24-HOUR (dropdown).
- Language:** ENGLISH (dropdown).
- Video Standard:** PAL (dropdown).
- Device No.:** 8 (text input).
- Device ID:** DSCON3000 (text input).
- Auto Logout:** 10 min. (text input).
- Interval:** 10 sec. (text input).
- resolution for main screen:** 1280x1024 (dropdown).
- Buttons at the bottom: 'Default', 'Save', and 'Cancel'.

Figure 4-21

Step 2 Configure parameters according to actual needs, by reference to Table 4-5.

Parameter	Description
System Time	Modify present system date and time; click “Save” after modification.
Date Format	Select date display format, including YYYY MM DD, MM DD YYYY or DD MM YYYY.
Date Separator	Serve as separator of date format.
Time Format	24-hour mode or 12-hour mode.
Language	Switch menu language (English and Simplified Chinese).  Note The system shall be rebooted to put system language into effect.
Video Standard	Select video standard, which is PAL by default.
Device No.	Set device number.
Device ID	Define device ID.
Auto Logout	Set menu standby time to be 0 – 60 minutes. 0 means there is no standby time. If a time period is set, the system will log out the present account automatically after this idle period. To operate, the user shall log in again.
Interval	Set interval between each tour of monitoring, with the range of 10s – 120s.
Resolution for Main Screen	It is 1280×1024 by default.

DST	Tick the check box and click “Set”, and the system displays Figure 4-22 and Figure 4-23. Set DST start time and end time by week or date. For example, DST in EU countries is from the last Sunday in March to the last Sunday in October. At 2:00 on the last Sunday in March according to Greenwich Mean Time, EU countries change time simultaneously. According to different time zones, local time of West European time zone (UTC) (such as Britain, Ireland and Portugal), Central European time zone (UTC+1) (such as France, Germany and Italy) and Eastern European time zone (UTC+2) (such as Finland and Greece) changes from 02:00/03:00 to 03:00/04:00. Make reverse adjustment at 03:00 on the last Sunday in October.
-----	---

Table 4-5

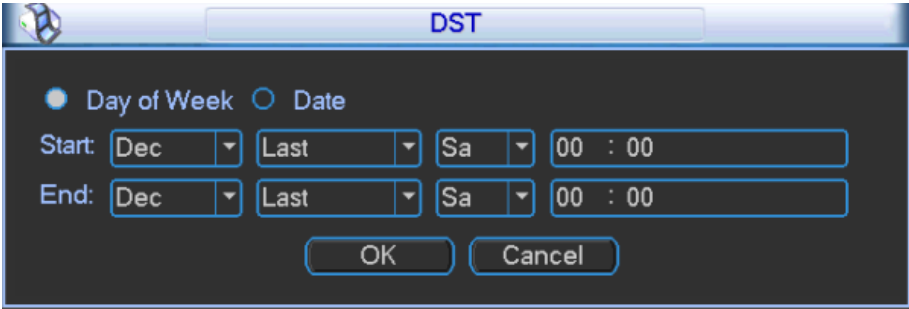


Figure 4-22

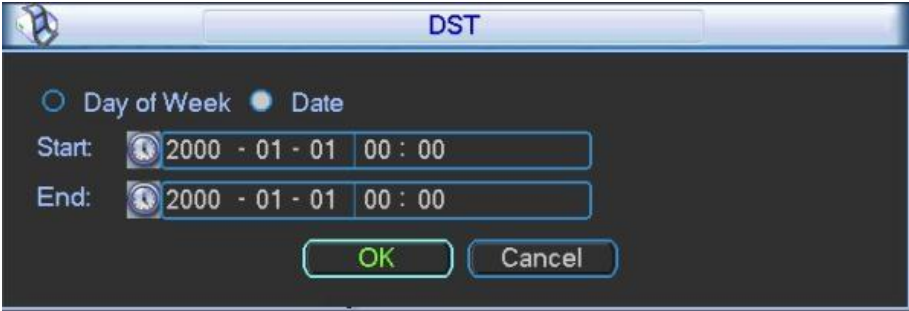


Figure 4-23

Step 3 Click “OK” to complete the setting.

4.2.3.2 RS232

After setting parameters, the device can connect other devices through RS232 port, for the purpose of debugging and operation.

Step 1 In main menu, select “Setting > RS232”.

The system displays “RS232” interface, as shown in Figure 4-24.

The screenshot shows a configuration window titled 'RS232'. It contains the following settings:

- Slot: Control
- Channel: 1
- Comm Type: 232
- Function: Console
- Baudrate: 115200
- Data Bits: 8
- Stop Bits: 1
- Parity: None
- Address: 1

Buttons at the bottom right: Save, Cancel.

Figure 4-24

Step 2 Configure parameters according to actual needs, by reference to Table 4-6.

Parameter	Description
Slot	Select the slot to be configured.
Channel	Select the channel to be configured.
Comm Type	It is RS232 by default.
Function	Select from the following 9 serial port control protocols. • Console: upgrade the program and debug with the serial port and mini client software. • Adapter: connect PC to transmit data. • Matrix control: through protocol, connect external analog keyboard to control the matrix. • PELCO keyboard: control the matrix with PELCO keyboard. • PLC controller: connect PLC controller to manage and control. • Hikvision protocol: connect Hikvision device to control. • PELCO9760: connect PELCO9760 device. • PELCO analog matrix: connect PELCO analog matrix to control. • PELCO analog matrix ASCII: connect PELCO analog matrix ASCII to control.
Baudrate	Select baudrate value.
Data Bits	Select 5–8.
Stop Bits	There are option 1 and 2.
Parity	Odd, even, mark and none.
Address	Set corresponding address.

Table 4-6



Note

Default function is console, baudrate is 115200, data bits are 8 bits, stop bits is 1 and parity is none.

Step 3 Click “Save” to complete the setting.

4.2.3.3 Network

Set network parameters of the device, so the device can communicate with other devices in the network.

Step 1 In main menu, select “Setting > Network”.

The system displays “Network” interface, as shown in Figure 4-25.

The screenshot shows the 'NETWORK' configuration window. It includes fields for Net Mode (Fault Toleranc), Network Device Name (Bond1), IP Version (IPv4), IP Address (172 . 9 . 4 . 196), Subnet Mask (255 . 255 . 0 . 0), Gateway (172 . 9 . 0 . 1), TCP Port (37777), HTTP Port (80), UDP Port (37778), RTSP Port (554), Max Connection (128), Preferred DNS (0 . 0 . 0 . 0), and Alternate DNS (0 . 0 . 0 . 0). There is a DHCP checkbox and buttons for Default, Save, and Cancel.

Figure 4-25

Step 2 Configure parameters according to actual needs, by reference to Table 4-7.

Parameter	Description
Net Mode	It includes multi-address, fault tolerance, load balance, net bridge and link aggregation.
Aggregation Set	It is available only in net bridge mode.
Net bridge Set	It is available only in net bridge mode. This setup can bond any 2 network cards to one net bridge; one network card can only bond one net bridge. Bonded net bridge will be shown in Ethernet dropdown box. Network card bonded as net bridge will be not shown.

Parameter	Description
Network Device Name	Bond 1–2 are available.
Default Network Device	Bond 1–2 are available in multi-address and net bridge mode only.
Aggregation Strategy	It is available only in link aggregation mode. Five strategies include the one based on MAC address, based on IP address and port, based on IP address and MAC address, based on IP address and based on port.
IP Version	IPv4 and IPv6.
IP Address	Enter digits to modify IP address; set corresponding “Subnet Mask” and “Gateway”.  Note IP address and default gateway shall be in the same network segment.
Subnet Mask	
Gateway	
DHCP	It is to auto search IP. When DHCP is enabled, IP/Subnet Mask /Gateway cannot be set. If present DHCP takes effect, IP/Subnet Mask /Gateway display the value obtained by DHCP; otherwise, they display 0.0.0.0. To view present IP, disable DHCP and display IP info that is not obtained with DHCP; if DHCP takes effect, previous IP info cannot be displayed when DHCP is disabled. Please set IP parameters again. In case of successful PPPoE dialing, IP/Subnet Mask /Gateway and DHCP cannot be modified.
TCP Port	Default value is 37777. Set this port according to your actual needs.
UDP Port	Default value is 37778. Set this port according to your actual needs.
HTTP Port	Default value is 80. Set this port according to your actual needs.
RTSP Port	Default value is 554. Set this port according to your actual needs.
Max Connection	Connection quantity is 0–128. 0 means there is no connection allowed, and max. connection is 128.
Preferred DNS/ Alternate DNS	Set DNS server address.

Table 4-7

Step 3 Click "Save" to save the settings.

4.2.3.4 Display

Set display mode of local signal, including modification of input channel name and output channel name.

In main menu, select “Setting > Display”. The system displays “Display” interface, as shown in Figure 4-26.

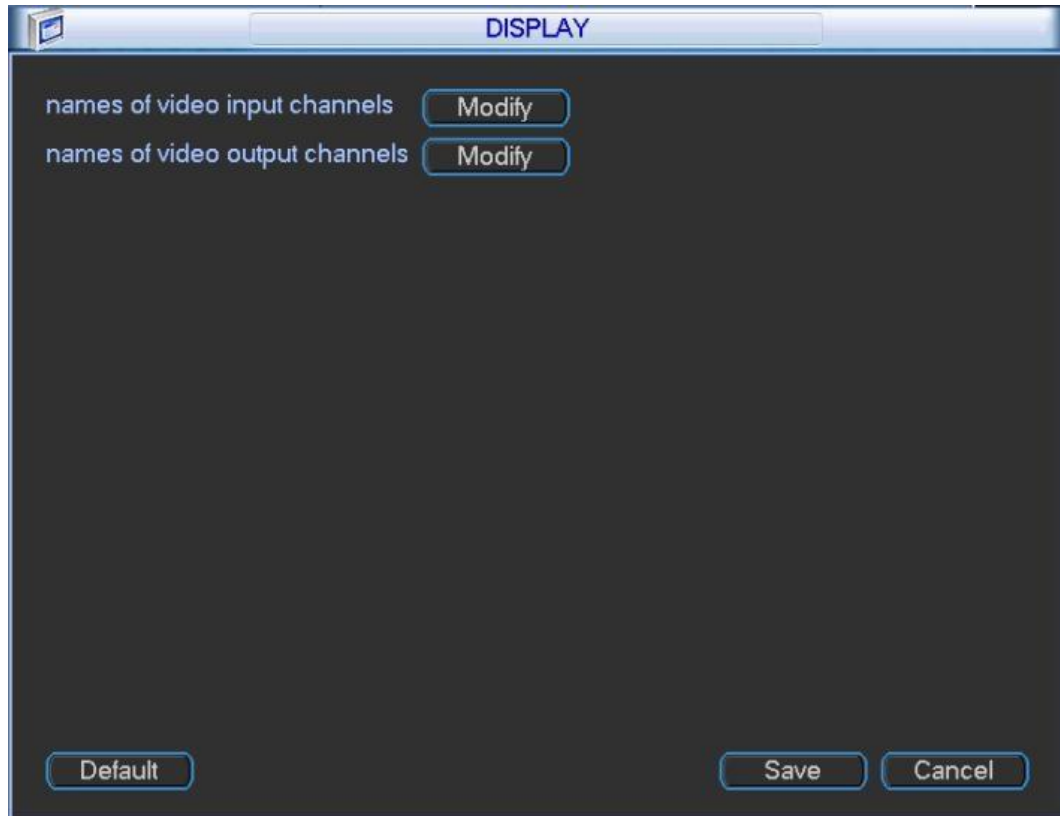


Figure 4-26

4.2.3.4.1 Modify Video Input Channel Name

- Step 1 Click "Modify" on the right of "Names of Video Input Channels".
The system displays "Names of Video Input Channels" interface, as shown in Figure 4-27.

names of video input channels

Channel Name

Channel1-1 Channel1-2

Channel1-3 Channel1-4

1/8(Curent Page/Total Page)

Figure 4-27

Step 2 Modify the name according to needs.

Step 3 Click “Save” to complete the setting.

4.2.3.4.2 Modify Video Output Channel Name

Step 1 Click “Modify” on the right of “Names of Video Output Channels”.

The system displays “Names of Video Output Channels” interface, as shown in Figure 4-28.

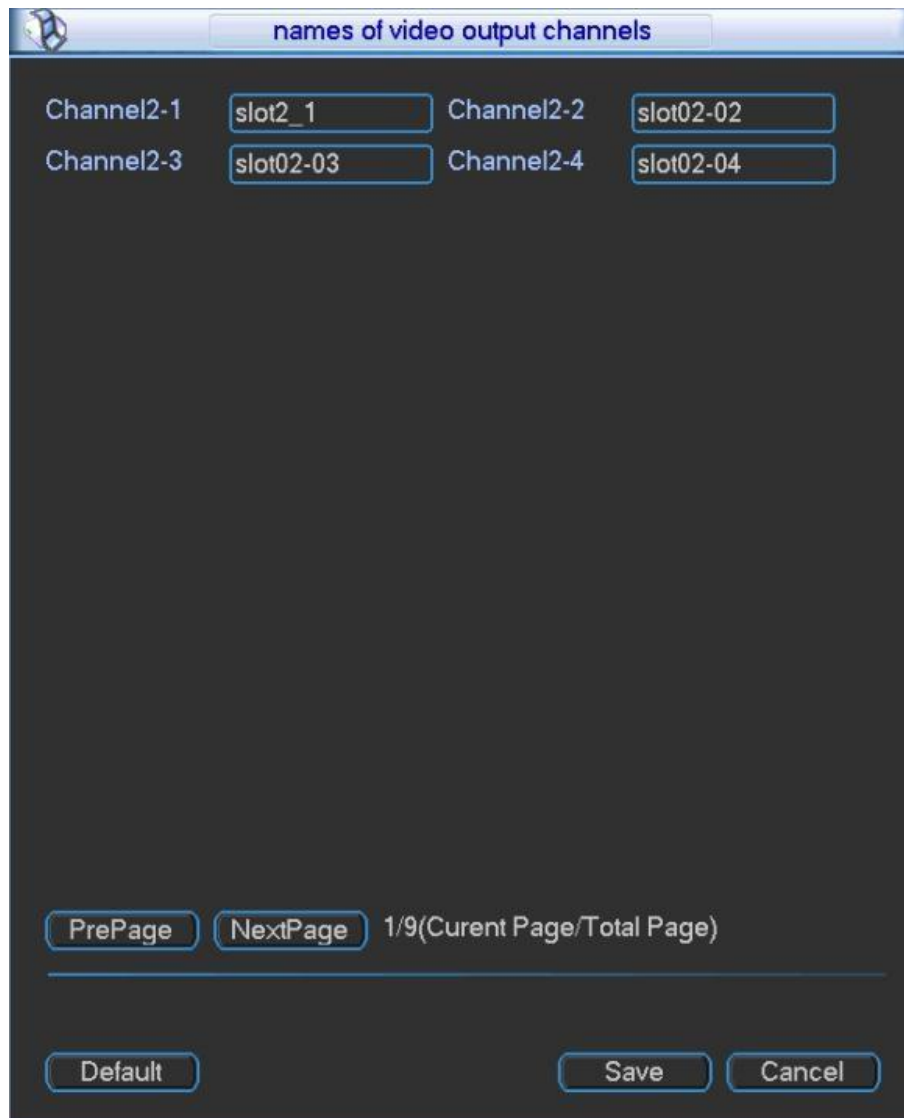


Figure 4-28

Step 2 Modify the name according to needs.

Step 3 Click “Save” to complete the setting.

4.2.3.5 Default

In case of abnormal operation and config error, try to solve the problems by restoring defaults. The system will restore factory default settings. Please choose specific items according to actual needs.

 Note

Menu color, language, video standard and user account won't be restored.

Step 1 In main menu, select “Setting > Default”.

The system displays “Default” interface, as shown in Figure 4-29.

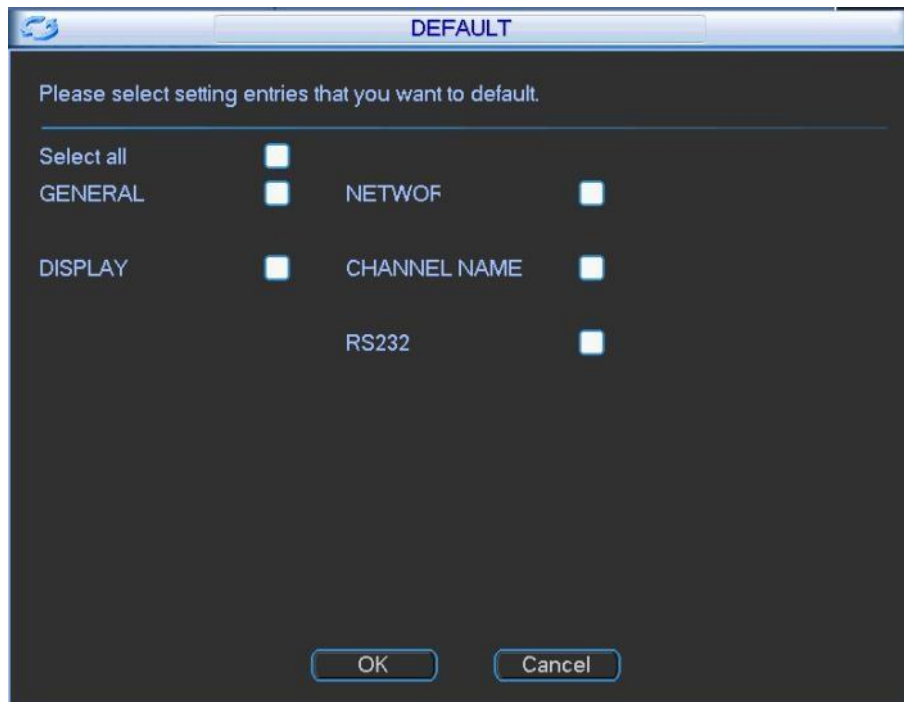


Figure 4-29

Step 2 Select the items you want to restore to defaults.

Step 3 Click "OK" to complete the settings.

4.2.4 Advanced

Advanced menu includes abnormality, account and auto maintain, as shown in Figure 4-30.

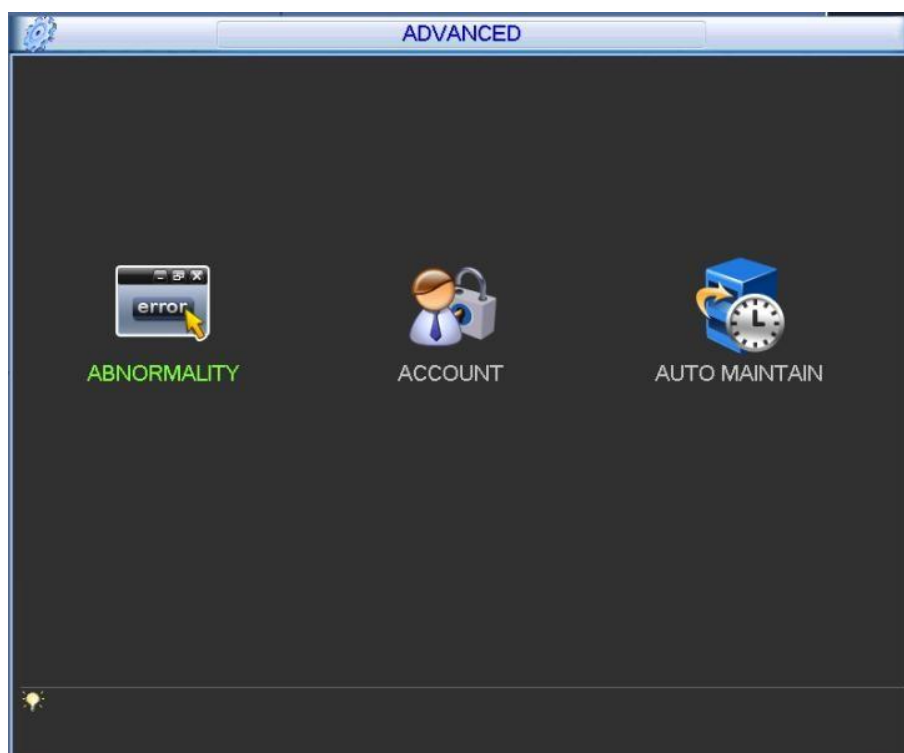


Figure 4-30

4.2.4.1 Abnormality

Set abnormality event type and alarm mode. In case of the set type of events during operation, the system executes alarm linkage actions.

Step 1 In main menu, select “Advanced > Abnormality”.

The system displays “Abnormality” interface, as shown in Figure 4-31.

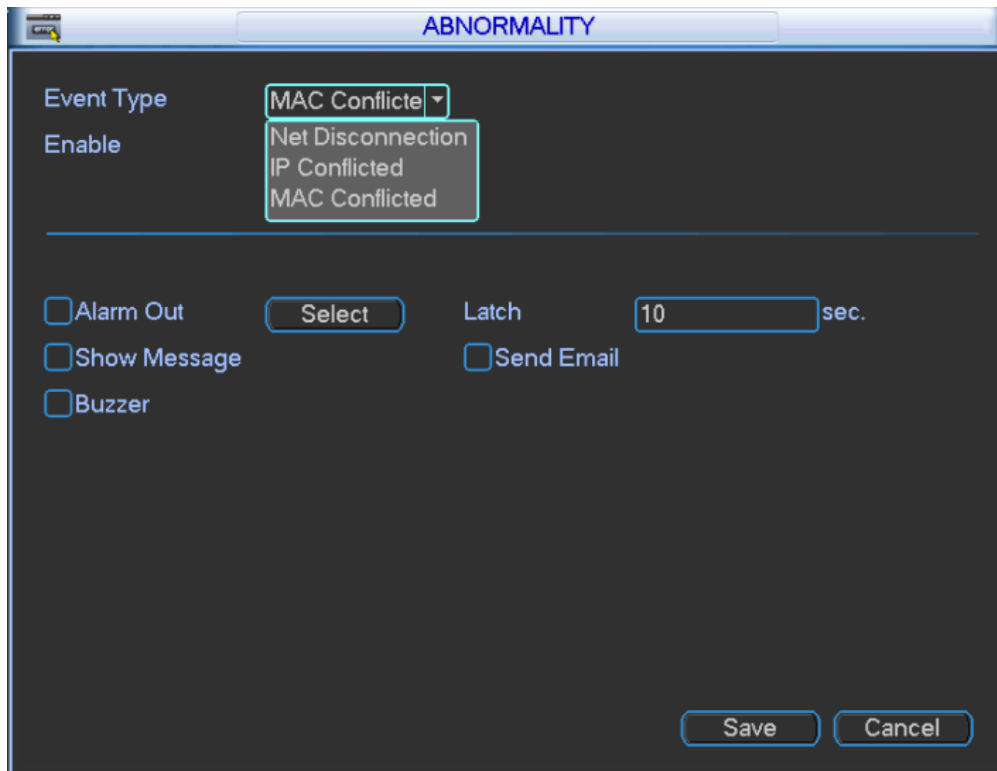


Figure 4-31

Step 2 Configure parameters according to actual needs, by reference to Table 4-8.

Parameter	Description
Event Type	It includes net disconnection, IP conflicted and MAC conflicted. Set one or multiple events.
Enable	It is selected when the check box is filled with white.
Alarm Out	Select alarm output channel(s). When alarm occurs, the system automatically enables the alarm channel(s).
Latch	The alarm stops after a latch period, with the range of 10s – 300s.
Show Message	In case of alarm, local host screen will show alarm messages.
Send Email	In case of alarm, send Email to the designated Email box.
Buzzer	In case of alarm, the buzzer beeps.

Table 4-8

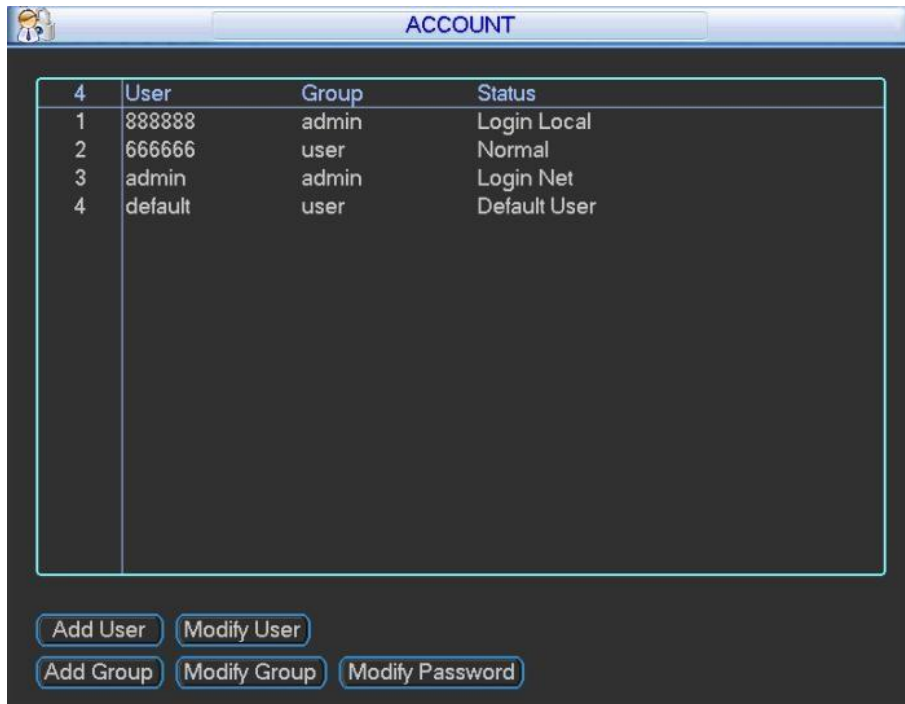
Step 3 Click “Save” to complete the setting.

4.2.4.2 Account

Account management adopts two levels: user and group, in order to manage basic info about the user and group.

 Note

- For user name and user group name, the max. length is 6-byte. The space in front of or at the back of the string is invalid, but there can be space in the middle. Valid character includes letter, number, underline, subtraction sign and dot.
- There is no limitation on user and group quantity. Add or delete groups. Default group includes user and admin groups; the user can set groups and authorize users in the group with any group authorities.
- For management, there are two levels: group and user, while group name and user name shall be unique. One user shall belong to one group only.



The screenshot shows a window titled "ACCOUNT" with a table containing user and group information. Below the table are five buttons: "Add User", "Modify User", "Add Group", "Modify Group", and "Modify Password".

	User	Group	Status
1	888888	admin	Login Local
2	666666	user	Normal
3	admin	admin	Login Net
4	default	user	Default User

Figure 4-32

4.2.4.2.1 Add User

 Note

Before adding user, please confirm if the user group exists. If not, add the user group first, by reference to “4.2.4.2.3 Add Group”.

Step 1 Click “Add User”.

The system displays “Add User” interface, as shown in Figure 4-33.

Figure 4-33

Step 2 Configure parameters according to actual needs, by reference to Table 4-9.

Parameter	Description
User, Password and Confirm	Enter username and password according to actual needs, and confirm the password. Note Password can be 8 – 32-digit non-empty characters; it can consist of at least two types among capital letter, small letter, number and special character (except “”, “”, “,”, “.” and “&”). “Password” and “Confirm Password” shall be the same. Please set a high-security password according to password strength prompt. New password shall be consistent with “Confirm Password”.
Reusable	Tick the check box, so the account can be used by multiple clients simultaneously. means that it is selected.
Memo	Enter memo info.
Group	Select a group to which the user belongs.
Authority	Configure system authority, monitor and record. Tick the check box, and the user will have the authority. User in the group can modify authority among the authority of the group. Note - Once the group is selected, the user’s authority can only be a subset of the group, not beyond authority of the group. - To facilitate management, it is suggested that ordinary user’s authority should be lower than that of advanced user.

Table 4-9

Step 3 Click “Save” to complete the setting.

4.2.4.2.2 Modify User

Click “Modify User” to modify user info.

4.2.4.2.3 Add Group

User group is the set of authorities.

Step 1 Click “Add Group”.

The system displays “Add Group” interface, as shown in Figure 4-34.

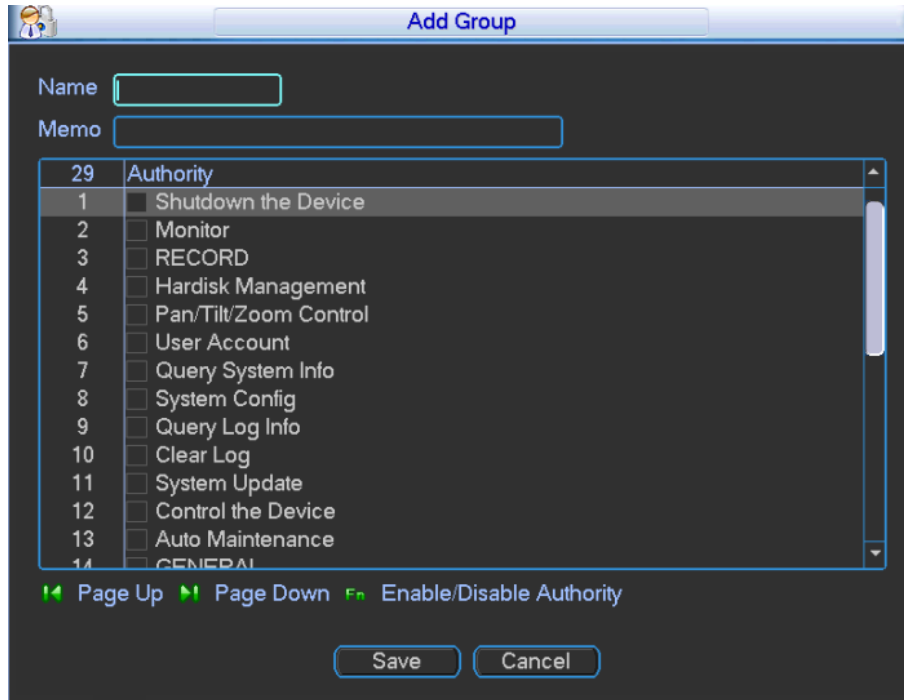


Figure 4-34

Step 2 Fill in “Name”, set “Authority” and tick it to obtain this authority.

Step 3 Click “Save” to complete the setting.

4.2.4.2.4 Modify Group

Click “Modify Group” to modify group info.

4.2.4.2.5 Modify Password

Modify user account password.

Step 1 Click “Modify Password”.

The system displays “Modify Password” interface, as shown in Figure 4-35.

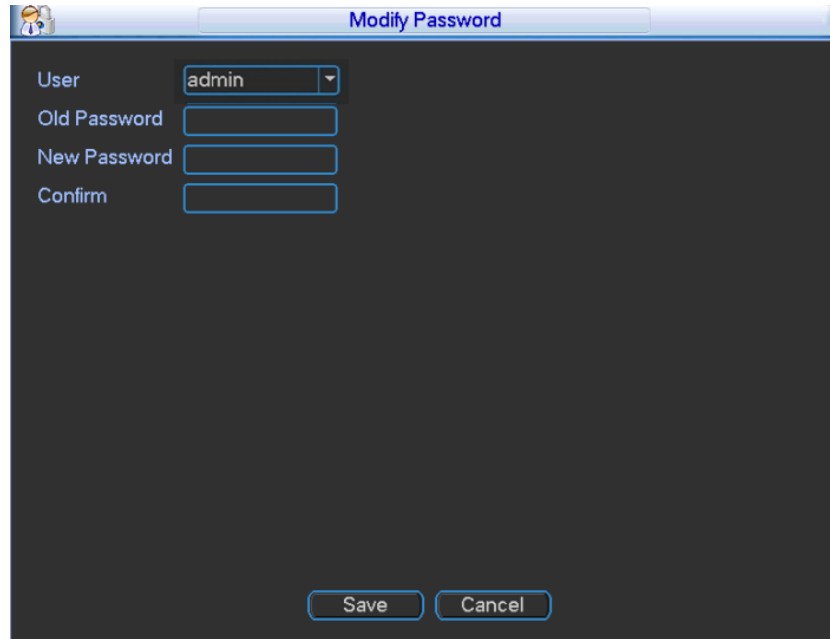


Figure 4-35

Step 2 Select user, enter old password, new password and confirm password.



Note

Password can be 8 – 32-digit non-empty characters; it can consist of at least two types among capital letter, small letter, number and special character (except “'”, “!””, “.””, “.”” and “&”). “Password” and “Confirm Password” shall be the same. Besides modification of its own password, the user with account control authority can also modify other users’ passwords.

Step 3 Click “Save” to complete the setting.

4.2.4.3 Auto Maintain

The device may have many old files after long-term operation. Set to reboot the device within idle period, in order to enhance operating speed of the device.

- “Auto Reboot System” can reboot the device, so as to ensure system stability and service life.
- “Auto Deleting File” can delete those expired files.

Step 1 In main menu, select “Advanced > Auto Maintain”.

The system displays “Auto Maintain” interface, as shown in Figure 4-36.

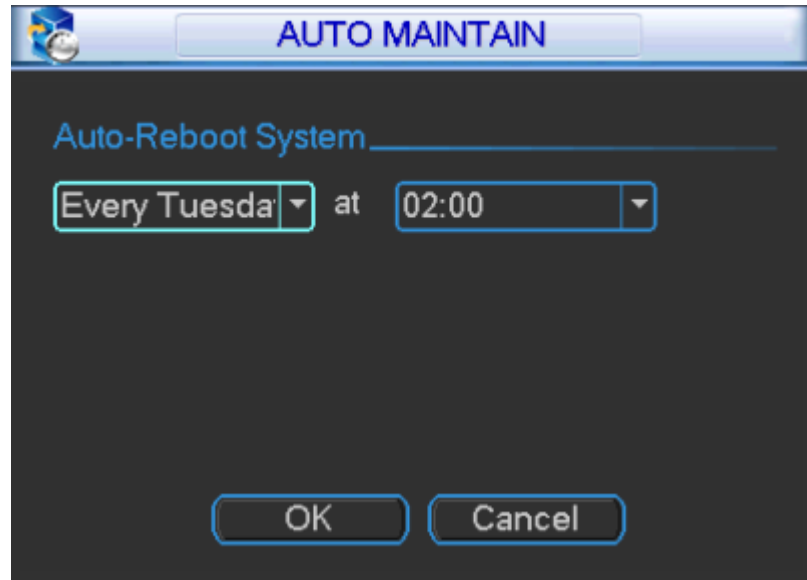


Figure 4-36

Step 2 Configure auto-reboot mode and time.

Step 3 Click "OK" to complete the settings.

4.2.5 Info

The submenu includes log, version, online users and status, as shown in Figure 4-37.

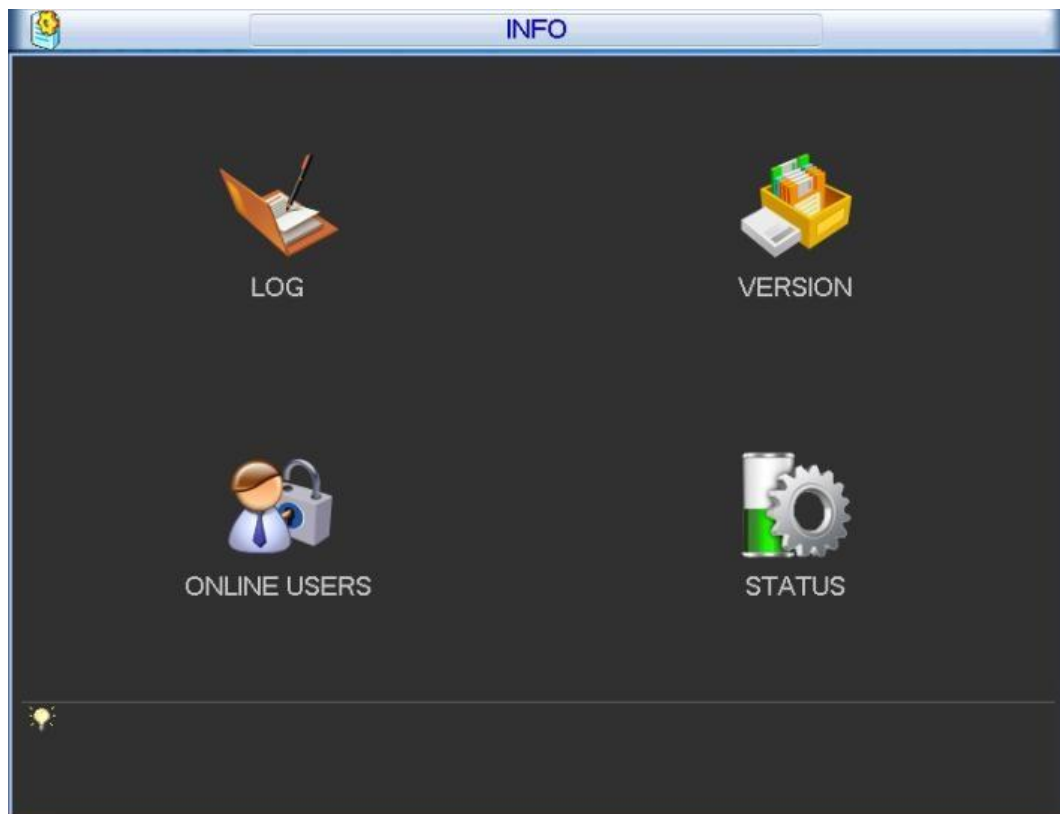
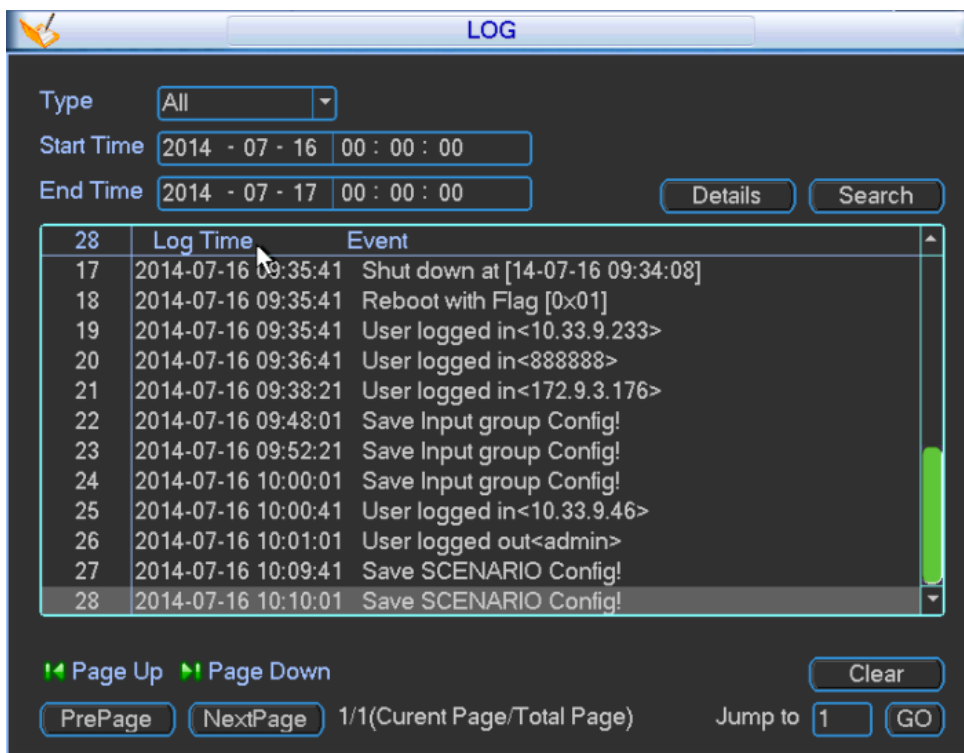


Figure 4-37

4.2.5.1 Log

Display system log, in order for the user to view log conveniently.

In main menu, select “Info > Log”, and the system displays Figure 4-38. Log type includes system, config, storage, alarm, record, account, clear and playback. Set “Start Time” and “End Time”, and click “Search”. The system will display the logs in the form of list. Page up or page down view them.



The screenshot shows a web interface titled "LOG". At the top, there is a "Type" dropdown menu set to "All". Below it are "Start Time" and "End Time" input fields, both showing "2014 - 07 - 16 00 : 00 : 00". To the right of these fields are "Details" and "Search" buttons. The main area contains a table with three columns: "Log Time", "Event", and a third column (likely for details or status). The table lists 12 events, starting from 2014-07-16 09:35:41. The events include "Shut down at [14-07-16 09:34:08]", "Reboot with Flag [0x01]", "User logged in<10.33.9.233>", "User logged in<888888>", "User logged in<172.9.3.176>", "Save Input group Config!", "User logged in<10.33.9.46>", "User logged out<admin>", and "Save SCENARIO Config!". At the bottom of the interface, there are navigation buttons: "Page Up", "Page Down", "PrePage", "NextPage", "Clear", "Jump to", and "GO". The "Jump to" field shows "1/1(Curent Page/Total Page)".

	Log Time	Event
17	2014-07-16 09:35:41	Shut down at [14-07-16 09:34:08]
18	2014-07-16 09:35:41	Reboot with Flag [0x01]
19	2014-07-16 09:35:41	User logged in<10.33.9.233>
20	2014-07-16 09:36:41	User logged in<888888>
21	2014-07-16 09:38:21	User logged in<172.9.3.176>
22	2014-07-16 09:48:01	Save Input group Config!
23	2014-07-16 09:52:21	Save Input group Config!
24	2014-07-16 10:00:01	Save Input group Config!
25	2014-07-16 10:00:41	User logged in<10.33.9.46>
26	2014-07-16 10:01:01	User logged out<admin>
27	2014-07-16 10:09:41	Save SCENARIO Config!
28	2014-07-16 10:10:01	Save SCENARIO Config!

Figure 4-38

4.2.5.2 Version

View system version, release date, WEB version and SN. Connect USD device to upgrade the system.



Please ensure that USB has been inserted into the device, and upgrade file in USB is “update.bin”, in order to click “Start” to upgrade.

4.2.5.3 Online Users

View online users that visit the device remotely; disconnect or shield one user for a period. The disconnected or shielded user will fail to visit the device within the set period, which is 65535s at most.

In main menu, select “Info > Online Users”, and the system displays Figure 4-39.

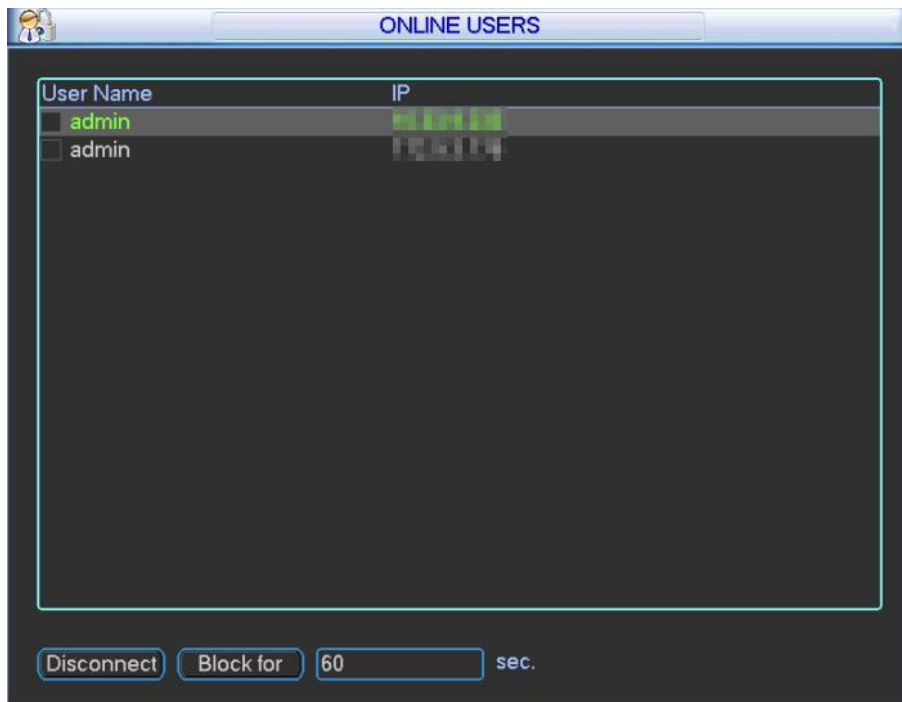


Figure 4-39

4.2.5.4 Status

View fan speed, card info, temperature, power source, device time, net percentage, CPU percentage and memory percentage.

In main menu, select “Info > Status”, and the system displays Figure 4-40. Please refer to Table 4-10 for details.



Figure 4-40

Parameter	Description
Fan Speed	Display the speed of two groups of fans.
Card Info	Display info about the card at every slot, including card type (encoding or decoding); display present operation status of the card, including data interaction and online status.
Temperature Info	Present temperature and status of every card.
Source Info	Display using status of two groups of power source.
Time	Display present time of the device.
Net Percentage	Display net percentage receive and net percentage transmit of every Ethernet port.
CPU Percentage	Display CPU percentage.
Memory Percentage	Display memory percentage.

Table 4-10

4.3 Shutdown

Log out the user, shut down the device, reboot the system and switch user.

In main menu, select “Shutdown”, and the system displays “Shutdown” interface.

- Log out menu user: log out menu. You need to input password when you log in the next time.
- Shutdown: exit the system and turn off power.
- Reboot: exit the system and reboot.
- Switch user: log out the present user and switch to another user.

5 DSS Operation

Besides Web, use Digital Surveillance System (DSS) to login the device.

For details, please refer to DSS user's manual.

6.1 FAQ

If your problem is not covered herein, please contact local customer service personnel or consult headquarter customer service personnel. We will be at your service sincerely.

1. Q: The device cannot be booted after connecting power supply.

A: When you plug power supply after you properly turned it off, press the start button on the front panel, in order to properly boot up the device.

2. Q: Device buzzer turns on when I press the start button.

A: System supports dual power supplies. Therefore, if only one power line is plugged, the alarm buzzer will turn on:

- Plug in another power line;
- There is a red button next to the power plug. Please press it to cancel the alarm.

3. Q: There is no local operation interface after the device is booted up.

A: Possible reasons:

- The device requires certain time to boot up. The screen is black during the period. Please wait a moment, and a progress bar will appear.
- Make sure the interface board is well connected to the mainboard; otherwise the operation interface signal is not sent to the interface board. Re-plug the interface board.
- Upgrade error. Please upgrade again.
- The configurations have changed, so the program cannot boot up. Please press the reset button (the tiny hole on mainboard) with a needle (or equivalent) for a few seconds until reboot. Then, the configurations have been cleared.
- X86 main control board is damaged.

4. Q: There is no video output whether it is one-channel, multiple-channel or all-channel output.

A: Possible reasons:

- Program is incompatible with front-end third-party manufacturer's device. Please upgrade to the latest version.
- Video source error.
- Hardware malfunctions.

5. Q: Real-time video color or brightness is distorted seriously.

A: Possible reasons:

- Device is incompatible with the monitor resistance. Grounding is inconsistent.
- Video transmission distance is too far or degrading is too huge.

- Device color or brightness setting is incorrect.

6. Q: Video flickers on wall or it is interfered with lines.

- The display and embedded multi-screen controller have no common grounding.
- Video cable is low-quality or too long.

7. Q: Time display is incorrect.

A: Possible reasons:

- Setting is wrong.
- Battery contact is poor or voltage is too low.
- Crystal oscillator is bad.

8. Q: Fail to login the client or WEB.

A: Possible reasons:

- ActiveX control has been disabled.
- Network connection error.
- Network setting error.
- Wrong username or password.

9. Q: Network connection is unstable.

A: Possible reasons:

- Network is unstable.
- IP address conflict.
- MAC address conflict.
- LAN switch malfunction or config error.
- Device network card malfunction.

6.2 Daily Maintenance

- Do not allow foreign matters to enter the device, in order to prevent device malfunction.
- Do not transport the device upside down.
- Please pay attention to cable connection. Improper connection steps may result in device malfunction or damage.
- All external cables shall prevent short circuit.
- Before you connect the power cable, please make sure that all other cables have properly connected.
- After all cables are connected, please tie them with cable ties, in order to prevent short circuit, heat and electrical shock due to scattered cables.
- Before wiring, make sure to disconnect negative (-) pole of the battery.
- Protect the device from water or excessive dampness, since water or excessive dampness may lead to short circuit, fire or other failures.
- During installation, don't install the device in a position exposed to direct sunshine. Please guarantee well ventilation.
- Damp dust on circuit board leads to short circuit, affects normal operation and even damages the device. For long-term stable operation of the device, please remove dust from circuit board, socket connector and the chassis regularly with a brush.

- Please ensure good grounding, protect video and audio signals from interference, and protect the device from static electricity or induced voltage.
- Please unplug the power cable before you insert and extract the audio/video signal cable, RS232 or RS485 cable. Otherwise, they may be damaged easily.
- Please keep the device away from high-temperature heat sources and places.
- Please ensure that the device is secured firmly and horizontally. Please ensure that the anti-vibration component works properly.
- Please check and maintain the device regularly.

Appendix 1 Mouse Operation

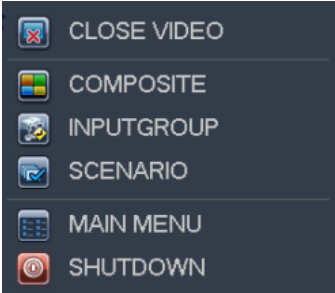


Caution

This document introduces how to operate the mouse with right hand.

Operate the menu function with mouse. Insert USB mouse into USB port of main slot of the device.

	If the user doesn't log in, pop up password input box.
	Click the left mouse button on one functional menu icon, to enter the menu.
	Carry out operations as indicated on the interface.
	Change status of the check box.
	Click the combo box to pop up a pull-down list.
Click the left mouse button	  represents backspace, and  represents space. Click Shift key to switch capital and small letter, Chinese and English. - During English input, space means to input a space; backspace means to remove the character before the cursor. - During number input, space means to reset the number to zero; backspace means to remove the last number. - During special symbol input, space means to input a space; backspace means to remove the symbol before the cursor. - During Chinese input, such as input Chinese phonetic alphabets “zhong”, the input box displays all Chinese characters that meet requirements. Press up or down arrow to select.
Double click	Carry out special operations. For example, double click one item in record file list, to play back the record.
the left mouse button	In multi-image mode, double click the left mouse button on one image, to display it in full screen. Then, double click the image again, to return to previous multi-image mode.

Click the right mouse button	During real-time monitoring, pop up a shortcut menu: Close Video, Composite, Input Group, Scenario, Main Menu, Logout and Shutdown. “Close Video” is to close the configured input in the selected window; “Composite” is to combine output channels, and integrate on-wall image into one large screen; “Input Group” is to divide the input devices into groups.
	
Scroll mouse wheel	Exit present menu, without saving the menu setting.
	During number setting in number box, scroll the mouse wheel to increase or decrease the number.
	Switch the items in combo box.
Move the mouse	Page up or page down the list.
	Select the controls or one item at the present coordinate, and move it.
Drag the mouse	Set region overlay at the selected region.
	Drag an input channel to the designated output channel.

Appendix 2 Cybersecurity Recommendations

Cybersecurity is more than just a buzzword: it's something that pertains to every device that is connected to the internet. IP video surveillance is not immune to cyber risks, but taking basic steps toward protecting and strengthening networks and networked appliances will make them less susceptible to attacks. Below are some tips and recommendations on how to create a more secured security system.

Mandatory actions to be taken for basic equipment 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 equipment (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 equipment 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 equipment network security:

1. Physical Protection

We suggest that you perform physical protection to equipment, especially storage devices. For example, place the equipment 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 equipment (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 equipment 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. Enable Whitelist

We suggest you to enable whitelist function to prevent everyone, except those with specified IP addresses, from accessing the system. Therefore, please be sure to add your computer's IP address and the accompanying equipment's IP address to the whitelist.

8. MAC Address Binding

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

9. Assign Accounts and Privileges Reasonably

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

10. 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.

11. 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.

12. Secure Auditing

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

13. Network Log

Due to the limited storage capacity of the equipment, 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.

14. Construct a Safe Network Environment

In order to better ensure the safety of equipment 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.