MODULAR

VIDEO WALL CONTROLLER

- **MANUAL**

NEW

BRIGHT IDEAS

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2021

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Preface

Thank you for purchasing our splicing controllers, the company's products has been carried out strict safety testing before leaving the factory, to ensure safe operation, as well as prevent the risk of electric shock. "**Splicing Controller User Manual**" provide operational guidance for your device installation and use, to ensure that the product can be safe and trouble-free operation, please read the User Manual carefully before using this product.

This Manual is applicable to the following products：

Product	**Function**
Stitching Controller	This product is suitable for splicing and image display processing of LCD, DLP, LED and other display systems.

Instructions for this Manual:

- Thank you for using our splicing controller products, in order to facilitate your use, read the User Manual carefully, and follow the steps to operate; contact us at any time if you encounter any problems in the course of the operation.
- The "Splicing Controller User Manual" (hereinafter referred to as “the Manual”) is a manual for the universal splicing product specification, this Manual introduces use methods of general series of splicing controllers can be used as a reference for the use of other models of splicing products.
- This Manual is used only as instructions for the user's operation and not for maintenance service purposes.
- We will update the contents of this Manual in accordance with the enhancement of the features of the product, and will periodically change or update the contents described in this Manual, and the updated contents will be added to the new version without notice.
- This Manual is copyrighted by our company, and no unit or individual may use the contents of this Manual for commercial purposes without permission. The device diagram and drawing content provided in this Manual only provide reference guidance for users, do not guarantee that it is in full conformity with the object, please take the physical as the subject.

Attention: Please read the relevant contents of this Manual carefully before using this device, to avoid possible device damage and personnel injury before installing and using the device.

Relevant conventions about this Manual:

In this Manual, if there are no special instructions, the products or splicing controllers mentioned refer to the splicing controller products described in this Manual. This Manual uses the following signs to indicate what should be noted in the operation process and the relevant instructions, the meaning of these signs are as follows:：

Symbol	Description
 Electric shock protection	Indicate a high pressure hazard.
 Warning	Indicate a moderate or low potential risk that, if not avoided, may result in minor or moderate injury to the person.
 Danger	Indicate a high potential risk , it may result in loss of life or serious injury if not avoided.
 Attention	Indicate what should be noted in the reminder operation, such as operational errors that can cause device damage or other undesirable consequences.
 Anti-static	Indicate electrostatic sensitivity device.
 Note	Represents the necessary additions and descriptions to the description of the operation content.

 **Attention :**The contents of the above icons described and prompted do not represent the only content that the device needs to be prompted or valued, please subject to the specific contents of the product.

Important Safety Tips

In order to ensure the reliable use of device and the safety of personnel, please observe the following in the installation, use and maintenance:

①

The system must have a perfect grounding, otherwise not only cause signal interference, instability or mechanical damage, but also may cause personal accidents due to leakage of electricity.

The final pick-up location of the splicing controller should be connected to the true ground, and its grounding resistance should be less than 5 Omega.

②

It is prohibited to change the mechanical and electrical design of this product and to prohibit the addition of any parts, otherwise the manufacturer is not responsible for the harmful results caused by this.

③

Do not use two-core plugs to ensure that the input power supply of the device is 220V 50/60hz AC.

④

There are AC 220V high pressure components in the machine, do not open the chassis without permission, to avoid the risk of electric shock.

⑤

Do not place system device where it is too cold or overheated.

⑥

The power supply of the device will heat up at work, so keep the working environment well ventilated so as not to damage the machine when the temperature is too high.

⑦

When rainy and humid weather or when not in use for a long time, the power supply gate of the device should be turned off.

⑧

Be sure to unplug the device's AC power cord from the AC power outlet before doing the following:

- ◆ Remove or reload any part of the device
- ◆ Disconnect or reconnect any electrical plugs or other connections to the device

⑨

Non-professionals without permission, please do not attempt to disassemble the device chassis, do not privately repair, in order to avoid accidents.

⑩

Do not sprinkle any chemicals or liquids on or near the device.

Content

Chapter 1 Product Overview

1.1 Brief introduction of product

This series of splicing controllers are powerful high-end image processing device, can display multiple dynamic images on multiple display terminals at the same time, and are mainly used for large screen mosaic display environment; they are the core display control device of the system.

Figure 1-1 4U front panel diagram

Splicing processor is suitable for the stability, security, concentration has a high demand for places, can be widely used in a variety of applications, for government agencies, transportation control, security monitoring, public safety, education and scientific research, news media, energy and other fields to bring a large screen display control solutions.

Support a variety of control methods, including panel keys, RS232 serial port, network, central control, mobile visual control, etc., to meet the user's various control needs.

1.2 Product technical features

- Adopt all-hardware integrated design and have no computer modules; any crashes, power outages, crashes and other undesirable phenomena will not appear;

- Adopt modular structure; input module, output module, control module, etc. are supported by hot-swappable; the board card can be arbitrarily plugged and replaced in the operating state, convenient for system upgrade and maintenance;
- Adopt standard chassis structure design, with 2U, 4U, 8U, 16U, 24U, 36U and other optional chassis specifications; special specifications of device can be developed, easy to configure.
- Support VGA, DVI, HDMI, SDI, CVBS, YPBPR, Duallink, DP, HDBaset, Fiber, IPV multi-signal mixed input and VGA, DVI, HDMI, SDI, CVBS, Fiber, HDBaset and other signal output；
- Support N+1 redundant power supply structure, with a high degree of stability; when the system occurs failure, emergency measures can be quickly started to ensure the safe and stable operation of the system;
- Support Ultra HD input, support resolution 4K, 2560x1600@60hz, 1920x1200@60hz and a variety of standard signal access; the system can be compatible downward and input resolution can be customized;
- All accessed signal windows can be arbitrarily moved, zoomed, displayed in multiple screens, switched, overlapped within the display range; moreover, a variety of split screen, full screen, composite screen display modes can also be arbitrarily developed;
- Support any output channel at the same time display 1/4/6/8/9/12/16 any format of the signal window, and the different window levels within the unit can be changed and scaled at will, can also be dragged to other display screen operation, not limited and affected;
- Support output grouping; support up to 8 grouping modes, support screen group resolution customization, for providing convenience for multi-screen group centralized management and independent operation;
- Support signal replication function, which can infinitely copy signal and arbitrary drag scaling, with functions of matrix switching and realizing single-screen image segmentation;
- Support visual backplane information management, which can uniformly manage and set the input and output ports and packet information, freely configure output combination;
- Support 4K input and output;
- Support IP decoding, and the supporting device is equipped with professional IP decoding card, single channel can open up to 2-way 1080p@60 Hz nine-segmentation window, single

card decoding capability: 1080P@30HZ*36; the supporting front end is accessed in RTSP, GB/T 28181 mainstream IPC protocol; support a variety of video conferencing system SIP, H.323 protocol;

- Support software full-screen pre-monitoring echo function, which can visualize the input signal management, the current display status of the system can be viewed through the software interface ;
- Support arbitrary adjustment of the display mode, position, window size and layout of the window;
- Support signal window naming, fast positioning, split-screen management mode and many other operations;
- Support multi-level user rights management, which can divide the main administrator, auxiliary administrator, operator and other rights division mode. Develop zoning management module, classification, decentralized management;
- Support pre-arranged planning management, scene visualization, input pre-monitoring, output echo, virtual pre-layout and other display modes, easy to achieve multi-scene layout call requirements;
- Mobile visual management, support window adjustment, switching, dragging and cloud Platform, volume, switch and other intelligent central control applications based on Windows/Android/IOS and other mobile visual touch platform applications,;
- Support any scene call, supports no less than 256 scene modes; the input signals in many formats are saved into multiple mode scenes, and any calls can be made;
- Support CS/BS architecture control function, enable to log into the control server through the Web browser for remote operation, so that the operation of the system, management, interface, display can be fully visualized;
- Support a variety of control methods; support RS232 serial port, network, panel keys, remote control, keyboard, central control, mobile end control;

1.3 Product structure diagram

Splicing control system is mainly composed of signal source, controller host, control end and

display device, a variety of front-end signal sources including DVI, Dual link, DVI, VGA, Ypbpr, HDMI, SDI, CVBS, HDBaseT, Optical Fiber and others, they are plugged into the splicing controllers through the corresponding input board card, and connected to the corresponding display devices (including DLP splicing, LCD splicing, LED and other display devices) through the output end, to realize image arbitrary movement, scaling, roaming, superposition, multi-screen and other display functions. The control end uses the corresponding control device to carry on the effective management and control to the whole system.

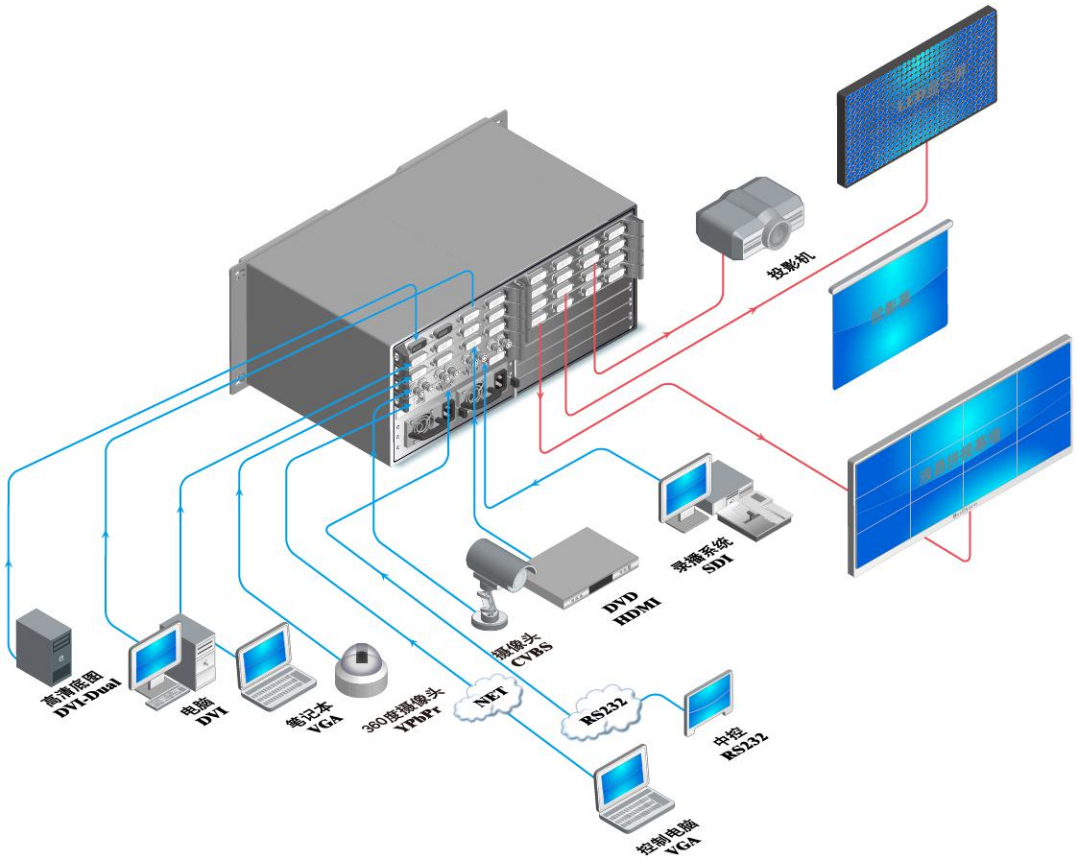


Figure 1-2 Splicing controller system diagram

Note: The above system connection diagram is the general connection of the product, does not mean that the products provided have the above signal input, output type and display function, please take the purchased products prevail.

Chapter 2 Product Chassis Specification

2.1 Product Case Specification

Case Specification	No. of slots		Interface quantity	
			PC/HDMI	CVBS input
4U	Input ×4	Output ×4	16/16	32
8U	Input ×9	Output ×8	36/32	72
16U	Input ×20	Output ×20	80/80	160
	Input ×29	Output ×15	116/60	232
	Input ×15	Output ×29	60/116	120
24U	Input ×40	Output ×40	160/160	320
36U Dual	Input ×80	Output ×80	320/320	640

2.2 Diagram of the Product Back Panel -4U

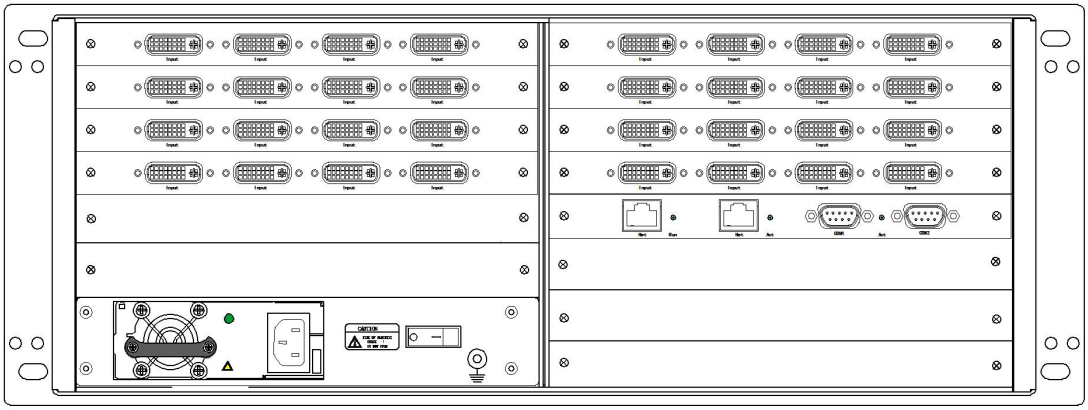


Figure 2-2 Schematic drawing of rear panel -4U

2.3 Diagram of the Product Back Panel -8U

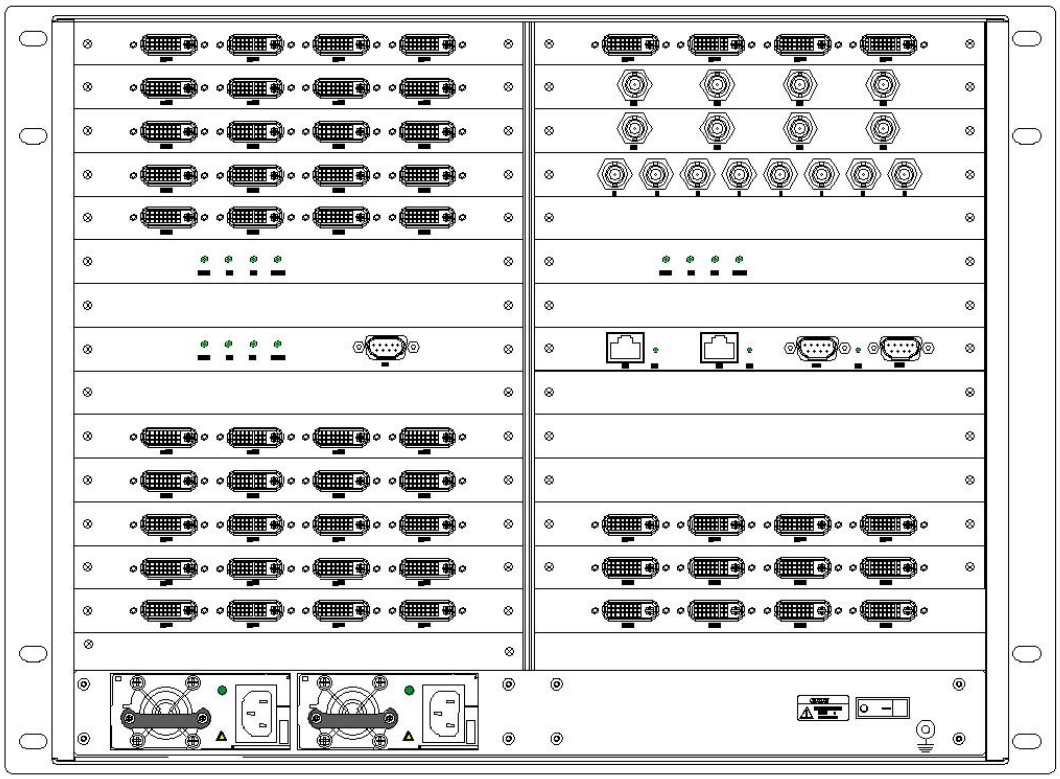


Figure 2-3 Schematic drawing of rear panel -8U

2.4 Diagram of the Product Back Panel -16U

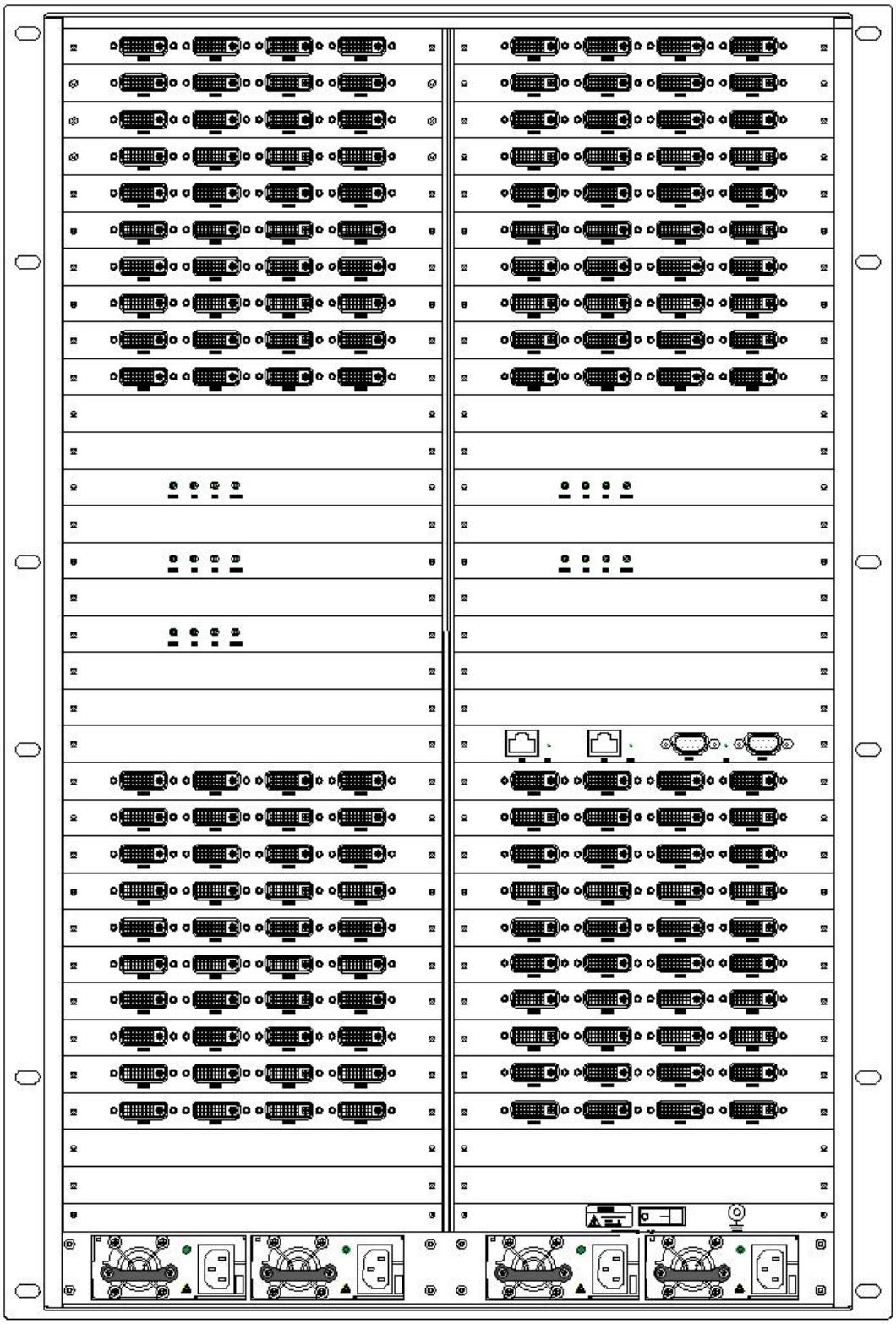


Figure 2-4 Schematic drawing of rear panel -16U

2.5 Diagram of the Product Back Panel -24U

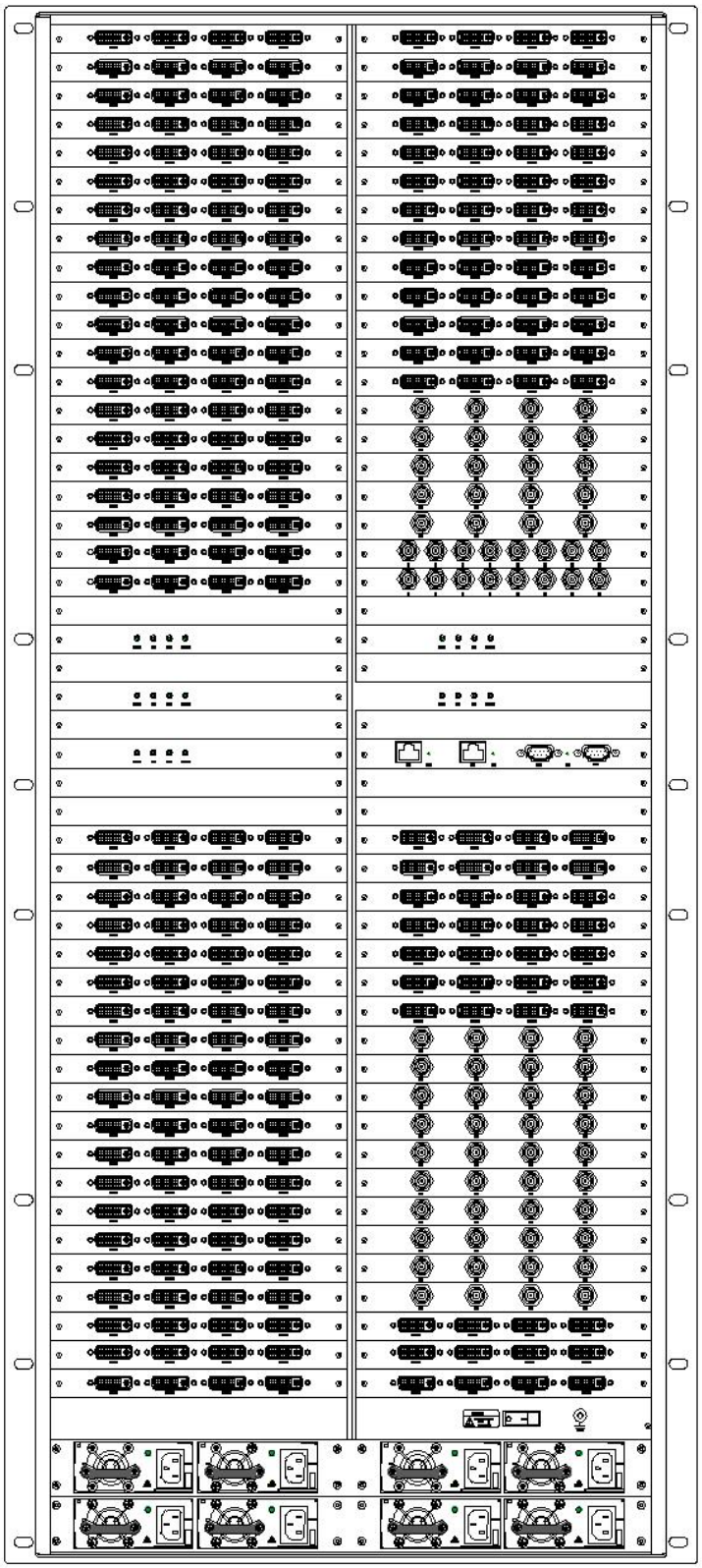


Figure 2-5 Schematic drawing of rear panel -24U

2.6 Diagram of the Product Back Panel - 36U Dual

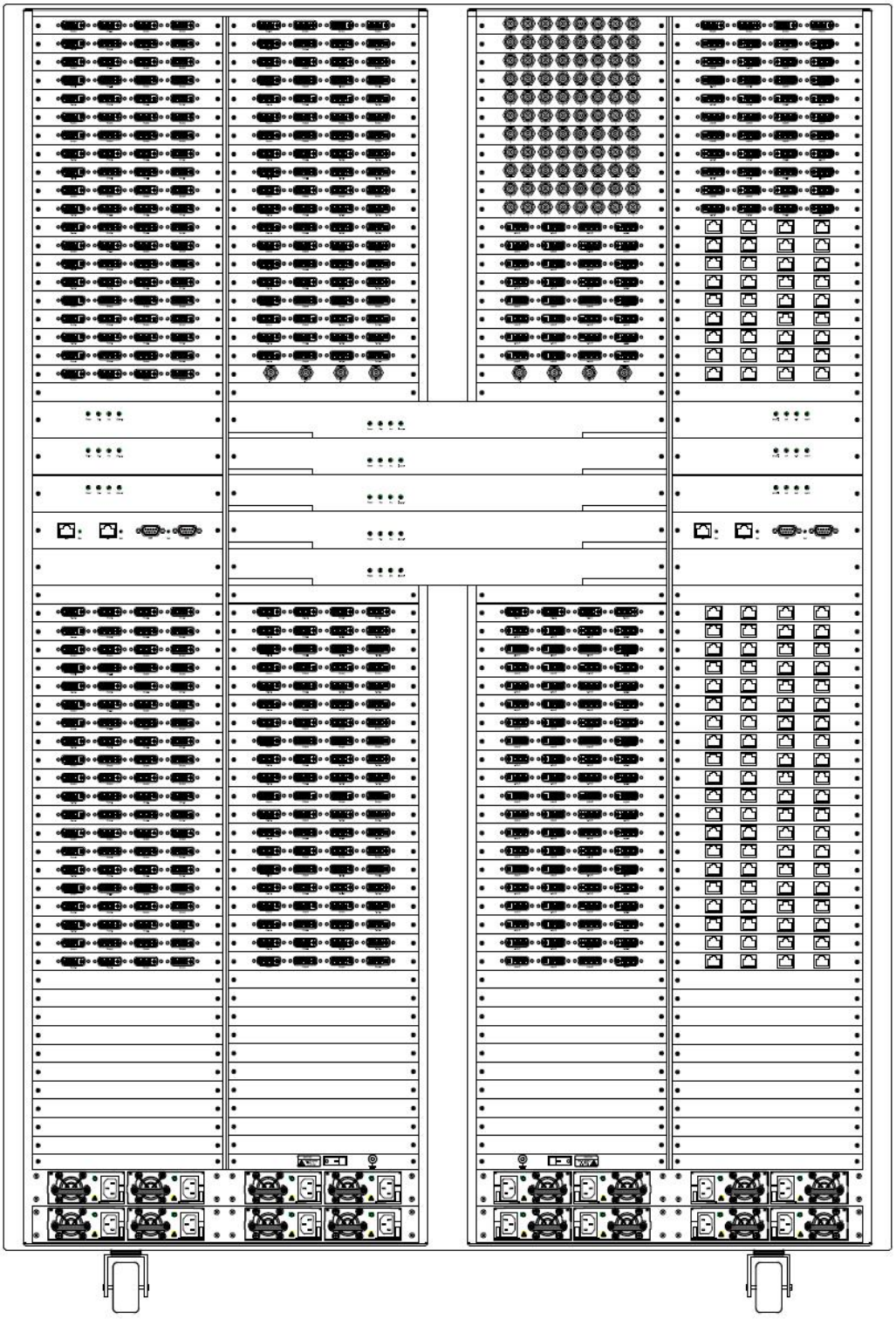
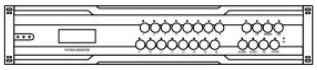


Figure 2-6 Diagram of the Back Panel - 36U

Note: The above product diagrams are not the structural diagrams of the non-standard equipment, and please refer to the actual products ordered.

Chapter 3 Product Packing List

	LED Splicing Controller Host
	RS232 communication connecting line
	Equipment power cords
	USB for management software
	User manual, warranty card and quality certificate

Notice: The product packing list is the list of general product equipment, which varies slightly according to the product and interface requirements, and if any missing or damaged parts are found. Please timely contact the distributor.

Chapter 4 Product Installation

4.1 Installation precautions

To avoid damage to the device during installation, please read the installation instructions carefully before installing the device, including, but not limited to, the following security considerations:

Warning :This product is electronic device; pay attention to water, electricity and other humid environment when using; incorrect operation may cause personnel injury.

General safety tips:

- Keep the installation environment clean and dust-free, do not place the device in a damp place, do not let the liquid immersed in the inside of the device, to avoid causing damage to the device;
- Ensure that the installation of the device location is flat, device placement and installation location to be firm and reliable, to avoid device installation is not firmly off injury;
- Do not place heavy loads on the device, which may cause damage to the device and affect normal use;

Safety tips for using electricity:

- Check to see if there is a potential risk of electric shock in the installation location of the device, such as whether the device is powered off and whether there is a wet environment around the device;
- Before handling the device, make sure that the outer cable of the chassis has been removed, including the power cord, serial line, signal cable, etc.
- Good grounding should be ensured during device installation process, in order to ensure a good transfer of electrostatic device;

Safety tips for handling:

- Ensure that many people (not less than 2 people) cooperate with the handling device to

facilitate the safe movement of the device;

- The persons need to maintain consistent work steps when they are handling the device, remember not to be too fast or too slow to ensure the balance of the body, as well as avoid damage caused by the fall of device;
- Remember to take device in the installation process lightly, to prevent damage to the surface of the device and internal components, resulting in damage to the device;

Environmental safety tips:

- To ensure the long-term stable operation of the device, extend the service life, please maintain the device at a certain temperature and humidity, the working environment of the device should be maintained between the -15℃-60℃;
- Device should be placed in fresh air, without no excessive dust in the environment; too much dust entry will affect the normal use of device and the service life of the system;
- Device should be installed in a better ventilation environment, to avoid temperature overheating caused by device damage, affecting the normal use;

Attention：Product installation considerations include, but are not limited to, the above instructions, please take the actual use of the site requirements prevail.

4.2 Installation steps

The splicing controller can be installed on any standard rack; consider the installation and implementation environment of the device during installation; the installation steps are as follows:

1) Place the device host smoothly on top of the mounting rack to ensure that it does not slide or fall off.

2) Align the mounting hole positions of the device with the mounting hole positions of the rack, to ensure that the installation rack of the device does not shift.

3) Fasten the device to the rack and complete the installation of the device by using the fastening screws, to align the mounting holes one by one.

Chapter 5 Product Connection

5.1 Input and Output interface

According to the number of different input and output signals and interface requirements, this series splicing controller can be arbitrarily developed a combination. Among them, the input interface supports Duallink HD video signal, HDMI HD signal, VGA/DVI signal, CVBS Composite video and YPbPr component signal, and also supports HDBaseT input, fiber fiber input, with IPV input decoding function.

The output supports HDMI HD signal, VGA/DVI signal and others, can be configured according to specific requirements. Specific interface terminals can refer to the Chassis screen printing chart, please consult my company's technical department if you have doubts.

5.2 Power Cord Connection

Please accurately connect one end of the randomly supplied power cord to the device power jack, and the other end is connected to the power outlet, as shown in the following figure:

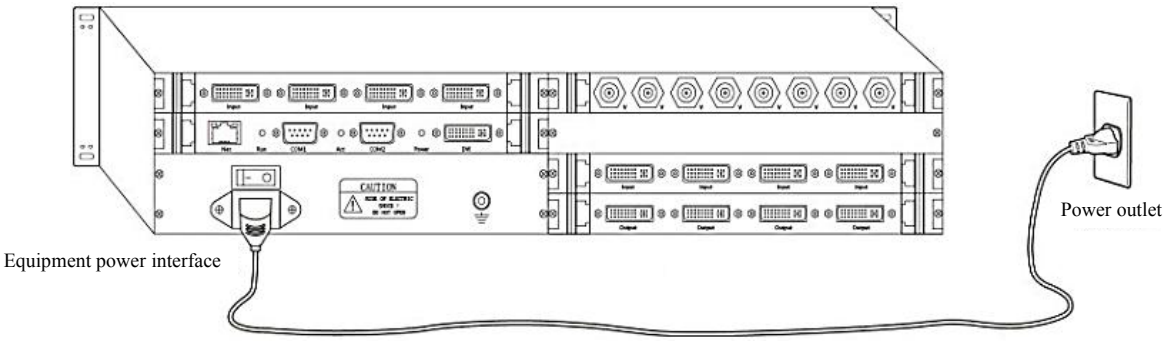


Figure 5-1 Device Connection diagram

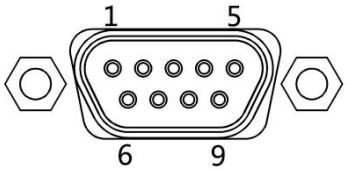
Warning： The power supply system needs to be well grounded to determine the location of the power supply switch of the device, so that in the event of an accident, the power supply can be cut off in time.

5.3 Communication and connection methods

The splicing controller provides a standard serial communication port as well as a network port, in addition to using the front panel keys for arbitrary switching operations, but also allows users to use a variety of control systems (such as personal computers, central control, etc.) to control the system.

1) Connect to the control device

1) The splicing controller provides a standard RS-232 serial communication port that allows users to control using a variety of remote control devices. The RS-232 port is a 9-pin male connector, and the pins are described as follows:



Needle No.	Pin	Description
1	NC	null
2	TXD	Signal sending end, receiving end of the control device (RXD end)
3	RXD	Signal receiving end, transmission end of the control device (TXD end)
4	NC	null

5	GND	Signal ground
6	NC	null
7	NC	null
8	NC	null
9	NC	null

Figure 5-2 9HDF Pin description

2) Connect to the control computer

Using the RS-232 cable to connect the computer's serial communication port (COM1 or COM2) with the RS-232 communication port of the mosaic, the computer can be controlled by the splicing controller.

When the splicing controller RS-232 port is connected to the computer, you should pay attention to the line order of TXD and RXD, as shown in the following figure:

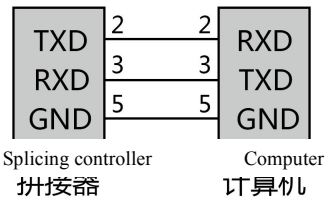


Figure 5-3 communication line structure diagram

If you need to use RS-422 port, please explain to the factory at the time of ordering, the factory provides RS-422 adapter, at this time the RS-232 port can still be used, but at this time RS-232 wiring, to exchange lines 2 and 3.

Note：Please use the original RS232 control line to connect the device to control the serial port.

5.4 Connection to the signal source

A splicing controller provides a different number of input, output interfaces according to different signal types, users can configure the corresponding input and output interfaces according to the needs of different sites. Device can provide including VGA, DVI, HDMI, SDI, CVBS, YPBPR, Duallink, DP, HDBaset, Fiber, IPV and other signal input interface, and VGA, DVI, HDMI, SDI, CVBS, Fiber, hdbaset and other signal output interface, through the corresponding video cable connected to the corresponding input interface, through the software operation to achieve the signal display and invocation function, Some of the interfaces of the product are described below:

1) DVI signal interface description

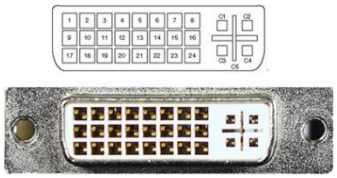


Figure 5-4 DVI Duallink interface diagram

The DVI-I interface pin definitions are shown in the following table:

PIN	Function	PIN	Function
1	T.M.D.S.data 2-	13	T.M.D.S.data 3+
2	T.M.D.S.data 2+	14	+ 5V DC power supply
3	T.M.D.S.data 2/4screen	15	Grounding (+5 loop)
4	T.M.D.S.data	16	Hot swap detection
5	T.M.D.S.data	17	T.M.D.S.data 0-
6	DDC clock	18	T.M.D.S.data 0+
7	DDC data	19	T.M.D.S.data 0/5screen
8	Analog Vertical Synchronization	20	T.M.D.S.data 5-
9	T.M.D.S.data 1-	21	T.M.D.S.data 5+
10	T.M.D.S.data 1+	22	T.M.D.S.clock screen
11	T.M.D.S. data 1/3 screen	23	T.M.D.S. clock +
12	T.M.D.S. data 3-	24	T.M.D.S. clock -
C1	Analog Vertical Synchronization	C4	Simulated horizontal synchronization
C2	Simulated Green	C5	Analog Grounding (RGB Circuit)
C3	Simulated Blue		

2) D-Sub Signal Interface description

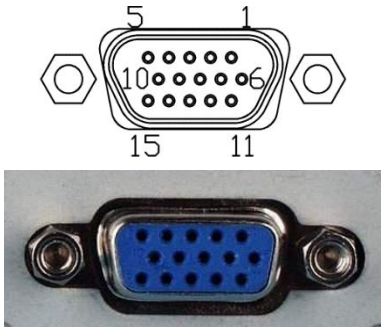


Figure 5-5 D-Subinterface diagram

D-Sub interface pin definition is shown in the following table：

PIN	Function	PIN	Function
1	Red	9	Reservations (different definitions)
2	Green	10	Digitally
3	Blue	11	Address code
4	Address Code (ID Bit)	12	Address code
5	Self-testing (different definitions)	13	Line synchronization
6	Red Grand	14	Field synchronization
7	Green Grand	15	Address code (different definitions)
8	Blue Grand		

3) HDMI signal interface description

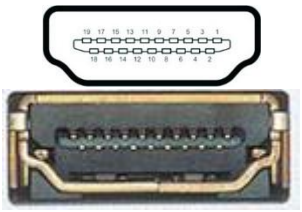


Figure 5-6 HDMI A Type interface diagram

The definitions of HDMI A-type interface pins are shown in the following table:

PIN	Function	PIN	Function
1	T.M.D.S.data 2+	11	T.M.D.S.clock screen
2	T.M.D.S.data 2 screen	12	T.M.D.S.clock -
3	T.M.D.S.data 2-	13	CEC
4	T.M.D.S.data 1+	14	reserved

5	T.M.D.S.data 1 screen	15	SCL
6	T.M.D.S.data 1-	16	SDA
7	T.M.D.S.data 0+	17	DDC/CEC grounding
8	T.M.D.S.data 0 screen	18	+ 5V DC power supply
9	T.M.D.S.data 0-	19	Hot swap detection
10	T.M.D.S. clock +		

Note：The above interface usage and description is only part of the interface description, please the interface type of the purchased device shall be prevail.

Chapter 6 Front Panel Description

6.1 keys description

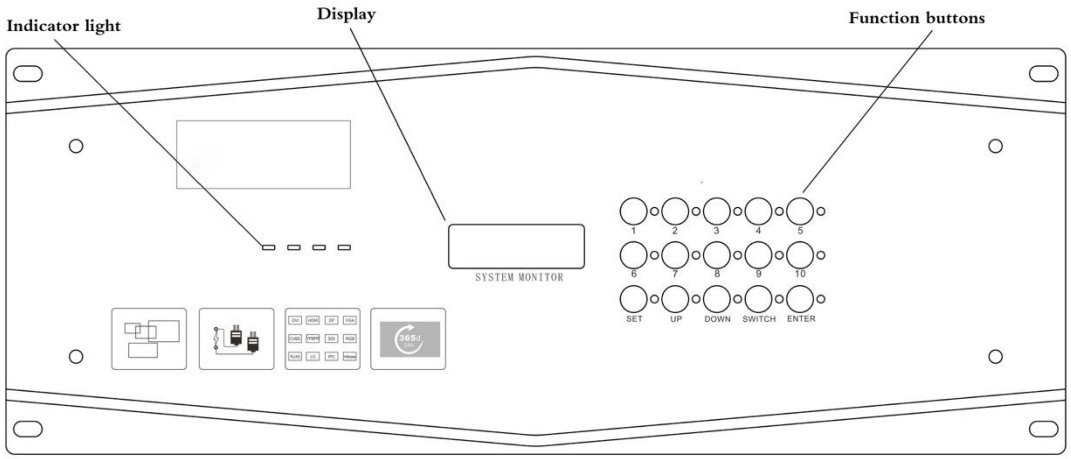


Figure 6-1 Front panel diagram

LCD	LCD, displaying the current status information and operation tips of the splicing controller.
0, 1, ...9	Input and output channel selection keys, used for setting the input and output channels of signals or for the number selection of status calling or saving. Use method: Switching mode: Press [NUMBER] key to specify an input + press [SWITCH] key to switch to the output selection + press [NUMBER] key to specify an output + press [ENTER] key to confirm switching Scene call mode: Press [NUMBER] key to specify the calling number + press [ENTER] key to confirm calling
SET	Set under the matrix switching mode: 1. Device address: 2. Baud rate; 3. Input amount; 4. Output amount; 5. Group ID; 6. System language Set under the splicing mode: 1. Equipment group ID; 2. System language Use method: Press [SET] key to enter the directory, use [UP/DOWN] to specify the selected item, press [ENTER] key to enter the selected item, and use [UP/DOWN] to modify the parameters, and then press [ENTER] key to save
UP	Point to the last item under the directory list mode; Point to the last parameter value on the interface of option setting parameters
DOWN	Point to the next item under the directory list mode; Point to the next parameter value on the interface of option setting parameters
SWITCH	The key to switch input to output, used to switch an input channel to an output channel Use method: Press [NUMBER] key to specify an input + press [SWITCH] key to switch to the output selection + press [NUMBER] key to specify an output + press [ENTER] key to confirm switching
ENTER	Command execution key, to confirm the switching selection

6.2 Scene keys

The splicing controller can quickly invoke the scene through a front panel keys to quickly switch the currently saved scene to the display device, and the scene operates as follows:

1) Click the scene number you want to switch, click OK to switch the current scene to the display device, where: "Scene number" is the sequence number of the scene stored in the software.
2) Click the No. "1-16" keys on the device panel to invoke the specified scene ordinal.

Chapter 7 Remote Control (optional device) Description

This device provides an infrared receiving interface for the central control, and can also be remotely controlled with its own infrared remote control (optional).

Infrared remote control mode provides a remote, wireless and fast way for system channel setting, which is mainly used to switch channel and channel switch control. Infrared remote control to the user Input Infrared command as the basic use method, each infrared command has several combination of keys to achieve. In order to prevent the previous inadvertent operation on the subsequent operation of the legacy, we designed the timeout setting, when the user enters the infrared command, press the interval of any two keys in a command can not exceed 30 seconds, otherwise the system will automatically clear this command. When the remote control keys is pressed, the device will emit a short beep "beep", with the remote control to operate on the device, the device display will be displayed in the content of the corresponding changes.

The key operation format is as follows:：

Matrix system can use remote control for the fast switching operation of audio and video, the function of each key and the front panel function is the same.
"Function keys" include:
Switch: represents audio and video switching at the same time (the device has audio and video input and output function)
Video: Indicates only the toggle of the video signal (the device has video input and output function)
Audio: Indicates that only the audio signal is switched (the device has an audio input and output function) 1, 2 ...
0: Output, input channel selection key
All: Select All
Up/down: Select Keys up and down
Set: Setting key
Enter: OK key
The operation method is as follows:
"Input Channel"+ "Switching Mode"+ "Output Channel"+ "Enter"
Note: The products used are subject to physical objects.

Chapter 8 Product Communication Protocol

The system has a variety of control types: serial port, key, infrared, network and mobile control terminal, in which serial port control is the basic control method. The communication serial port has a set of RS-232 series ports that can connect to the ASCII/16 terminal or any computer with this series of ports, and the command is transferred from the terminal or computer to the controller. The system provides a set of control software, based on serial port, while providing a set of basic instruction sets to control communication.

Name	Format	Description	Return code
Test instruction	<Enter>	This command is used to test whether the serial port is communicating properly.	<Enter>
Window Reset Instruction	reset	This command closes all windows and displays a black screen.	<Enter>
Open the window and set the location of the window	Dwinsize id x1 y1 x2 y2	Note: This command is used to open a PC window and locate it. Example: Dwinsize 0 1024 0 2048 768 Display PC1 window at (1024,0) - (2048,768) Example: Dwinsize 2 2048 768 3072 1536 Display PC3 window at (2048, 768) - (3072, 1536)	<Enter>
	Vwinsize id x1 y1 x2 y2	Note: This command is used to open the Video window and locate it. Example: Vwinsize 0 1024 0 2048 768 Display Video1 window at (1024,0) - (2048,768) Example: Vwinsize 1 2048 768 3072 1536 Display Video 2 window at (2048, 768) - (3072, 1536)	<Enter>
	Bwinsize id x1 y1 x2 y2	Note: This command is used to open the bottom window and determine the location of the window. Example: Bwinsize 0 000 2048 1536 Display HD 1 window at (0,0) - (2048,1536) position: Bwinsize 200 12288 2304 Display HD 3 windows at (0,0) - (12288,2304)	
Close the specified window	winswitch id 0	This command closes the specified window	<Enter>

Save the preset scenario	Save scenario number <Enter>	This command is used to save the specified scenario	<Enter>
Close the preset window	Load scenario number <Enter>	This command is used to call out the specified scenario	<Enter>

Note：

1) The baud rate in this communication protocol is 9600/115200bps,format to 1 starting bits, 8 bit data bits, 1 stop bits;

2) This instruction set uses ASCII code character set, instruction character case can be, for example: Light,light are valid commands; 3) Each command has a "enter key" as the Terminator.

3) The hexadecimal value of "Enter Key" is 0DH (decimal number 13);

4) The system can save up to 128 scenes, the range of scenario number is 1-128;

5) The above 6 serial port instructions are used for a simple two-time development, such as a central control call scene. The system all serial port instruction set is more complex, including RGB entrance color, outlet color, video parameter settings, add resolution and so on. If necessary, please request it from the factory.

Appendix I Common troubleshooting

Device Startup issues	**Troubleshooting**
Device does not turn on properly	● Whether the power cord can be used properly ● Whether the power switch is turned on ● Whether the power cord is connected to the device
Device Control issues	**Troubleshooting**
System does not control properly	● Whether the serial port is properly connected to the device ● Whether the serial cable is a normal fault-free cable ● Software settings are normal
Signal Display Problems	**Troubleshooting**
No display signal source	● Whether the signal source can be used properly ● Whether the signal transmission line can be used well ● Whether the signal cable is properly connected
Input and output blue screen disgruntled screen	● Whether the signal transmission line can be used well ● The output resolution is set correctly ● Whether signal selection and signal source display is correct
Image interference problem	**Troubleshooting**
Flash bars appear in signal interference	● Whether the power supply is well grounded ● Whether the signal transmission cable is normal and whether there is a needle breaking phenomenon ● Whether the power supply and cable device are standard products
Scene call problem	**Troubleshooting**
Scene cannot be called properly	● Check if the video scene is saved ● Whether software settings and scene calls are correct ● Try to save and set the scene again

Note：If there are other device failures, which are not listed in "common troubleshooting" in the use, please carefully check the device; please contact the company's after-sales service department if you have doubts.

Appendix 2 Specification Parameters

2-1, System parameters

Case specification	Case height		4U	8U	16U	16UA	16UB	24U	36U
	Input slot		4	9	20	29	15	40	80
	Output slot		4	8	20	15	29	40	80
	Input/output amount		16/16	36/32	80/80	116/60	60/116	160/160	320/320
Input/output board card	Input board card	Signal type	DualLink/VGA/DVI/HDMI/Audio/DP/Ypbpr/CVBS/SDI/IP/HDBaseT/Fiber/USB, etc.						
		Interface quantity	2/4/8 loops						
		Max resolution	4K						
	Output board card	Signal type	VGA/DVI/HDMI/Audio/DP/CVBS/SDI/IP/HDBaseT/Fiber, etc.						
		Interface quantity	2/4/8 loops						
		Max resolution	4K						
Hardware parameters	Treatment technology		FPGA real-time processing technology						
	Panel structure		The touch and key panel structures are optional						
	Board card type		Modular hot plug structure						
	Power configuration		N+1 redundant structure						
	Back panel information		Visual management of back panel information						
Functional parameters	Display mode		Combination/windowing/superposition/zooming/cross-screen, etc.						
	Screen cutting		Screen cutting in any proportion and size						
	Character superimposition		Setting of character color, size, position and other parameters						
	Number of windows		16 windows on a single screen						
	Grouping function		8 groups in a single system						
	Audio function		Support audio signal access						
	EDID		Editing and loading of input and output EDID						
	Decoding compatible		Hik/Dahua/Uniview and other mainstream manufacturers						
	Preview and echo		Software/hardware preview and echo						
	User management		Multi-user and multi-level authority setting						
	Mobile terminal		iPad visual management						
Control method	Network control	Control protocols	TCP/IP						
		Control interface	RJ45						
		Control rate	10M/100M adaption						

	Serial port control	Control interface	RS232×2, 9-pin D-type male interface
		Baud rate	115200
		Special mode	Panel touch, infrared, keys, serial ports, network, remote control, center control, mobile terminal
Operating parameter	Operating environment	Working temperature	-15-60 °C
		Working humidity	10-90% non-condensing (RH)
	Characteristics of electric apparatus	Output voltage	100-220V, AC
		Frequency	50-60HZ
	Mean time between failure		＞50000h

2-2, Module parameters

Image Processing Module	
Parallel Computing Chip FPGA	Monolithic capacity: 70 000 LE
Serial Computing Chip DSP	Monolithic Speed: 5.4 GH/S
System bus scale	
System Bus Scale Single channel LVDS speed	4G/S
4U device	144-way x 4G/S
8U device	288-way x 4G/S
16U device	576-way x 4G/S
24U device	1440-way x 4G/S
36U device	2880-way x 4G/S
Image display capability	
Single Output Channel Display Memory	128M
Output video memory	Nx128M, N is the number of output channels
Display unit arrangement	A rectangle or part of a rectangle.
Output resolution	800x600 to 3840 x2160
Color depth	24 bits
output signal	DVI-I connector, compatible with analog and digital output
Video signal input	
Composite Video CVBS	Interface：BNC，a group consisting 8 interfaces
	Format：NTSC, PAL, SECAM adaptive
Component Video YPbPr	Interface：BNC，a group consisting 4 interfaces
	resolution ：480-1080P
Digital Video HDMI	Interface：HDMI-A，a group consisting 4 interfaces
	resolution 576-1080P
Serial Digital Video SDI	Interface：BNC，a group consisting 4 interfaces
	resolution ： SDI, HD-SDI, 3G-SDI
RGB input	
Interface	HD15（needing DVI-HD15Interface conversion），a group consisting 4 interfaces
Resolution	800x600 to 1920x1200，special resolutions can be added

Clock	170M/S
Single-linkage DVI input	
Interface	DVI-I，a group consisting 4 interfaces
resolution	800x600 to 1920x1200，special resolutions can be added
clock	165M/S
Dual-linkage DVI input	
Interface	DVI-D，a group consisting 2 interfaces
resolution	800x600 to 4096x1536，special resolutions can be added
clock	2×165M/S
DP input	
Interface	DP，a group consisting 4 interfaces
resolution	800x600 to 1920x1200，special resolutions can be added
clock	165M/S
4K-DP input	
Interface	DP，a group consisting 2 interfaces
resolution	3840*2160@30 Hz
clock	2×165M/S
4K-HDMI input	
Interface	HDMI1.4，a group consisting 2 interfaces
resolution	3840*2160@30 Hz
clock	2×165M/S
IP-Video network decoding input	
Interface	RJ45，a group consisting 2 interfaces
resolution	CIF to 1920×1200，special resolutions can be added
Decoding capability	36×1080P, 72×720P, 144×D1
Network speed	Gigabit Ethernet
HDBaseT input and output	
Interface	RJ45，a group consisting 4 interfaces
resolution	CIF to 1920×1200，special resolutions can be added
Transmission medium	6 categories of network cable
Transmission distance	70/150 m transmission distance optional
Single-core optical fiber input and output	
Interface	SFP multimode /LCInterface，a group consisting 4 interfaces
Maximum resolution	1920 x 1200, or special resolution
Transmission medium	Single-core optical fiber, single-mode/multimode optional
Transmission distance	300-500m, 10-40KM optional
DVI output	
Interface	DVI-D，a group consisting 4 interfaces
resolution	800×600 TO 1920×1200

Signal type	DVIHD Digital Video Signal
clock	165M/S
VGA output	
Interface	HD15，a group consisting 4 interfaces
Resolution	800×600 to 1920×1200
Signal type	VGA Analog Video Signal
clock	165M/S
HDMI output	
Interface	HDMI Type A，a group consisting 4 interfaces
Resolution	800×600 to 1920×1080
Signal type	DVI HD Digital Video Signal
clock	165M/S
SDI output	
Interface	BNC，a group consisting 4 interfaces
resolution	Support SD/HD/3G-SDI
Signal type	HD SDI uncompressed video signal
Video output CVBS	
Interface	BNC，a group consisting 8 interfaces
resolution	D1
Signal type	CVBS composite video signal, N/P adaptive
4K-HDMI output	
Interface	HDMI Type A，a group consisting 2 interfaces
resolution	3840*2160@30Hz
Signal type	HDMI1.4