

# Pure Hardware Video Wall Controller

(VPHXXXX series)

# OPERATION MANUAL



V3.0

Note:

1. Read the manual carefully before using the system, and keep it for future use.
2. This manual applies to all pure hardware video wall controller.

# CONTENTS

<b>CONTENTS</b> .....	<b>1</b>
<b>1. SAFETY INSTRUCTIONS</b> .....	<b>1</b>
<b>2. OVERVIEW</b> .....	<b>2</b>
2.1 SYSTEM DIAGRAM .....	2
2.2 TECHNICAL PARAMETERS.....	2
2.3 KEY FEATURES.....	3
2.4 KEY FUNCTIONS .....	6
<b>3. HARDWARE STRUCTURE AND OPERATIONAL INSTRUCTION</b> .....	<b>8</b>
3.1 ELEVATION VIEW OF PRODUCT.....	8
3.2 FRONT PANEL VIEW.....	9
3.3 REAR PANEL.....	10
3.4 HARDWARE OPERATION INSTRUCTIONS .....	10
<b>4. CONTROL SOFTWARE OPERATION</b> .....	<b>12</b>
4.1 SOFTWARE INSTALLATION .....	12
4.2 SOFTWARE STARTUP .....	12
4.3 VIDEO WINDOW OPERATION.....	14
4.4 SCENE MODE RECALL AND SAVING .....	17
4.5 SIGNAL MANAGEMENT .....	18
4.6 COLOR CORRECTION ADJUSTMENT.....	20
4.7 SOFTWARE CONFIGURATION SETTING.....	21
4.8 OTHER SPECIAL FUNCTION SETTING .....	23
<b>5. RS232 COMMUNICATION PORT AND INTERNAL SCENE RECALL PROTOCOL</b> .....	<b>27</b>
5.1 RS232 CONNECTION .....	27
5.2 INTERNAL SCENE RECALL PROTOCOL CODE .....	27
<b>6. FAQ</b> .....	<b>29</b>

## 1. SAFETY INSTRUCTIONS



### Danger

There's high voltage in processor. To avoid danger, please do not open rear cap without authorization.



### Warning

1. Do not allow liquid, small particles or other objects to get into the device;
2. Do not place the system near fire and water;
3. To keep good ventilation, please place the system at least 20 cm away from a wall surface;
4. If any noise, smoke, smell, please cut off the power at once and contact your local suppliers;
5. Do not connect or disconnect DVI signal cable when the power is on.



### Notice

1. Read the manual carefully before using the system, and keep it safely;
2. Check the packing list to confirm if there is any missing .If there is, please contact the local supplier.
3. Cut off the power if thunder or the machine is not used for long term ;
4. You should be well trained before operating the system;
5. Do not slip anything from vent to prevent broken or electric shock;
6. Do not place the device near liquid or moisture;
7. Do not put the device near heat sink or high temperature environment;
8. Keep the power cable properly;
9. If the following situations happen, please cut off the power and for maintenance
  - 1) Liquid splash to device;
  - 2) Device fall down or the cabinet is broken;
  - 3) Any abnormality or malfunction in the system

## 2. OVERVIEW

This pure hardware design video wall processor is the newest version of image controller; it displays the various analog/digital images, video source on the output device: LCD wall, surveillance system or others. The video wall processor adopts brand new modular concept that the input cards and output cards can be used in any combination, in any order and in any slots on the backplane; moreover, display devices can be controlled and connected via transmitting signal with multiple video wall processors used in seamless conjunction.

### 2.1 System Diagram

## DIAGRAM

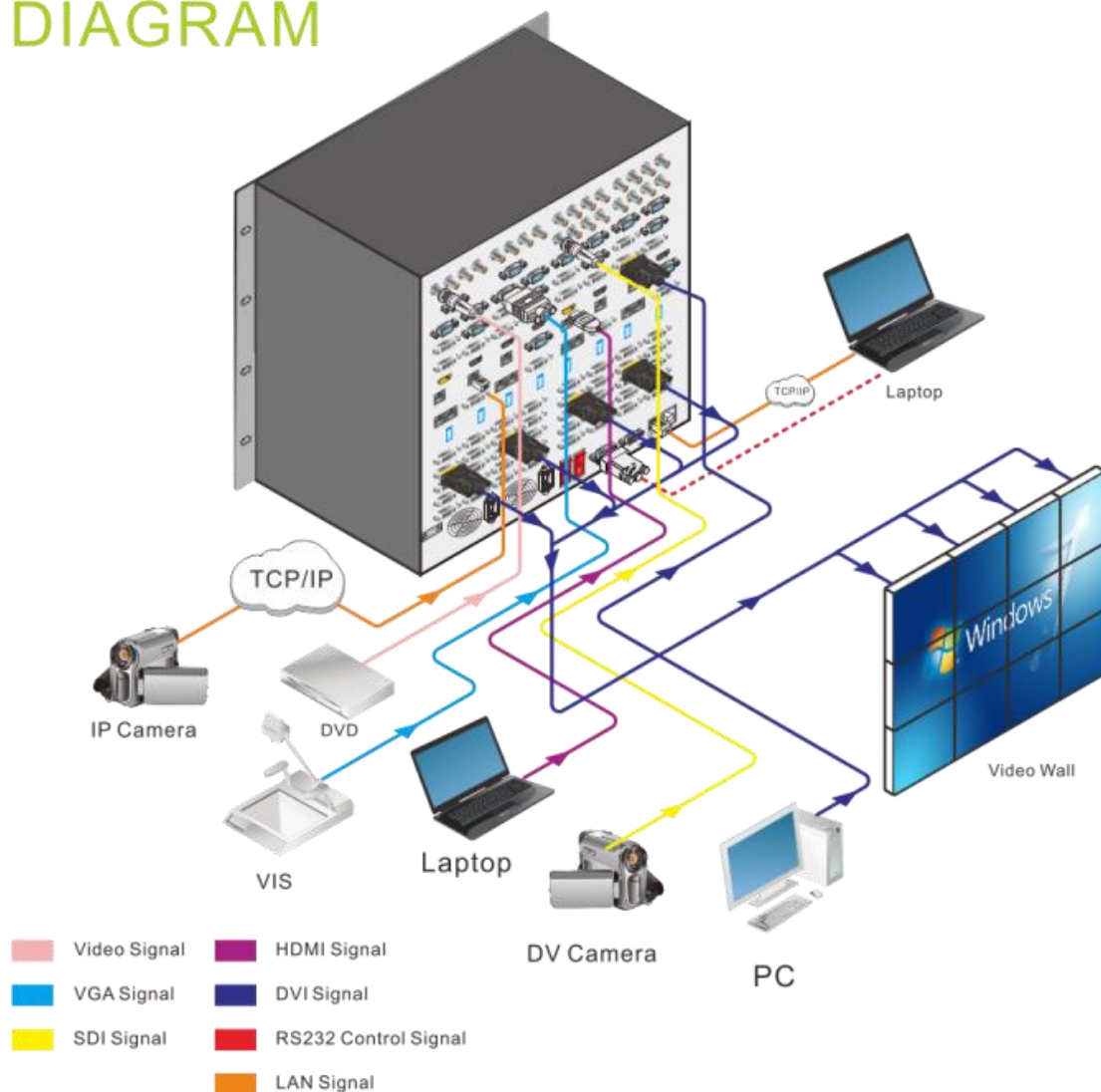


Fig 2.1 System connection diagrams

### 2.2 Technical Parameters

**Digital hardware video wall processor**

2

**SHENZHEN DDW TECHNOLOGY CO.,LTD**

9/F,A1 building,3rd Industrial Park,Da Wang Shan,Shajing Town,Bao'an District,Shenzhen,China,518104

<http://www.ddw.net>

<http://www.lcdvideowall.com>

<http://www.digitaldisplaywork.com>

Description	Up to sixteen video windows per display channel (Optional)
Inputs (Optional)	DVI/HDMI/VGA/YPbPr/VIDEO/SDI/S-Video
Input resolution	XGA/SXGA/SXGA+/UVGA/WUXGA/1080p,etc, compatible with custom ultra-high resolution
Output Signal	DVI/VGA output
Output resolution	1920*1200/60HZ (compatible with standard resolution )
system control software	ApplicationPro dedicated control software
Power	Dual power supplies 100AC~240VAC,50/60Hz, more trustable hot-swappable power supply working mode, internationally self-adaptive power
consumption	12w per channel
working temperature	-20℃——60℃
working humidity	5-95%
Chassis size	4U/6U/10U/15U standard rackmount chassis
Serial port	RS-232, 9 pin, D-type connector
Baud rate	115200
Serial port architecture	2=TX,3=RX,5=GND
Ethernet control port	RJ-45 female ports, TCP/IP protocol
Ethernet control speed	Self-adaptive 10M or 100M, full duplex or half duplex
Working hours	7 days x 24 hours x 365days

Fig 2.1 Technical datasheet

## 2.3 Key Features

### 1 Reliable

The video wall processor adopts the standalone modular hardware architecture design, the equipment power, cooling fans, signal capture card and output cards are all hot-pluggable. Malfunction of arbitrary module will not affect the overall system. This design enables the shortest MTTR (Mean Time to Repair) and longest time MTBF (Mean Time between Failures) to meet the user's demand on the reliability and stability of video wall processor system.

### 2. Special virtual display technology

We offer perfect system solutions such as to custom design ultra-high output resolution for customers, as high as N×M, 1920\*n (V), M=1080\*m (H).

### 3. CAN controlling technology

CAN is short for Controller Area Network, it is a serial communication network effectively supporting both the distributed control and real-time control. Thanks to flexible and convenient means of communication and brand new data coding, non-destructive bus arbitration technology as well as the advanced short-frame structure, the data transmission time becomes shorter. And powerful troubleshooting capabilities and communication media diversification, as well as the combination of flexibility are comprehensively applied in the products. In conjunction with multiple devices, the response speed through the CAN control should be faster.

#### **4. All digitalized processing**

All digital path, it adopts pure digital signal processing system, with the input and output signals according to the interface specifications of the particular device can be digital can be simulated, but all signals in the system's internal transmission for pure digital methods, and is no attenuation of the long-distance transmission. All signal processing, including cropping, scaling, de-interlacing, noise reduction is completion of the processor within the system.

#### **5. Full channel real HD 1080P signal processing**

Normally, equipment which are capable for 1080P HD inputs and 1080P HD outputs often adapts compression processing to 1080P signal due to the bandwidth limitations, and then zoom in to 1080P output. However, it is not only a pure digital signal processing systems, but full channel real HD 1080P signal processing system, it adapts the unique distributed control technology developed by our company, with independent processing of each 1080P input signal processing which is always full HD 1080P signal without any compression.

#### **6. Advanced pure hardware structure**

Pure hardware architecture, internal self-core computing mechanisms, no CPU and no OS, no blue screen and free from viruses trouble, no plug in card processor crash, start-up time less than 5 seconds, double-backup redundant power supply and support hot backup, able to continue to work throughout the year.

#### **7. Powerful image processing capability**

Powerful computing and data transmission capacity, data rates up to 6.25Gbps, all modular cards use specialized chips which could be used in huge amount of data transfer splicing system. The chips are researched and developed by our company independently. This completes eradication of bottleneck of slow and unstable splicing system caused by low data bus bandwidth for the multi-screen processor the displays, so that multi-screen processor has an unparalleled display of speed.

Multi-screen processor adopts high-speed data transmission technology based on the full cross-scheduling framework, the underlying data transfer is controlled by our original data scheduling chip technology, enabling to set dedicated point-to-point data channels for each input, DVI, HDMI, RGB, video signals, network image has its own of channel transmission to ensure to display in real time at the speed of up to 60 frames / sec, all input channels may smoothly play HD motional image without any limitation.

### **8. Flexible operation control system**

All output ports can be arbitrarily specified with the output number, arranged modes can be of any combination so that the client can install the display at will, which greatly facilitate the construction. Any video input signal can be zoomed in, zoomed out, at any ratio and at any location, freely roaming across screen or full-screen display and all video signal windows could be overlapped , zoomed (no zoom ratio limitation), the aspect ratio can be adjusted, with the CBD area control, single screen can open up to 16 video windows.

### **9. Customizable character overlay function for the input signal**

Support character overlay function for the input signal, to facilitate real-time display the source of the signal.

### **10. Easy to control mode**

There are network port and RS232 port for controlling, supporting almost all control equipment on the market at the same time such as Crestron. The processor also supports remote control of Windows, Linux and other network access through TCP / IP protocol, any PC with network access can be used as a remote console, users can control the processor simply by entering the IP address of the device without the need to change the existing network environment,

If multi-users are connected at the same time, only one user is able to connect in this case. Moreover, it support multiple Ethernet connections, means that through our own brand control software applied in network, multiple display ends can show the same control interface at the same time in the high-resolution desktop, the display window size can be arbitrarily adjusted.

### **11. The input signal selectable**

Users can select different types of input signals, there are six options: DVI / VGA, YPbPr / AV, AV, DVI, HDMI, SDI cards. If want to change the type of the input signal, you only need to replace the card.

In addition, with the company's unique DVI-X technology using an adapter cable or adapter connected to a DVI interface, each capture card can capture six kinds of videos such as; video, YPbPr, HDMI, DVI, VGA, S-Video; If the unique 5W modules uses the adapter cable to connect the VGA interface each capture card can capture up to 16 channels of video signal inputs.

## 2.4 Key Functions

**1. POP Picture Out Picture Mode:** Multiple or part signals are displayed to full screen or part screen in any rectangle shape, single panel can create 4 video windows at most.



Figure 2.2 POP Tile mode

**2. Single screen can create 16 video windows at most:** in the same whole screen, can set 4 CBD areas, each CBD can open 4 windows, i.e. single screen can create 16 windows at most.



Figure 2.3 Single screen with creating multiple video windows capability

**3. PIP mode:** use certain one picture as background; the other video windows adopt tile mode.



Figure 2.4 PIP mode

**4. Overlapping mode:** use certain one channel as background, the other channels are also displaying on the screen with the overlapping part invisible.





Figure 2.5 windows overlapping mode

**5. Scaling and Positioning:** Size is scalable and position adjustable.



Figure 2.6 window scaling and positioning

**6. Edge shield technology:** Under traditional splicing technology, when encountered with video wall consisting of rear projector, Panel TV, LCD/PDP or DLP, CRT, as their pictures are spliced after being divided and the adjacent displays cannot display the cutting edge because of the gaps, the overall picture will become abnormal unnaturally.

Through refined pixel adjustment and the edge signal automatically extended, the edge covering part is shielded to achieve a natural and intuitive viewing. During debugging, users only need to input in the control software the size value of the display unit and the approximate width value of back edge, it will automatically calculate the required shielding range and perform the mask with our unique techniques.



Normal effect

No edge shield

With edge shield 效果

Figure 2.7 Effect comparisons between edge and non-edge

**7. Edge fine-tuning technology:** Make adjustment on single pixel of splicing screen edge through the operation of the control software in order to reach seamless splicing. The technique is suitable for front projection, rear projection, DLP display and so on.

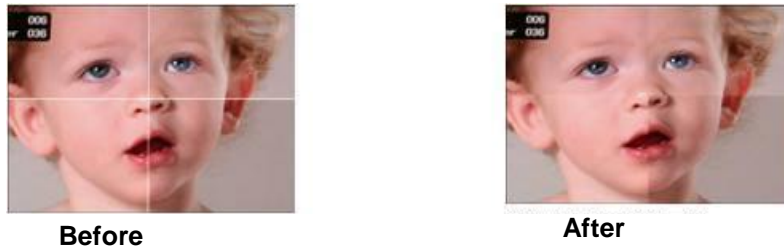


Figure 2.8 Effect comparisons between before fine-tuning and after fine-tuning

**8. User-defined modes:** We offer abundant assignable modes function, there are 30 built-in user-defined modes, and a lot of external user-assigned modes, and touch panel supported such as Crestron.

**9. Image parameters (white balance/brightness/contrast/saturation) adjustment:**

All the parameters are set as standard state when the goods leave the factory, users can adjust it according to the actual need. For example, user can adjust the white balance of each output to make the comprehensive white balance of TV wall/splicing wall reach a state as perfect as possible.

**10. Background Logo display (customized requirement):** available as a background logo display, according to the demand of customer , we will store the segmentation images in the corresponding interfaces, the background logo can be spliced into a complete image, each on-screen background logo can be activated or deactivated and can be replaced freely as you need.

### 3. HARDWARE STRUCTURE AND OPERATIONAL INSTRUCTION

#### 3.1 Elevation view of product



Fig 3.1 Elevation view of 5U and 12U

Because of the different capturing signal source types and different quantity, our all-digital high-definition image processor completely fit the user's actual needs, using different types and different number of input and output video cards, chassis size increases as the video cards increases. See the relevant sections to check out full chassis dimensions, only 5U and 12U chassis elevation view are listed and the following instruction are based on 5U and 12U chassis products considering that other size chassis products should be similar or the same. For more information, please contact our customer service.

### 3.2 Front panel view

Front panel is built in with digital matrix control panel, as followings:



Fig 3.2 Front panel view

- ① LCD display panel: To display equipment's working status, menu and operation setting information;
- ② Device indicator: Under normal working, POWER indicator keeps on, ACTIVE indicator blinks; CONTROL indicator flashes only when controlling the equipment; IR is for infrared receiver.



Figure 3.3 Equipment's working indicators and IR receiver

- ③Front panel: Functions described as follows:

"1,2 ..... 9 ---- numeric buttons, input and output channel selection button

"MODE" ---- mode switch key for switching the select key on the signal; view matrix state.

"SAVE" ---- Save button to save all correspondent relationship between input and output.

"LOAD" ---- Recall button to call correspondent relationship of the input-output saved.

"MENU" ---- Menu, you can set the machine code, communication baud rate, buzzer switches, network control button.

"ESC" ---- Exit. Exit the current menu state.

"ENTER" --- Command execution button, select to confirm the switch, perform switching action.

### 3.3 Rear panel

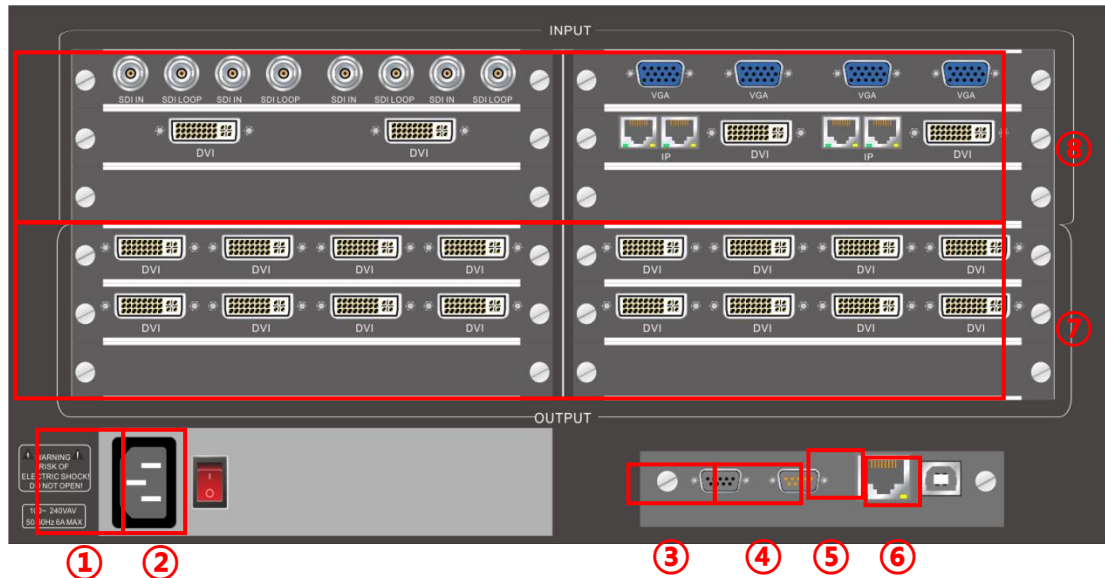


Figure 3.4 6U Chassis Rear View

- ① Power Socket: Redundant power supply, AC220V 50 HZ,
- ② Power switch: Turn on the power switch and the equipment start to work normally
- ③ Serial communication input, connected to computer or other control equipment
- ④ serial communication output, cascade to following equipment or other equipment;
- ⑤ Ethernet control: Connect the devices to the internet for remote control.
- ⑥ interface: For usage reserved
- ⑦ Output ports: Signals are outputted to the video wall or cascaded to following equipment;
- ⑧ Input ports: Signal sources input, collect all kinds of sources. Input ports could be:  
(AV.YPbPr.SDI.VGA.IP Stream.DVI.DVI-X.HDMI) (With optional input modules) ;

Attentions: The above diagram is only for illustration; please refer to the actual rear panel.

### 3.4 Hardware operation instructions

At normal state (without operation for 12 seconds or more time), the LCD screen display content as shown below:

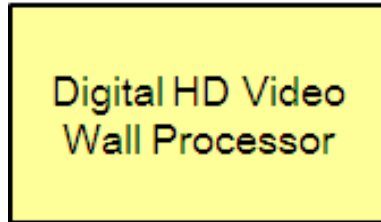


Figure 3.5 At normal state

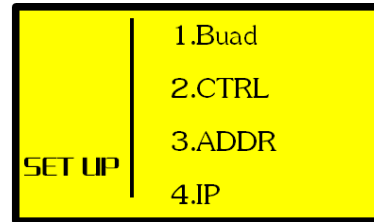


Figure 3.6 First level of the menu

Click the **【MENU】** button, it will appear first level menu, as right-hand chart shown above.

**【1.BAUDRATE】** : Settings of baud rate, enter into the secondary menu by clicking the **【ENTER】** button, there are four optional in total: [1, 4800; 2, 9600; 3, 19200; 4, 115200 ]

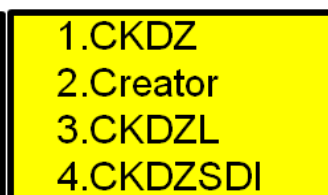
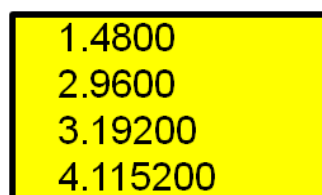
**【2.CTRL】** :Command setting, Press **【ENTER】** button, the OSD display will show four types of command;

**【3.ADDR】** :Settings of the address code: The screen will display **【LOCAL ADDR:001】** after clicking the **【ENTER】** button. The default factory set is 001. The user can adjust the value according to actual situation.

**【4.IPSET】** :Settings of Network IP address. Click the button **【ENTER】** to enter into the secondary menu; Select **【1】** to obtain IP automatically, select **【2】** to manual set for IP address, When manually setting, press button **【MODE】** to switch value field, and enter desired value, press button **【ENTER】** to confirm;

**【5.BUZZ】** :Settings of Buzzer on/off., there are two options **【1, BUZZ ON; 2, BUZZ OFF】** on the screen after pressing the **【ENTER】** button. Press the button **【1】** or **【2】** to control buzzer on or off;

Because of OSD size, the default page will show only 1 to 4 item menu, if you want to set for no.5 item menu for buzzer, press button **【MODEL】** to go to next page, or press button **【5】** alternatively.



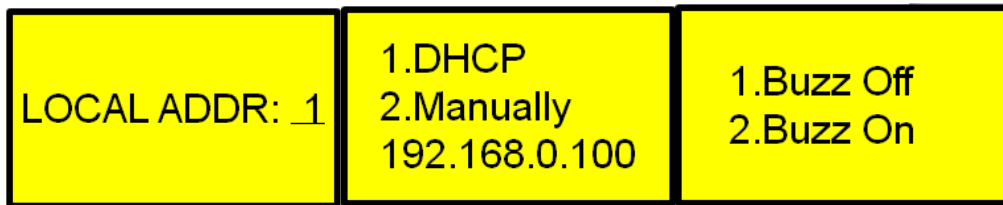


Fig 3.7 Second-level menu

## 4. CONTROL SOFTWARE OPERATION

### 4.1 Software installation

Full digital high-definition image processor adapts user-friendly design. Its control software requires no installation, you can copy it to any place of the control computer and then double-click it to execute file program. It saves tedious software installation steps and time. Even computer entry-level users can operate it quickly and easily.

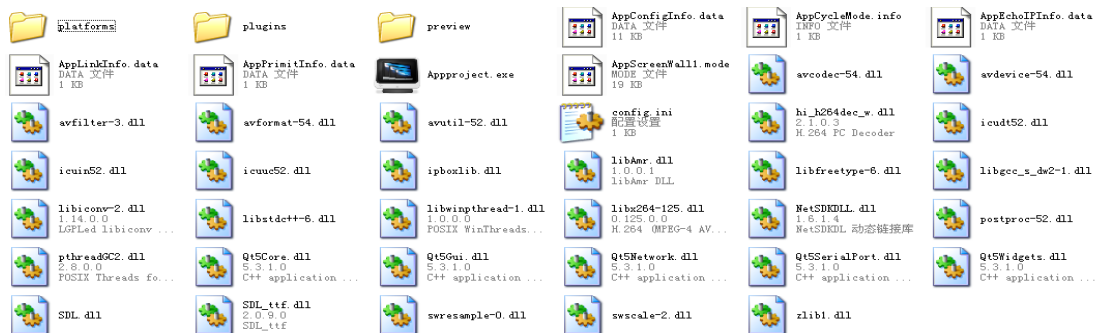


Figure 4.1 Folders of control software system

Program operating environment: CPU: more than P4;

Memory: more than 512M;

Hard disk: more than 40G.

#### Attention:

1. The above files are all necessary to guarantee the control software operation, and they all need to be in the same file. Please do not alter the file, otherwise it will cause software abnormal use.
2. Double click the software, will pop up a log-in dialog, and choose the accounts to log in. In the software, you can define function restriction via super account.
3. Our company reserves the right to design, due to factors such as software upgrade, the end-user's control software interface might not be the same as what showed in this chapter, please refer to the latest user manual documents and control software in the package.

### 4.2 Software Startup

#### 1. Running the program

Double-click application program "Appproject" to open the control software interface, as shown in the figure below:

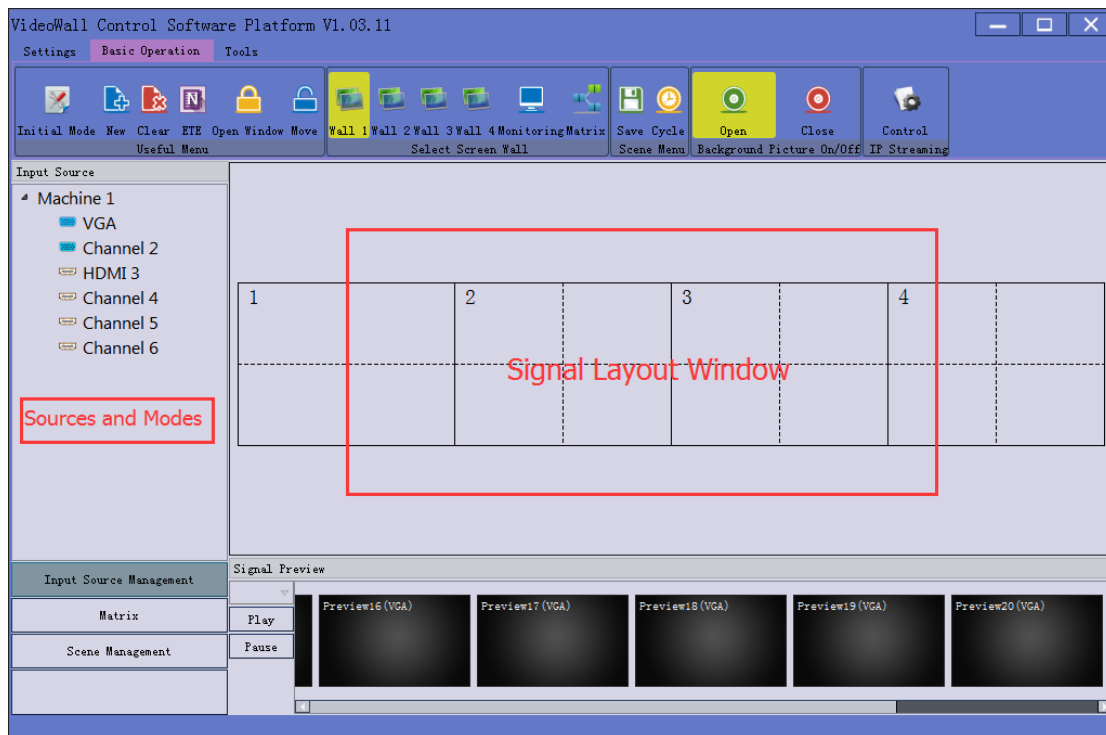


Fig 4.2 Control Software Main Interface

## 2. Communication connections

Click on the Settings, click **【Setting】** to choose COM port, user should choose the correct port that are using to connect with video wall controller.

**【Baud Rate】** is the control signal communication rate, the default rate is 115200. Click **【Set up】** to start control, as following:

If you are using LAN network to communicate with video processor, the network setting interface looks as following, click **【Search】** Button to automatically obtain IP address and device ports, click **【Settings】** button to start the communication.

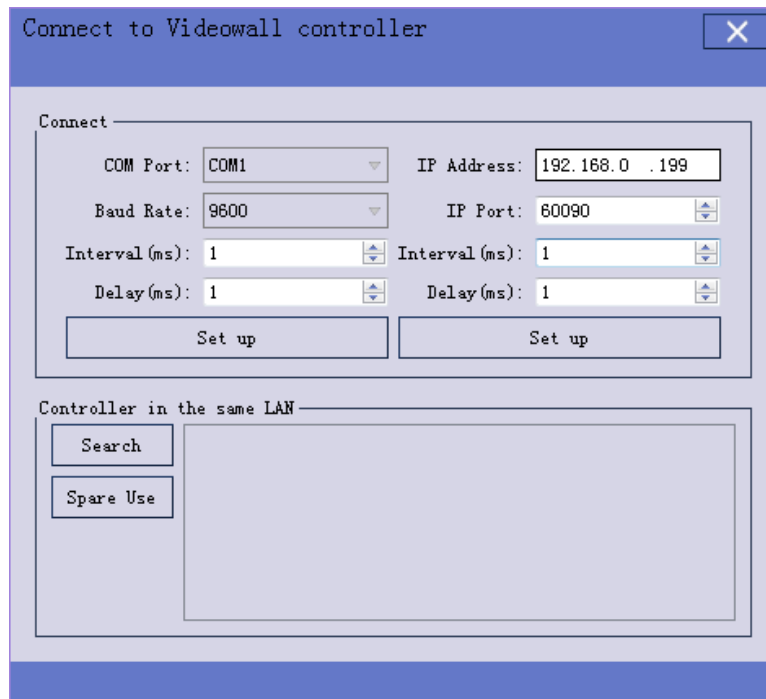


Fig 4.3 Device communication

## 4.3 Video window operation

### 4.3.1 Open video window

Press and drag the left mouse button in the operation interface to create a rectangle window, as show in the figure below.

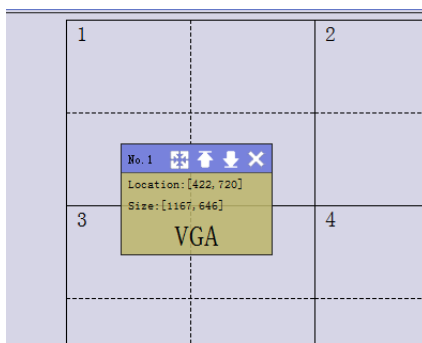


Fig 4.4 Using Mouse To Create Window

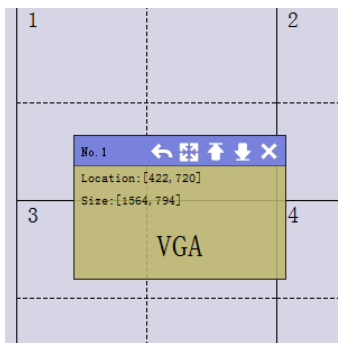


Fig 4.5 Change Size and Position


### 4.3.2 Adjust the size and position of video window


Move the mouse pointer on the video window, then press and drag it to move the window to an appropriate position, and then loose it.

Move the mouse pointer to the bottom right of the window, and then drag it to change the window size when it turns into a two-way arrow.



### 4.3.3 Windows menu operation

There are seven menus  at the top of each window, and is available for users to do corresponding window operation. These menus will be described individually on the following chapter.

-  **Close:** Close the current video window
- The black full line in operation area represents screens splice. The dotted line means blocks in single screen unit. If you newly create a window in single screen or split in two screen units as shown on below left picture, then double click the windows, the windows will be displayed on the screen fully to the lines, as shown in the right picture below.

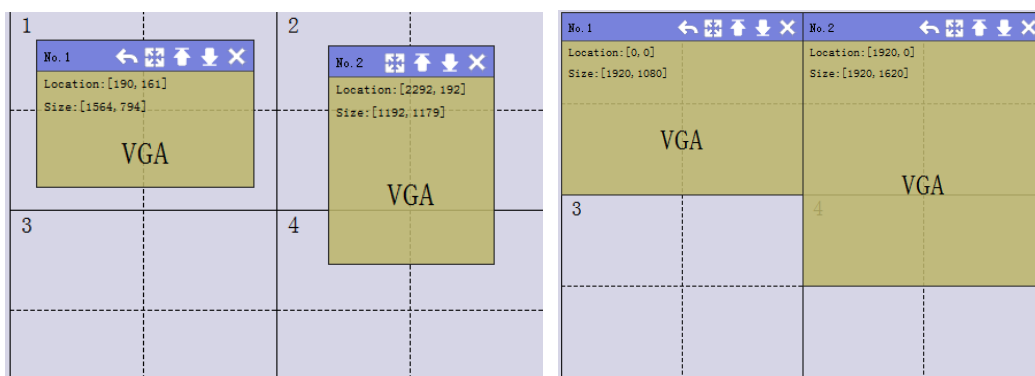



Fig 4.6 Single Window And Partly Full Screen Illustration

-  **Full screen:** The current operation window displays in the entire video wall. Click this button again, it will return to previous size.

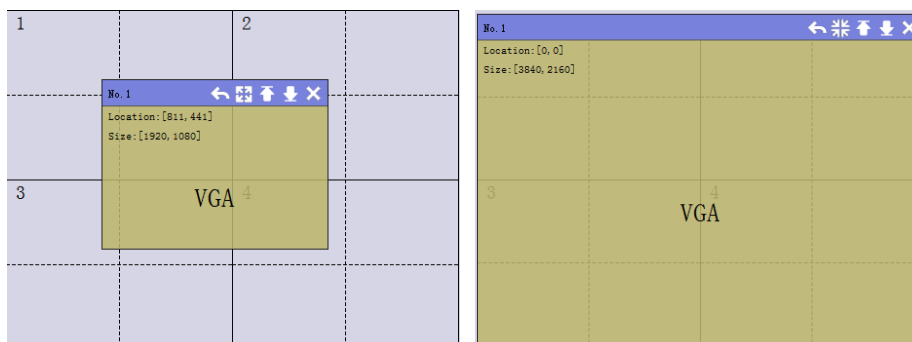




Fig 4.7 Full screen display

-  **Return:** Click this button or choose this function, the current operation window will return to first column and first line, and shown as fully in single screen.

-  **Top and Bottom:** Change window level to be on the bottom or the top.



6. **Clear** Click the icon **【Clear】** , all video windows on the right side will be closed.



7. **New** **New**: Click the icon **【New】** , the current video window will full display in each screen of the video wall, as shown in the figure below:

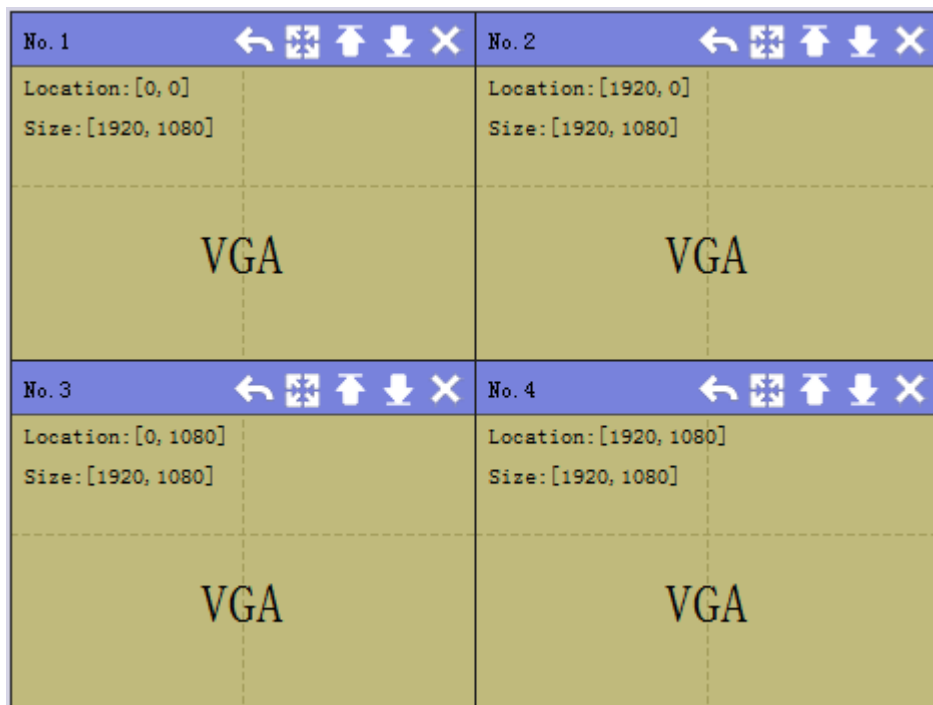


Fig 4.8 New Windows



8. **Open Window** **Open Windows**: Click this icon to open a new window, and once it is opened, it will be locked at the same time.



9. **Move** **Move windows**: Click this icon to move any window locked.

#### 4.3.4 CBD Selection (Optional Module)

If your video wall controllers come with CBD function, when you left click on the window area, you will CBD option in the menu list.

Click **【CBD】**, the window becomes CBD area, in each CBD area, you are able to create up to 4 windows, as followings:

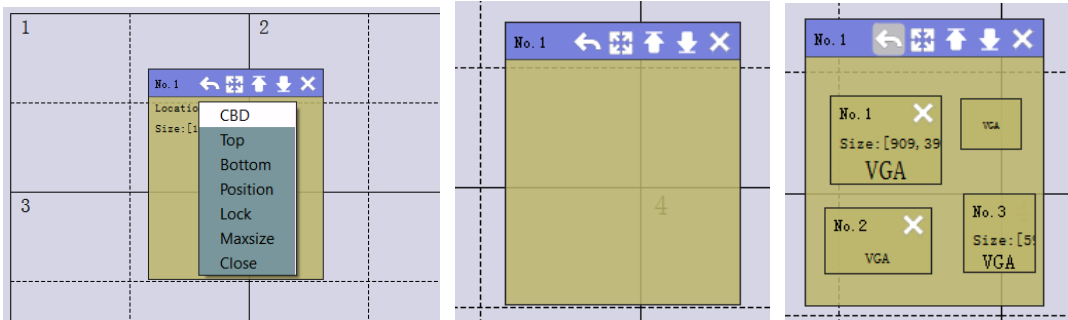


Fig 4.9 Add Sub-windows

## 4.4 Scene mode recall and saving

### 4.4.1 Scene saving



Click the icon **Save Scene** on **【Basic Operation】**, you can save the current splicing layout. The scene name can be edited by yourselves, click confirm after name edition.

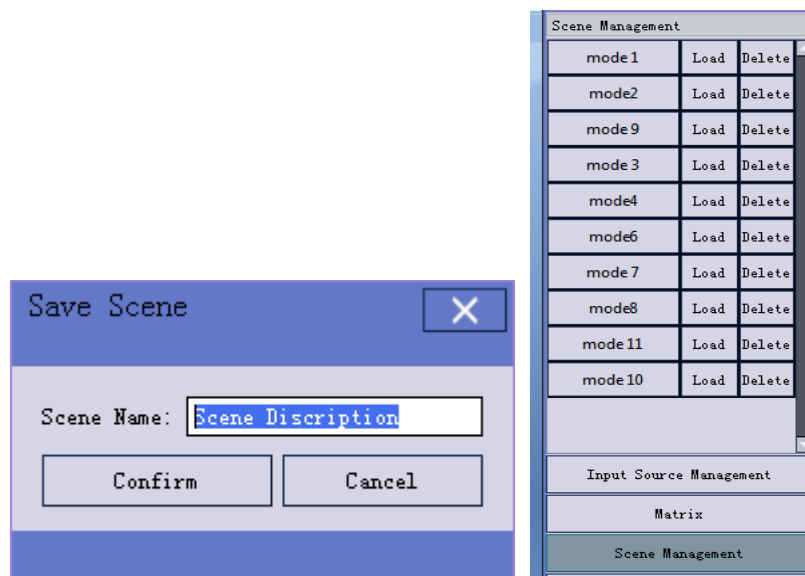


Fig 4.10 Scene Saving and Load

### 4.4.2 Load Scene

On the lower left control software management interface, there is a list of save scene modes, click “Load” to recall this mode, it will pop up the following prompt, click “Confirm”


To complete the recall; Click “Delete” to delete the save scene mode data.



F4.11 Load Scene Mode

#### 4.4.3 Scene Mode Cycle



Click the icon  on the menu bar of the software, select the needed cycle modes and add them to list on the right after choose Interval duration for each mode,, , click the “ Cycle” to carry out the cycle.

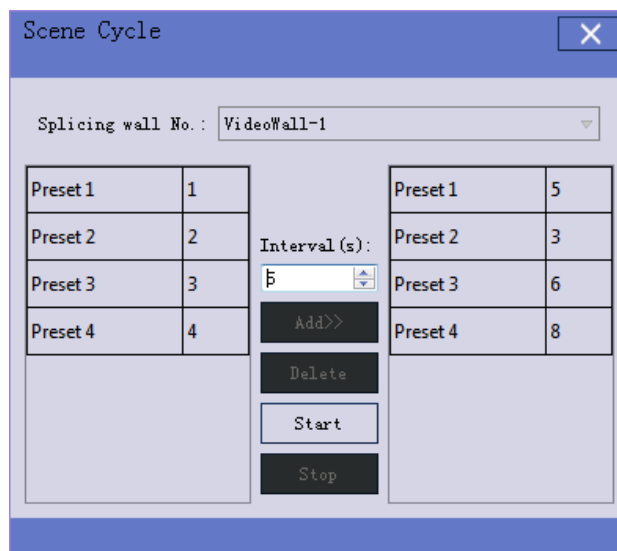


Fig 4.12 Scene Mode Cycle Setting

#### 4.5 Signal management

On the left of control software interface, there is a list of input sources, as shown below:

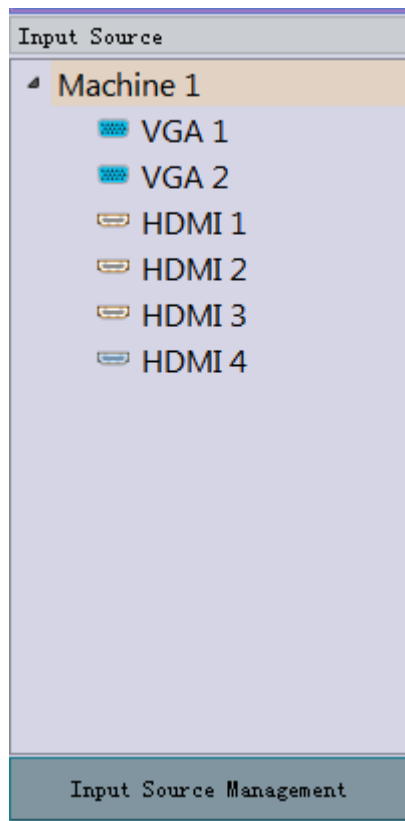


Fig 4.13 Source Management

Select one input signal, then hold the left mouse button and drag it to the right side of the window to realize signals switching. Double-click one input signal to change its name.

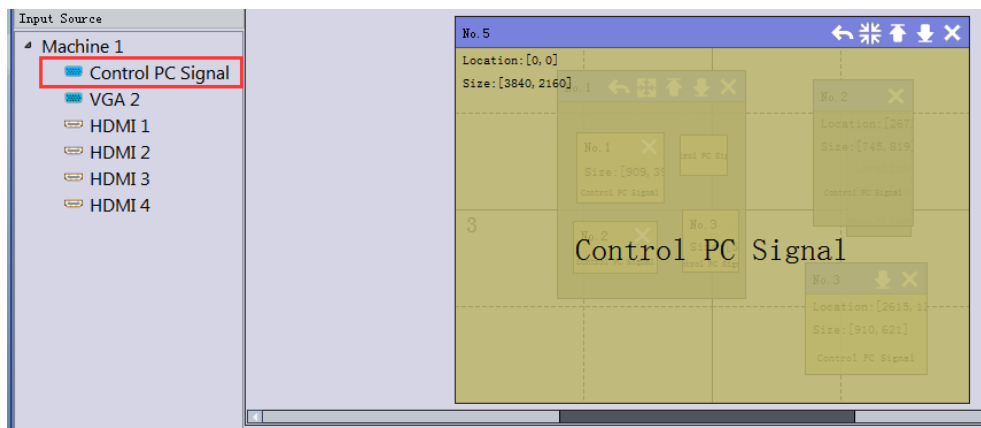


Fig 4.14 Rename For Input Source Channel

When the input source channel is VGA, right click the channel icon, you will get the following menus:

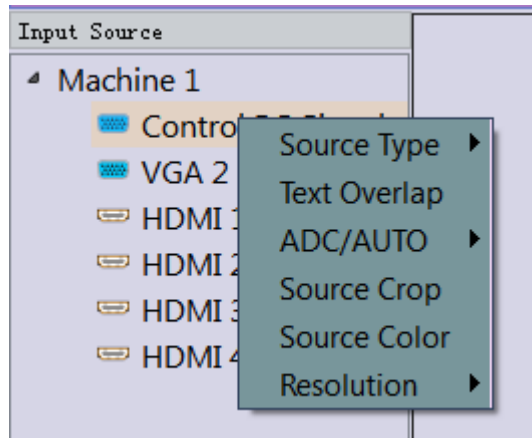


Fig 4.15 Input Source Adjustments and ADC Correction

#### 4.6 Color correction adjustment



Click **Color** icon, will pop up below dialog for settings:

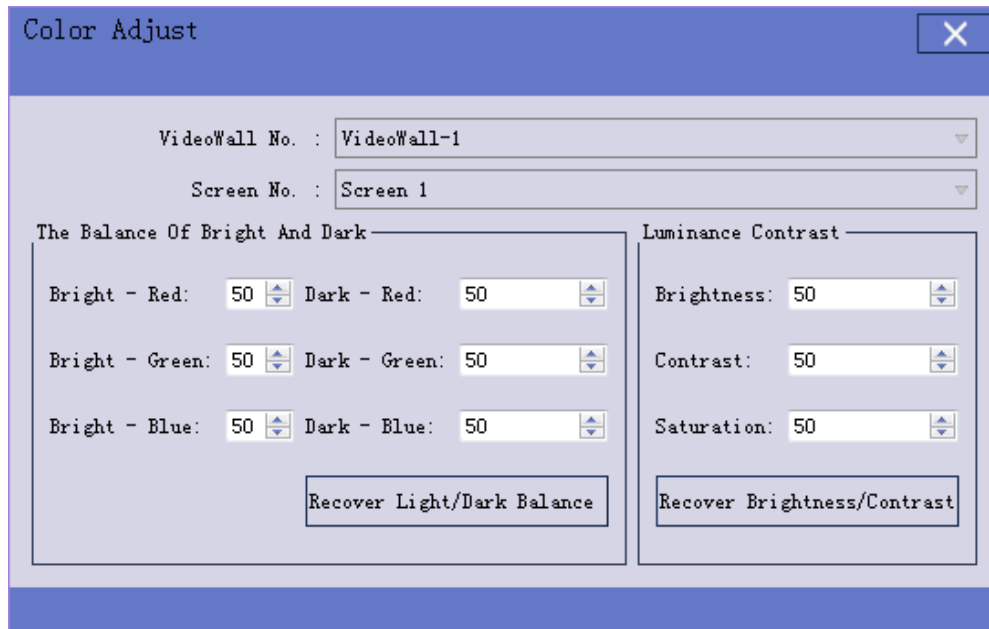


Fig 4.16 Color Adjustment

Firstly select the screen No., then do corresponding adjustment for the light balance (red, green, and blue), dark balance (red, green, and blue), brightness, contrast and Chroma, when the adjustment effect does not meet the requirements, the user can use the buttons **【 Balance of light and dark recovery 】** and **【 Brightness contrast 】** to reset, in order to restore to factory default

setting.

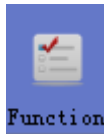
#### 4.7 Software configuration setting

In order to protect the equipment and eliminate the non-related staff's incorrect operation, the user need password to configure software's other settings. Only with the correct password, you can realize corresponding configuration.(Consult our sales about the password)

**Notes:**

- 1, To ensure the normal operation of equipment, the following functions have been set ok upon shipment, users do not have to make changes unless this is any hardware change;
- 2, The operations described in this section are too professional. So for general users, this operation is not suggested. If you do need to operate, please contact with our company sales.

##### 4.7.1 Function Selection



After clicking **【Function】** Function it will open up a control panel for function selection, advanced users can choose optional functions as listed below:

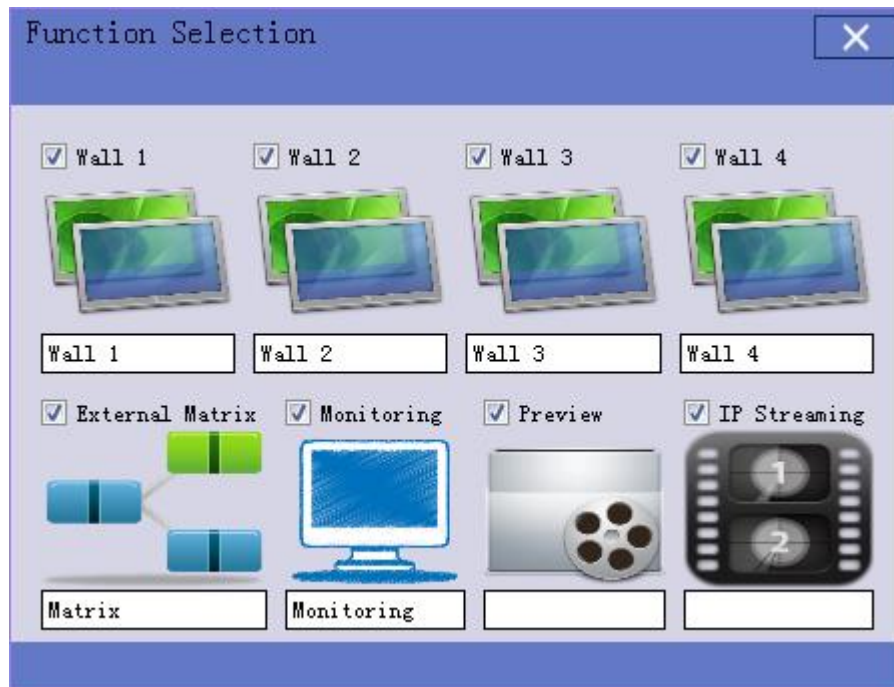


Fig 4.17 Other Function Selection

##### 4.7.2 Video Wall Settings



After clicking **【Video Wall】** VideoWall , it will pop up a control panel dialog for video wall parameters.

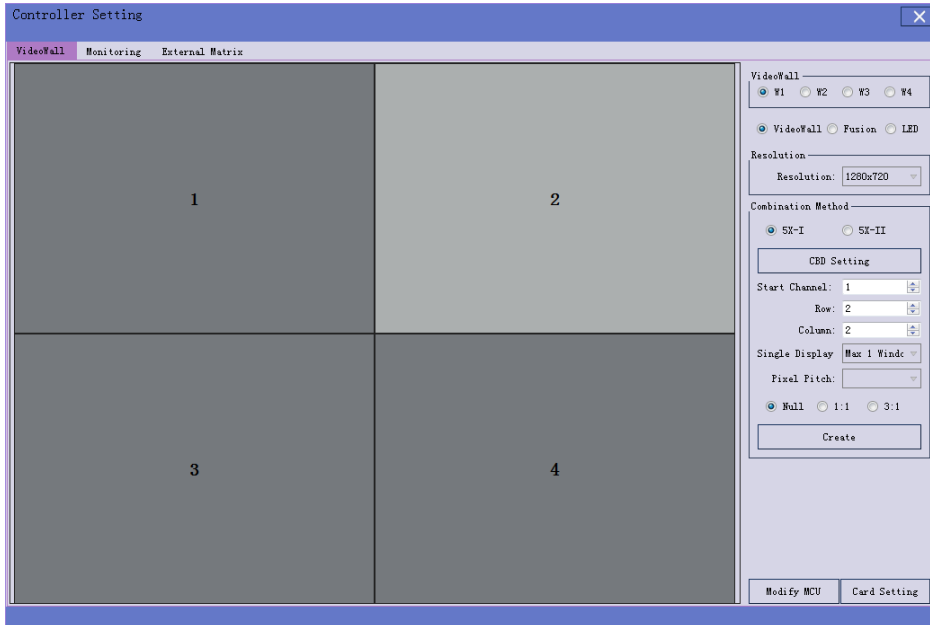


Fig 4.18 Video Wall Setting Control Panel

For general users, it is not allowed to do the setting here, only professional trained persons can configure for video wall arrangements and card information and input channel.

4.7.3 Source



After clicking **【Input】** icon, it will pop up a setting window as shown:

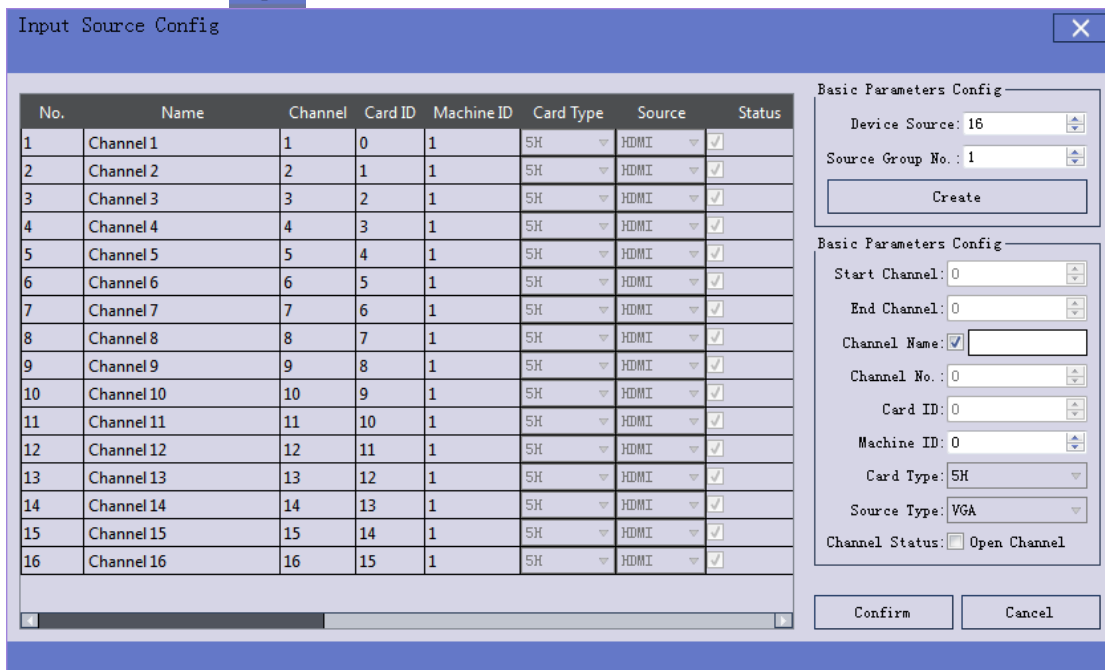


Fig 4.19 Input Source Configuration Control Panel

In this window, you can configure for input channel number, type of input card and card ID. The



operations described in this section are too professional. So for general users, this operation is not suggested. If you do need to operate, please contact with our company sales.

#### 4.7.4 CBD Setting

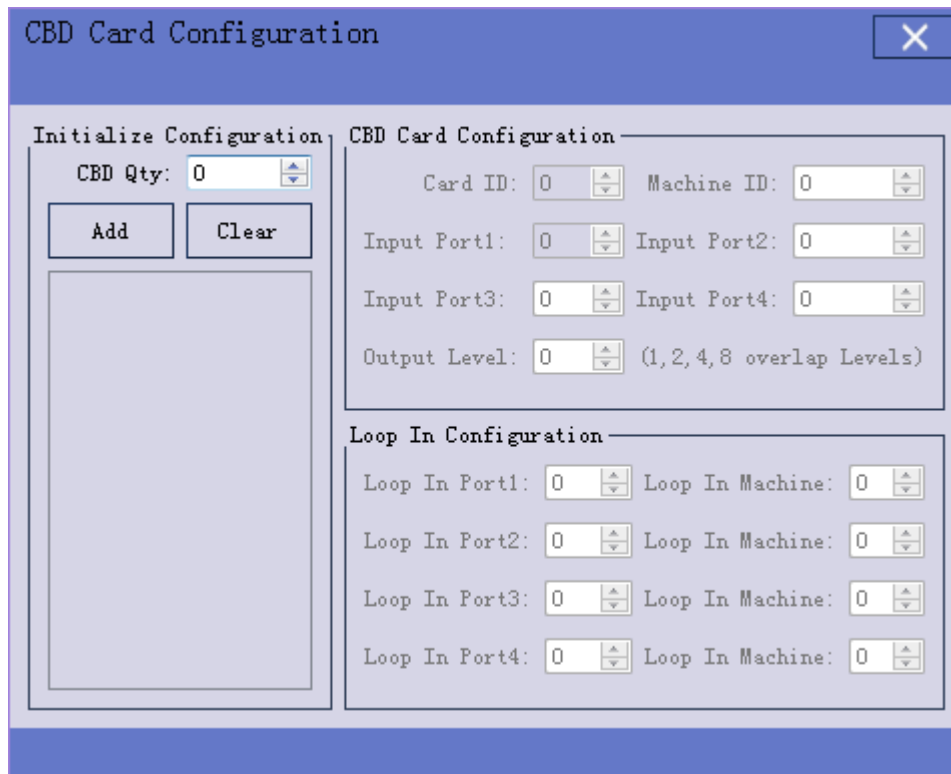


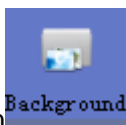
Fig 4.20 CBD Setting Dialog

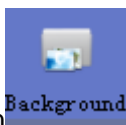
In this window, you can set: numbers of CBD, CBD board ID, corresponding channel input and loop-out configuration. Because this part needs too much background information on video wall controller, is not recommended for the user to configure. If you have any question, please contact our staff.

#### 4.8 Other special function setting

Common users can do the setting showed in this section, as this part need a lot of background information on video wall controller and we don't recommend the users to do setting by themselves.

##### 4.8.1 Background Picture Burning



Click the icon , and enter control panel for background picture upload, extend the control PC signal to the video wall, if the current shown channel is not on Control PC, please switch the input channel to Control PC channel by front panel buttons, as shown below:

Note: Extended signal resolution must be higher than video wall controller output resolution in order to upload successfully.

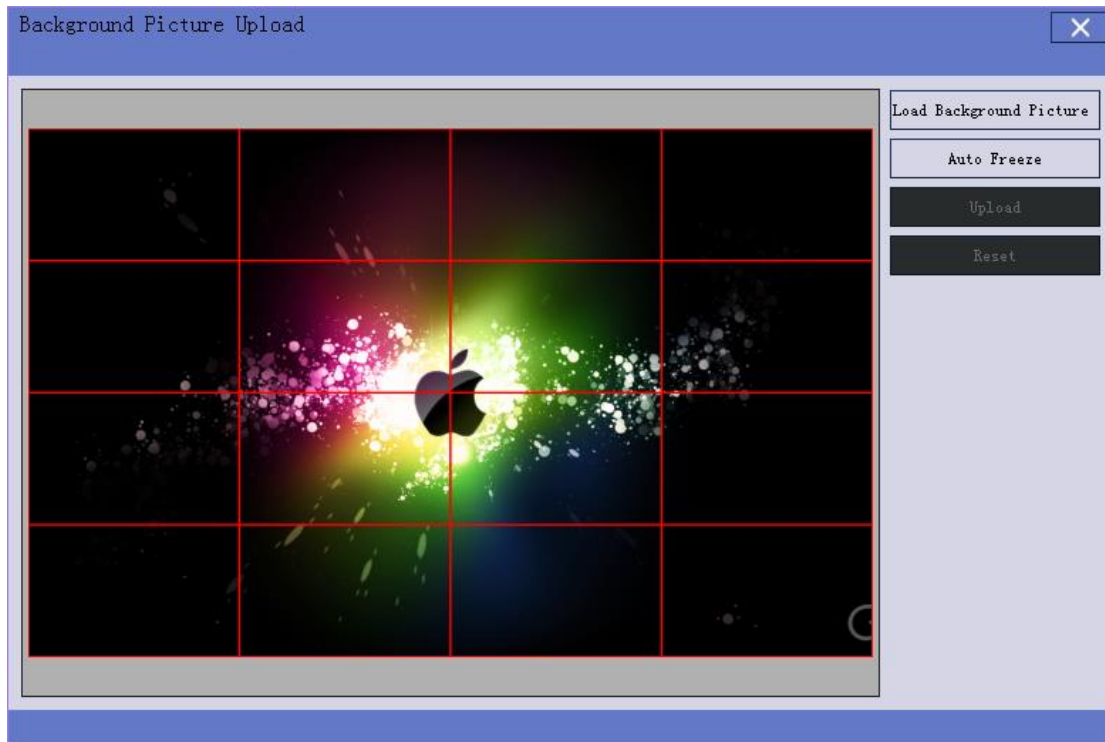


Fig 4.21 Background Picture Upload Interface

Click **【Load Background Picture】** to browse the pictures on the PC, the columns and lines are the same as your video wall arrangement. Then click **【Auto Freeze】** and **【Upload】**, at the same time a progress bar will appear on the screen, when progress is completed it means burning has been finished.

#### 4.8.2 Banner



Click **Banner** icon to enter text overlap setting interface as followings:

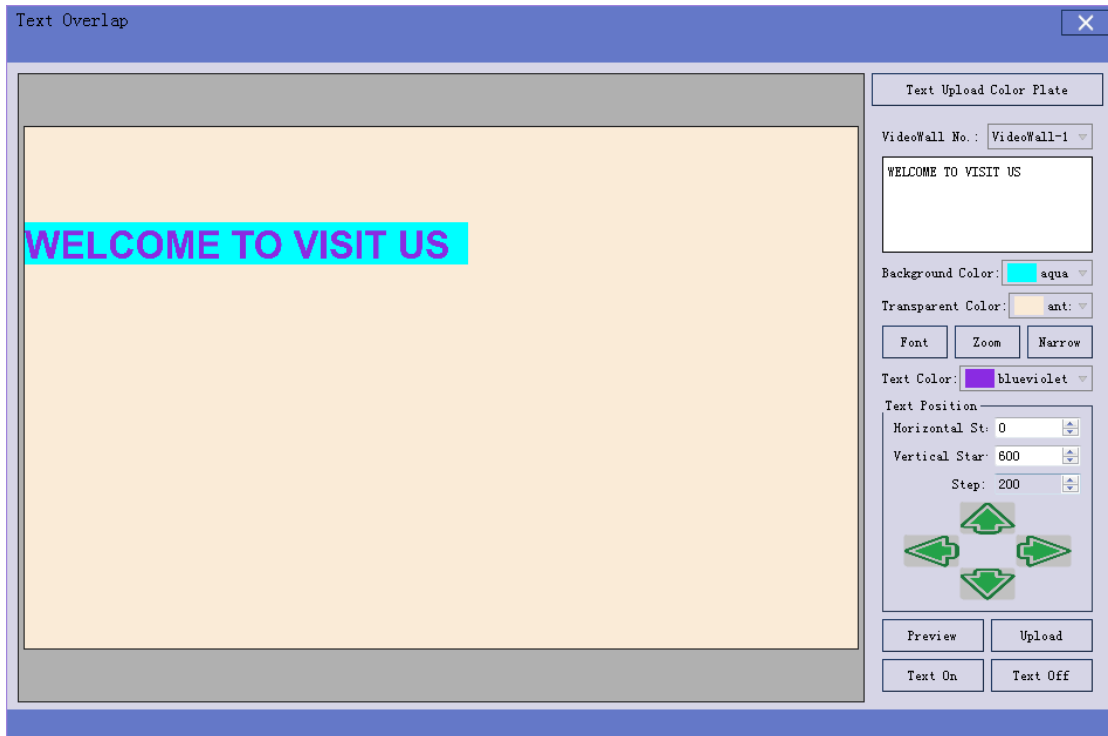


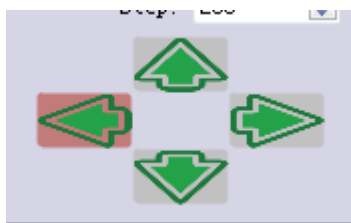


Fig 4.22 Text Overlapping On Video Wall


Banner refers to overlapping text shown on the output of video wall controller, which can be used to put "welcome xxx to xxx" or other notice information.

1. Choose **【color plate】** before burning;
2. Enter the text that you want to show on the video wall in the text box;
3. Click  button to set text font, size;
4. Use  to select color patterns for text;



5.  Use this gear to move position of text across video wall.



Click  **【zoom】** to enlarge the text, use **【narrow】** to reduce the size of text.



6.  **【Background color】** and **【Transparent Color】** are set to be


the same color usually, or you can choose both colors as per your need.

7. After the settings, click "Preview" to check whether it is what you want, click "Upload" and then begin programming, at the same time a progress bar will appear on the screen, when progress is completed it means burning has been finished;

8. **【Text On】** and **【Text off】**  is the quick switch to enable or disable the text function.

#### 4.8.3 Screen Control Protocol



Click icon , enter screen control setting interface, user can use existed protocol for different brands, also you can add other brand if you get their protocol, as following:

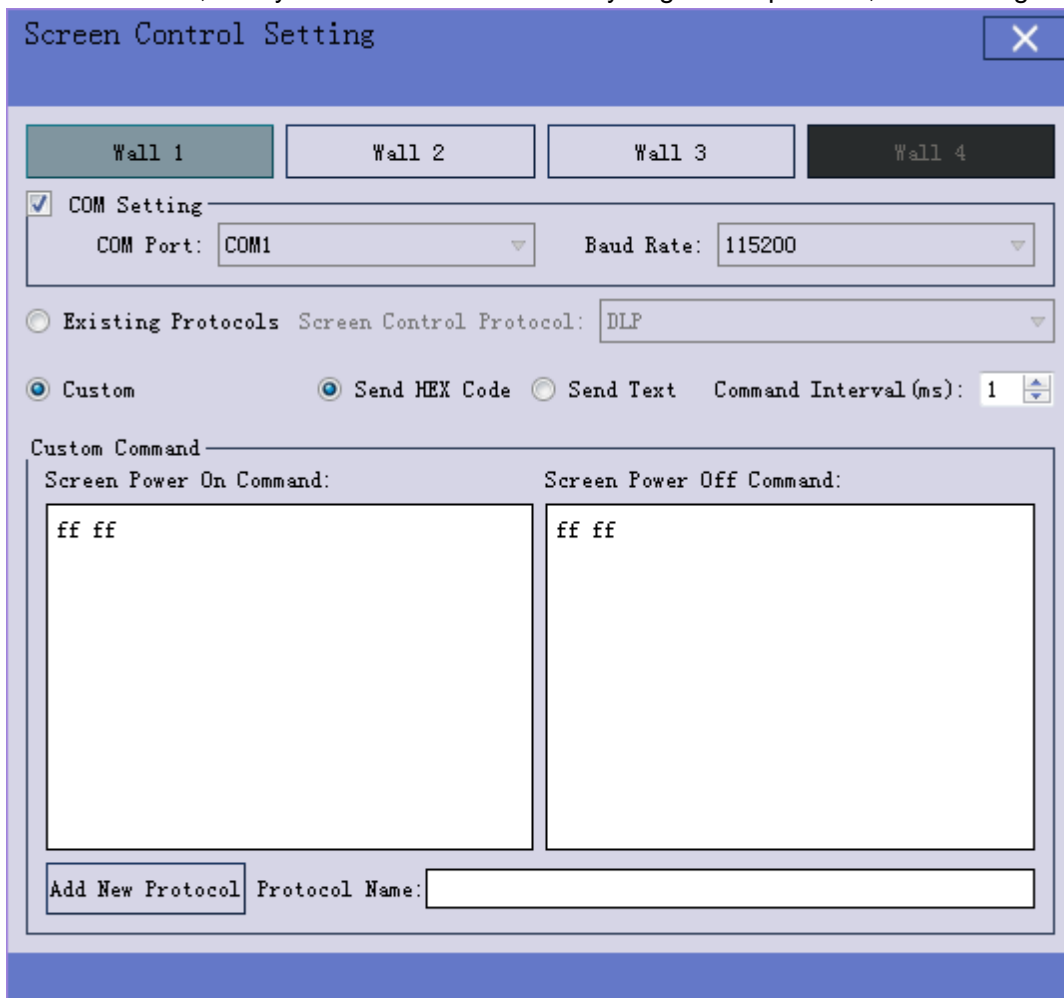
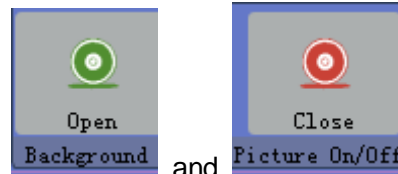


Fig 4.23 Screen Control Setting Dialog



After adding, you can choose ON/OFF icons **Open Background** and **Close Picture On/Off** to control the screen power on/off.

## 5. RS232 COMMUNICATION PORT AND INTERNAL SCENE RECALL PROTOCOL

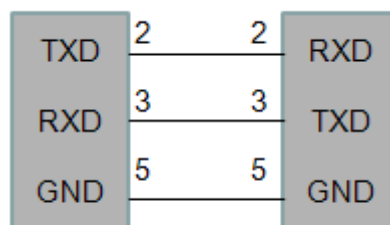
### 5.1 RS232 connection

This equipment offers standard DB9 RS-232 serial controlling port. It can be controlled by any other third party control device. RS232 pin chart is as follows:

Pin#	Name	Description
1	NC	--
2	TXD	Signal transmitter, connect to device RXD
3	RXD	Signal receiver, connect to device TXD
4	NC	--
5	GND	Connect to device GND
6	NC	--
7	NC	--
8	NC	--
9	NC	--

Table 5.1 RS - 232 Port Pin Definition

**Attention: Please use RS232 cross cable (RXD to TXD) to connect controller and device. As below**



Video Processor      PC      机

Figure 5.1 Communication Cable Structure

### 5.2 Internal scene recall protocol code

Users can use RS232 serial command to recall the saved inner memory of preset, or program it into the controlling device to realize a third party controlling easily. The protocols are as follows:

Control: RS232

Baud rate: 115200

Format: Hex

The following protocol is corresponding to the relative memory of preset on the control interface.

Standard configuration is 30 memories of presets.

Preset mode 1	F0 0f 04 05 00 00 00 00 00 00 00 00 ff ff
Preset mode 2	F0 0f 04 05 01 00 00 00 00 00 00 00 ff ff
Preset mode 3	F0 0f 04 05 02 00 00 00 00 00 00 00 ff ff
Preset mode 4	F0 0f 04 05 03 00 00 00 00 00 00 00 ff ff
Preset mode 5	F0 0f 04 05 04 00 00 00 00 00 00 00 ff ff
Preset mode 6	F0 0f 04 05 05 00 00 00 00 00 00 00 ff ff
Preset mode 7	F0 0f 04 05 06 00 00 00 00 00 00 00 ff ff
Preset mode 8	F0 0f 04 05 07 00 00 00 00 00 00 00 ff ff
Preset mode 9	F0 0f 04 05 08 00 00 00 00 00 00 00 ff ff
Preset mode 10	F0 0f 04 05 09 00 00 00 00 00 00 00 ff ff
Preset mode11	F0 0f 04 05 0a 00 00 00 00 00 00 00 ff ff
Preset mode 12	F0 0f 04 05 0b 00 00 00 00 00 00 00 ff ff
Preset mode 13	F0 0f 04 05 0c 00 00 00 00 00 00 00 ff ff
Preset mode 14	F0 0f 04 05 0d 00 00 00 00 00 00 00 ff ff
Preset mode 15	F0 0f 04 05 0e 00 00 00 00 00 00 00 ff ff
Preset mode 16	F0 0f 04 05 0f 00 00 00 00 00 00 00 ff ff
Preset mode 17	F0 0f 04 05 10 00 00 00 00 00 00 00 ff ff
Preset mode 18	F0 0f 04 05 11 00 00 00 00 00 00 00 ff ff
Preset mode 19	F0 0f 04 05 12 00 00 00 00 00 00 00 ff ff
Preset mode20	F0 0f 04 05 13 00 00 00 00 00 00 00 ff ff
Preset mode 21	F0 0f 04 05 14 00 00 00 00 00 00 00 ff ff
Preset mode 22	F0 0f 04 05 15 00 00 00 00 00 00 00 ff ff
Preset mode 23	F0 0f 04 05 16 00 00 00 00 00 00 00 ff ff
Preset mode 24	F0 0f 04 05 17 00 00 00 00 00 00 00 ff ff
Preset mode 25	F0 0f 04 05 18 00 00 00 00 00 00 00 ff ff
Preset mode 26	F0 0f 04 05 19 00 00 00 00 00 00 00 ff ff
Preset mode 27	F0 0f 04 05 1a 00 00 00 00 00 00 00 ff ff
Preset mode 28	F0 0f 04 05 1b 00 00 00 00 00 00 00 ff ff

Preset mode 29	F0 0f 04 05 1c 00 00 00 00 00 00 00 ff ff
Preset mode30	F0 0f 04 05 1d 00 00 00 00 00 00 00 ff ff

## 6. FAQ

### 1) Cannot operate AppProject software

**Possible reason:** The Control computer does not have necessary plugins.

**Solution:** Install Microsoft's related program: dotNetFX35setup. Exe and VC\_x86Runtime.exe dotNetFx40\_Full\_x86\_x64.exe and VC\_x86Runtime.exe.

**Note:** You can download the plugin from Microsoft support website, or install from provided CD.

### 2) Serial operation failure, can't control the video wall processor

**Possible reasons:**

- A. The serial port is not opened
- B. The serial port already destroyed;
- C. The USB-RS232 adopter is not installed correctly

**Solutions:** A. Check the status of serial port,  
B. Change serial port or controlling PC  
C. Correctly install USB-RS232 device;

### 3) No image

**Possible reasons:**

- A. No signal source input;
- B. Signal switching is not correct, such an example: input video source is VGA, but the output channels are switched to AV input;
- C. Reversed connection of VGA input and VGA output;
- D. The display device do not adjust input channel such as adjust the input video source to VGA;
- E. Video showing is total black
- F. Output VGA or DVI cable is damaged.

**Solutions:**

- A. Please check the input signals states (To detect by connecting the input signal source to the display device directly)
- B. To confirm whether AV/VGA/DVI/YPbPr channel input are normal, with control software or remote controller to switch the channel
- C. To confirm the output of the processor connected to the display device properly, and the input signal is connected properly

- D. To adjust status of display device, for more specific operations please refer to display device specification; adjust the display state of display device. Please refer to the user manual of the display devices for specific operation
- E. Adjust the content of output signal, suggest using the dynamic picture, and do not use the monochrome screen output.
- F. To confirm whether the black screen scene has been opened;
- G. Use good quality VGA cable to ensure the stability and high quality images

#### 4) The picture partial color phenomenon

##### Possible reasons:

- A. VGA or DVI interface not connected, loose connection leads to bad contacts
- B. VGA or DVI cable is damaged
- C. Color adjustment is not correct;
- D. Use the software color toning excessively

##### Solutions:

- A. After VGA or DVI cable is connected, please tighten the retaining bolt, to prevent loosening because of pulling
- B. Please change higher quality DVI cable
- C. Adjust color balance of display device, referring to the user manual.
- D. Re-adjust color and white balance through controlling software
- E. If the input signal is VGA, please do ADC correction for it; the operation method are as follows:

① Select the input signal that needs to do ADC correction to right side window, as shown in the figure below:

② Choose VGA interface or DVI interface, then select the 【ADC】 to execute.

#### 5) Image cannot display completely, appears black frame

##### Possible reasons:

- A. Video wall display unit has cropped for the video output
- B. Over adjust the image position through controlling software
- C. The resolution varies according to different display unit
- D. The video card setting method is not correct;
- E. The resolution of computer input signal is not standard;

##### Solutions:

- A. Please make an auto adjustment to display unit, referring to user manual.



- B. Re-adjust image position for a better effect through software.
  - C. Select current signal sources and click **【Auto】** to enter into the "Set ", then select the needed output resolution;
  - D. Enter into graphics card advanced menu, then change the scanning mode to over scan.
  - E. Change the computer input signal to appropriate resolution;
- 6) Image of some display units flash, shake, or appear noise**

**Possible reason:**

- A. Too long VGA or DVI cable leads to serious signal loss.
- B. Video source device is not stable or cables are damaged
- C. Failure of display unit
- D. Video wall processor's output is not compatible with display unit

**Solutions:**

- A. Please use other stand-alone display unit to connect to the output of video wall processor. If image shows normally, please check the display unit.
- B. Change the normal output cable with the abnormal cable, if the problems still exist, it shows problems result from display unit.
- C. Connect the input signal to display unit directly without go through the processor, check whether the output image is normal.
- D. If the processor and display equipment are normal, it may be matching problem between processor and display equipment. Please contact our engineer to solve it.

**Attentions:**

1. The above listed is the common failure in after-sales maintenance. If you find the device failure phenomena are not in above range. Please notify the suppliers to solve as soon as possible. Please do not open the case without authorization, so as not to expand the fault or cause unnecessary safety accidents.
2. Our company reiterates: without the permission, you who take device apart will bear all the responsibilities that it may bring.