VF2000 Series
LED Multi-Window
Video Wall Processor
User Manual V1.1

VF2000 is a pure hardware architecture video splicer, mainly design for small space LED display screen , support any input signal splicing, scaling, opening window, roaming, overlap and other functions.

Contents

Chapter 1: Safety Precautions

⚡ Danger

There is high voltage in the processor, to prevent any unexpected hazard,

unless you are a maintenance personnel, please do not open the cover of the device.

⚠ Warning

1) This device shall not encounter water sprinkle or splash,please do not place anything

   containing water on this device.

2) To prevent fire, keep this device far from any fire source.

3) If this device gives out any strange noise, smoke or smell,please immediately unplug the

   power cord from receptacle, and contact local dealer.

4) Please do not plug or unplug DVI signal cable if the device is powered on.

⚠ Caution

1) Please thoroughly read this manual before using this device, and keep it safe.

2) In the event of lighting or when you are not going to use the device for a long time, please pull

   the power plug out of receptacle.

3) Nobody other than professional technicians can operate the device, unless they have been

   appropriately trained or under guidance of technicians.

4) To prevent equipment damage or electric shock,please don′t fill in anything in the vent of the

   device.

5) Do not place the device near any water source or anywhere damp.

6) Do not place the device near any radiator or anywhere under high temperature.

7) To prevent rupture or damage of power cords, please handle and keep them properly.

8) Please immediately unplug power cord and have the device repaired, when

1. Liquid splashes to the device.

2. The device is dropped down or cabinet is damaged.

3. Obvious malpractice is found or performance degrades

Chapter 2: Packing List

Please unpack the product with care, and then check whether all the following items are included in the package. If anything is found missing, please contact the dealer.

Standard accessories

The accessories supplied with this product may differ from the following pictures, but they are applicable for the regions where you live (LED sending card is optional accessory)

1.5m Power cable X1	VGA transform VGA+RCA (Quantity depends on input card quantity)	0.5m DVI cable (Corresponding output port number)
1.5m DVI cable (Corresponding the number of input cards)	1.5m RS232-RJ45 cable X1	1.5m USB cable X1
HDMI to DVI-D adapter (Corresponding the number of input cards)	U disk X1	

Chapter 3: Hardware Connection

1.Rear panel signal port diagram
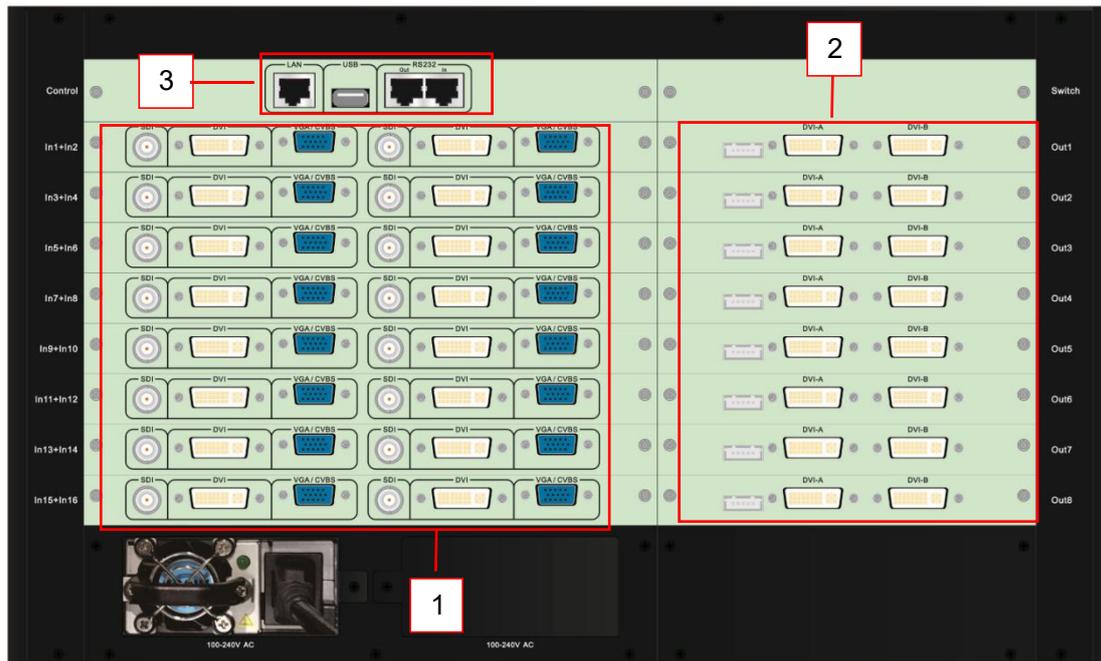
Diagram 3-1 Rear panel signal port diagram

① Video input port   ② Video output port   ③ Communication port

2.Port description

2.1 Video signal input （Inputs）
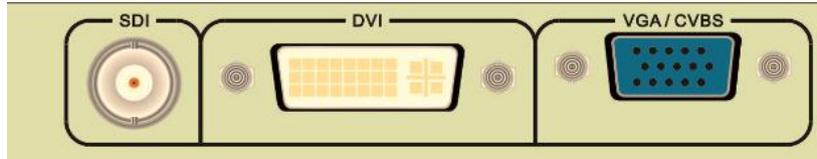
Diagram 3-2a Input card port diagram

VF2000 can assemble maximum 16 video input cards, the numbers are In1，In2，...，In16. Each video input card supports 4 video input signals. The signal input ports are as follows:

Ports	Description
VGA/CVBS	1 channel of PC analog signal input and 1 channel of PAL/NTSC composite video input (CVBS signal need through VGA to VGA+RCA cable input)
DVI	1 channel of DVI digital signal input （ compatible with HDMI1.3)
SDI	1 channel of SDI digital serial signal input （ compatible with HD-SDI and 3G-SDI)

2.2 Video signal output （Outputs）

Diagram3-2b Output card port diagram

VF2000 can assemble maximum 8 video output cards, the numbers are Out1, Out2,..., Out8. Each video output card supports 2 video output signals. The signal output ports are as follows:

Ports	Description
DVI-A、 DVI-B	2 channels of DVI output port，used to connect LED sending card or monitor

2.3 Communication port
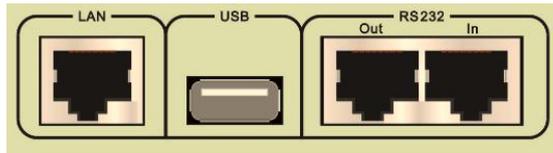
Diagram3-2c Communication port diagram

Ports	Description
LAN	Local area network TCP/IP network control port
USB	USB communication port
RS232 In	Serial communication port, RS232 level, connect to computer RS232 port, used PC software to control processor
RS232 Out	Serial communication cascade output, RS232 level, used by a single PC to control all processors

3 Hardware connection diagram
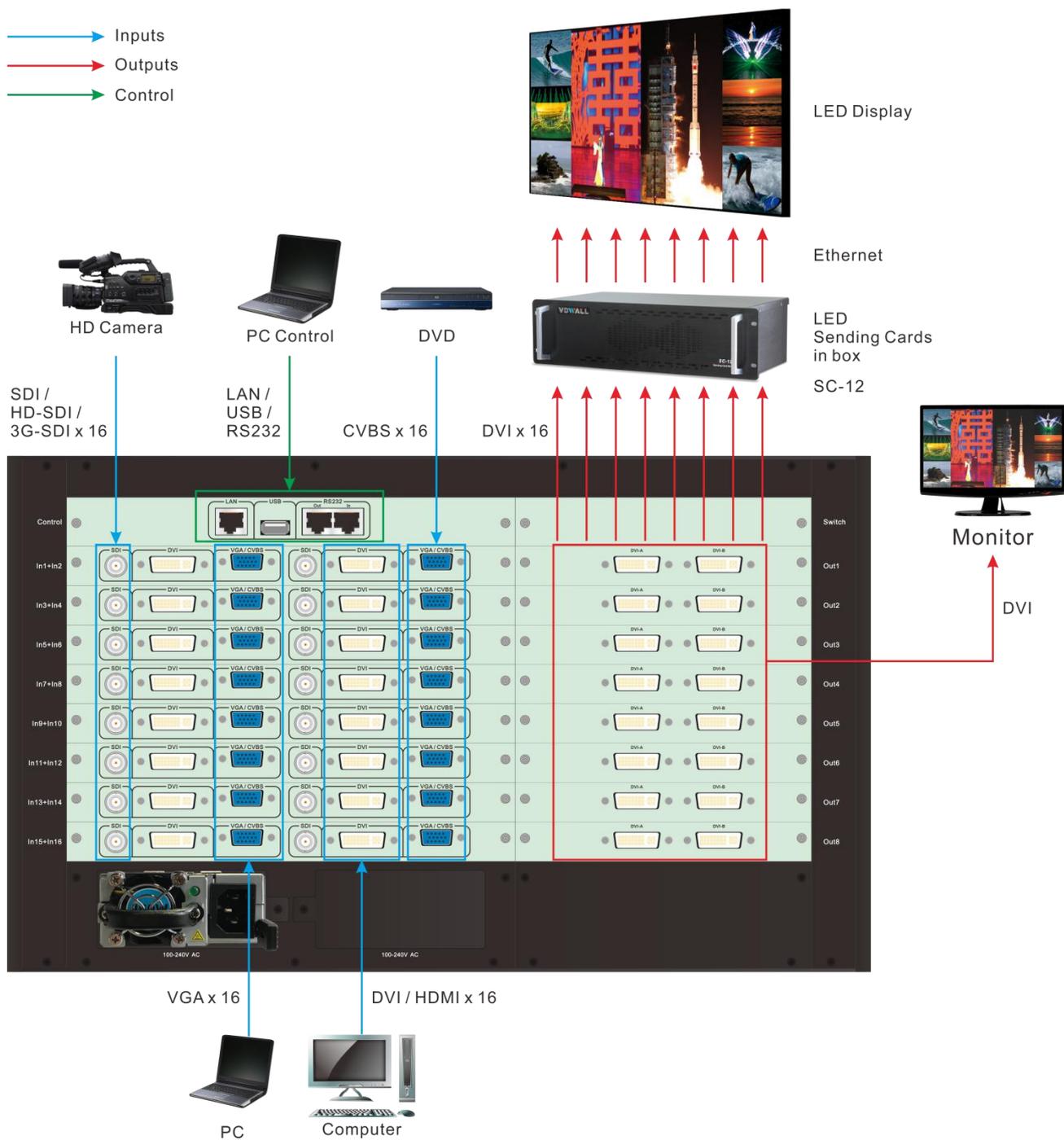
Diagram 3-3a VF2000 hardware connection diagram

4 Technical specification

Input signal index		
Quantity / type	16×CVBS 16×VGA（RGBHV） 16×DVI（VESA / CEA-861） 16×SDI（HD-SDI / 3G-SDI）	
Composite video system	PAL / NTSC	
Composite Video Amplitude /Impendence	1V（p_p）/ 75Ω	
VGA format	PC（VESA standard）	≤1920×1200_60Hz
VGAAmplitude /Impendence	R、G、B = 0.7 V（p_p）/ 75Ω	
DVI format	PC（VESA standard）	≤1920×1200_60Hz
	HDMI1.3（CEA-861）	≤1080p_60Hz
SDI format	SMPTE259M-C SMPTE 292M SMPTE 274M / 296M SMPTE 424M / 425M	480i_60Hz 576i_50Hz 720p、1080i、1080p
Input port	VGA：15pin D_Sub (female) CVBS：VGA socket P4 DVI：24+1 DVI_D SDI：BNC / 75Ω	
Output signal index		
Quantity / type	16 x DVI	
DVI format	1920 x 1080p_60Hz	
Output port	DVI OUT：24+5 DVI_I	
Other		
Control port	RS232 / USB / LAN	
Input voltage	100-240VAC 50 / 60Hz	
Overall power consumption	≤460W	
Environment temperature	0-45℃	
Environment humidity	15-85%	
Product size	482.6（L）x436（W）x279（H）mm	
Packing size	620（L）x565（W）x455（H）mm	
Weight	G.W：35Kg, N.W.：22Kg	

5 Installation dimension
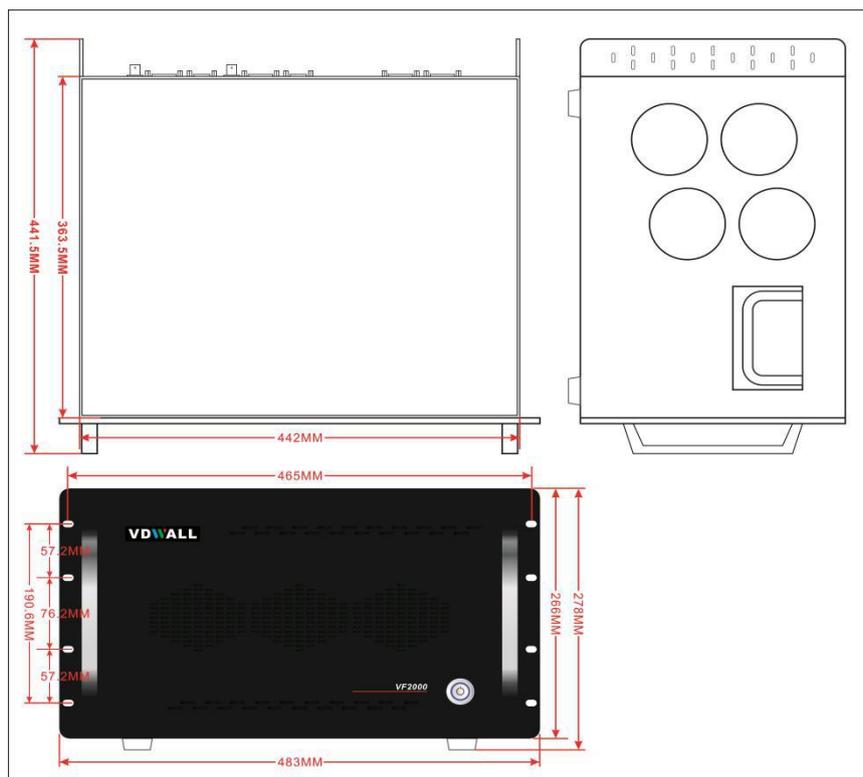
Diagram 3-4a VF2000 installation dimension diagram

RS232 connection wires,wires order
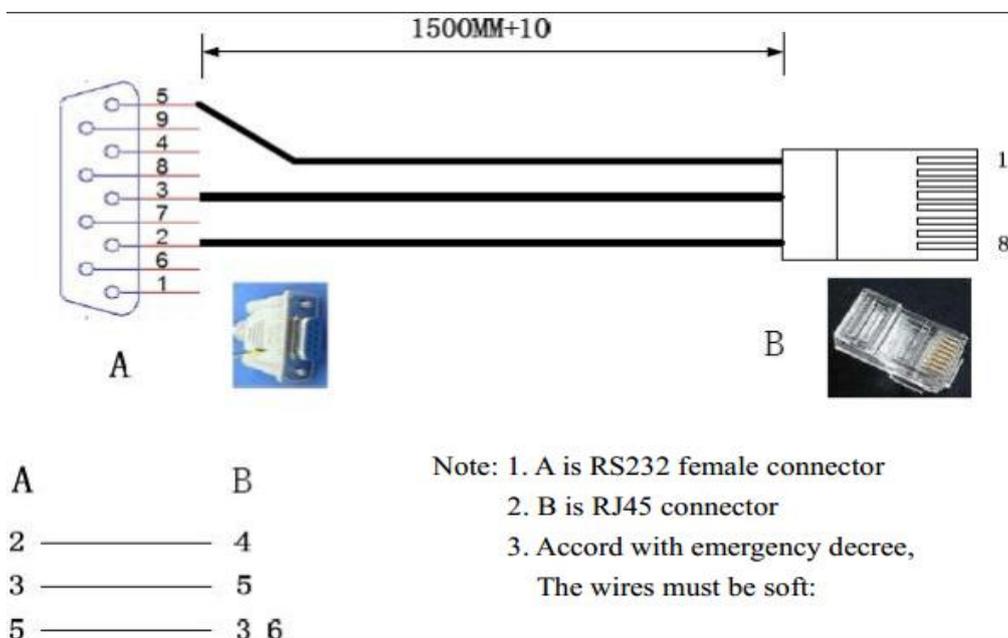
Diagram 3-5b RS232 connection wires, wires order diagram

Chapter 4: VF2000 PC Software Instructions

The VF2000 control software is used to control the LED HD video processor VF2000,supports:

● Communication and related settings

● Parameter settings: LED splice settings, input card settings, advanced settings (output mode), language settings

● Data export and import settings, initialization settings

1 Control mode

The remote control of the host computer software to VF2000 can be connected by RS232, USB or LAN. After connecting the host computer with VF2000 and configuring the above way, the control program can be operated on the PC : VF2000 control software.exe.

2 Software interface introduction

Double click the start software "VF2000 control software.exe",then you can see the software main interface,as follows:
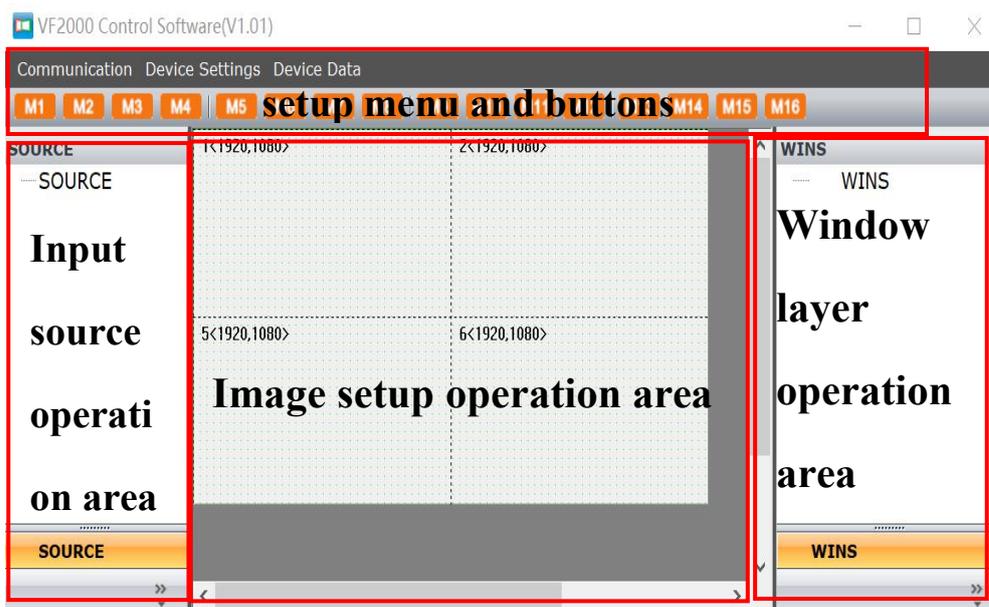
Diagram 4-2a VF2000 PC software interface function

As shown in the main software interface, the interface is mainly divided into 4 parts: setup menu and buttons area, input source operation area, image setup operation area and window layer operation area, and setup menu mainly has 3 parts:

1) Communication and related settings

2) Parameter settings:LED splice settings, input card settings, advanced settings (output mode), language settings

3）Device data setting:data export and import settings, initialization settings Next, follow the setup menu function to introduce how to use the PC software

1. Communication connection settings

Diagram 4-2b communication settings menu

Communication settings menu include Connect button or Disconnect button, Communication Settings button and Communication Test button,

1) connection settings

The next diagram is Communication Settings menu. Firstly, select the connection mode on the left side, select the serial port using USB and RS232 connection, select the network if using the LAN port, and then set the serial number or network connection data in the corresponding area.
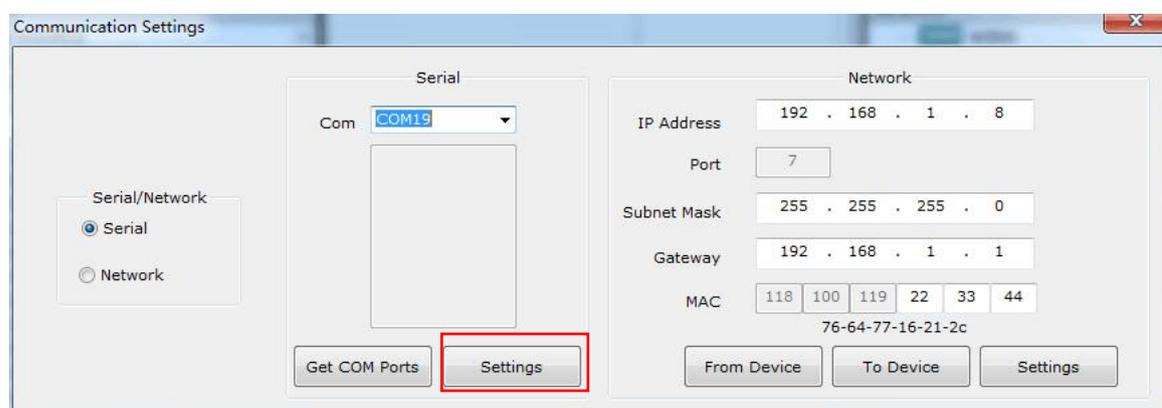
Diagram 4-2c Communication settings menu

If you choose serial connection, you can click Get COM Ports button to check the available

serial port of PC, then select the corresponding COM port in the drop-down menu, then press Settings button(as the red mark in the diagram 4-2c).

If you select network connection, you need to input the IP address and port number of the current VF2000 in the network option, then press Settings button.

If you need to connect through the network, you must firstly set up the connected network correctly. This device network parameter setting step: firstly use serial connection mode to connect, then set the network parameters of the current device, ensure it in the same LAN with the main control PC, then click To Device button to save the parameters, the parameter setting is valid after the device restart.

Set up the above parameters, click Settings, then click the Connect button in the main menu of the communication. After the connection is successful, the function buttons of the software interface are activated.

2) Communication Test

Communication test is used to detect whether the input card and output card are connected and corresponding embedded software version. After PC software is connected, click the Communication Test button to confirm.
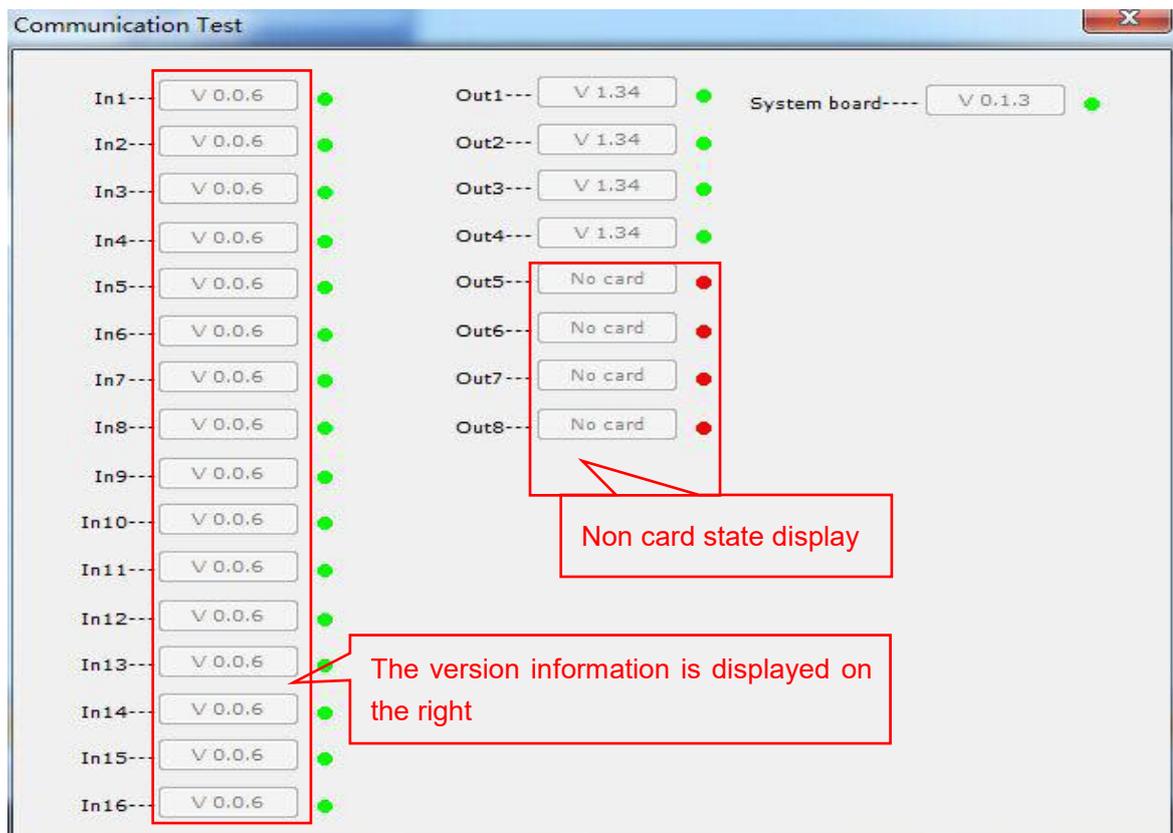
Diagram 4-2d Communication settings menu

2. Parameter settings
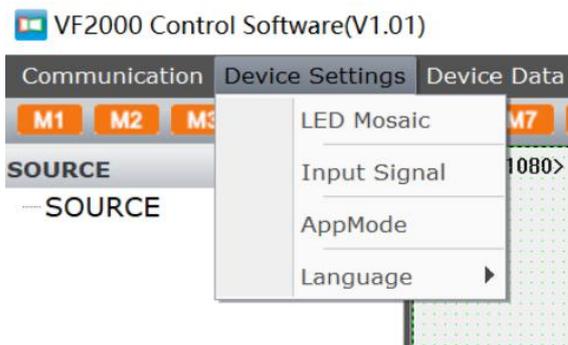
Diagram 4-2e Device settings menu
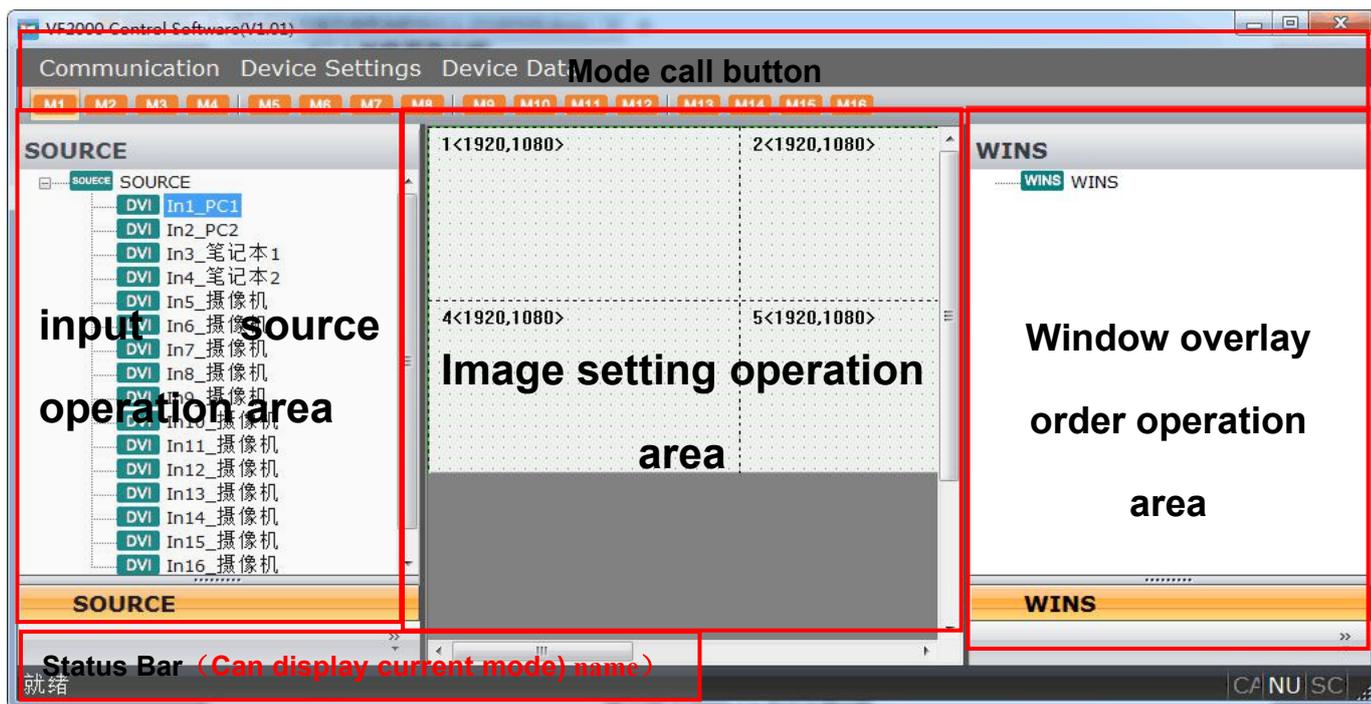
Diagram 4-2e VF2000 PC software interface function

The above diagram shows the parameter setting interface. The main parameter setting menu includes an LED splicing setting, output card application mode, and language setting. The setting function area includes: input source operation area, image setting operation area, and window layer operation area.

1) Application mode settings

The VF2000 currently supports two operating modes, the 1-port 4-images mode and the 2-ports 2-images mode. After the device is reset, the output card defaults operation mode is 1-port 4-images mode.

Mode	Display	Output port
1-port 4-images	DVI output display 4-screen overlay image	DVI-A= DVI-B
2-ports 2-images	DVI output ports are displayed respectively1	DVI-A≠DVI-B

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	2-images overlay image	

The diagram below shows the advanced setting (output work mode) interface. Click to select the required working mode directly. The VF2000 will start to apply this parameter settings.

Diagram 4-2f VF2000 PC software interface function

2) LED splicing settings
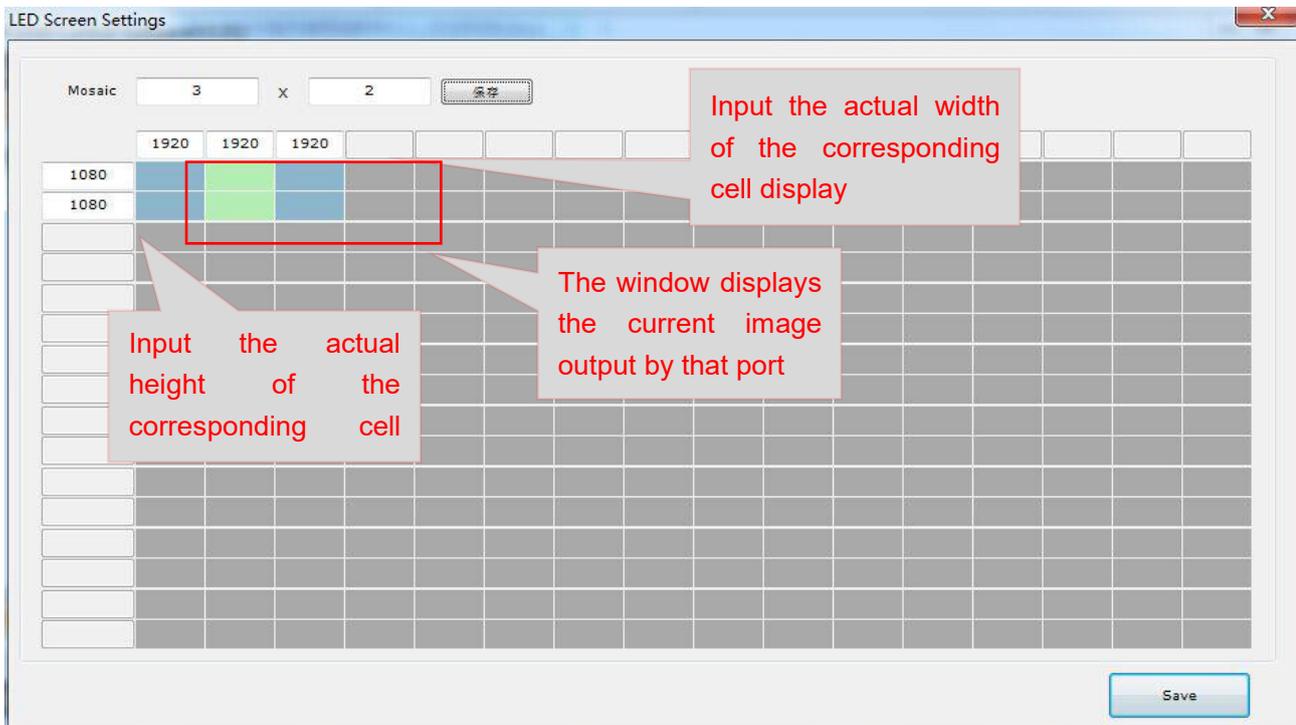
Diagram 4-2g VF2000 LED splicing setting interface

The diagram above shows the LED splicing interface. The operation is as follows:

1) Firstly, input the splicing layout mode in the splicing mode, and click Save button on the right side, the interface below updates the splicing layout, and displays the corresponding output port of the splicing unit screen.

2) Input the width and height of each unit screen in turn, and click Save button in the bottom right corner. The VF2000 will save the parameters and apply.

1) Input card signal
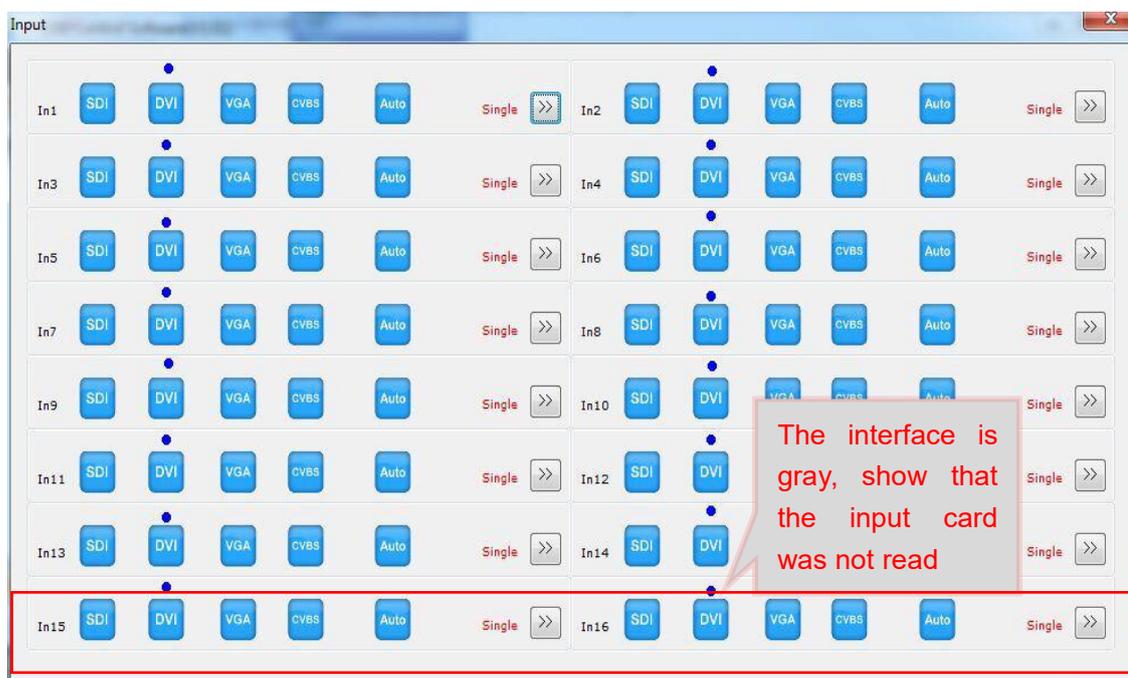
Diagram 4-2h VF2000 setting interface

The above diagram is the input card operation interface, the menu is gray show that the In15 and In16 position not detect the card. In this menu, we can operate including: switching the input signal, VGA automatic adjustment, PIP operations, text overlay operations .
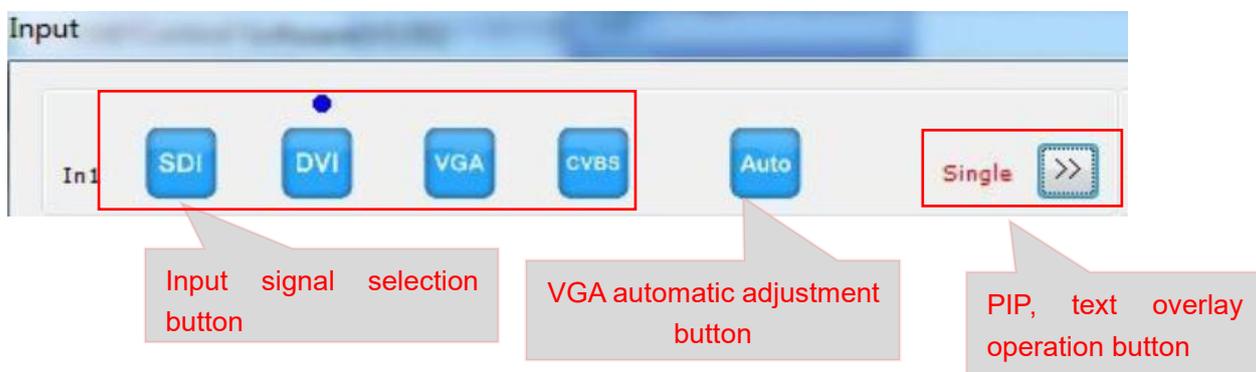
Diagram 4-2i VF2000 setting interface

Switching input signal

The input signal of the input card can be switched by clicking the input signal selection button.

The blue dot above the signal show that the signal is the current signal.

VGA automatic adjustment

When the current input signal is a valid VGA signal, press the Auto button realized the VGA automatic adjustment, ensure the VGA screen is clear and complete.

PIP operations

Diagram 4-2j VF2000 setting interface

The Single button on the right side of Auto button shows that the current board is in the single-image display mode. If you need to open the PIP display, click the left screen and select PIP in the pop-up menu. The input card starts the PIP function, and then clicks 》 button on the right side of the pop-up PIP settings interface.
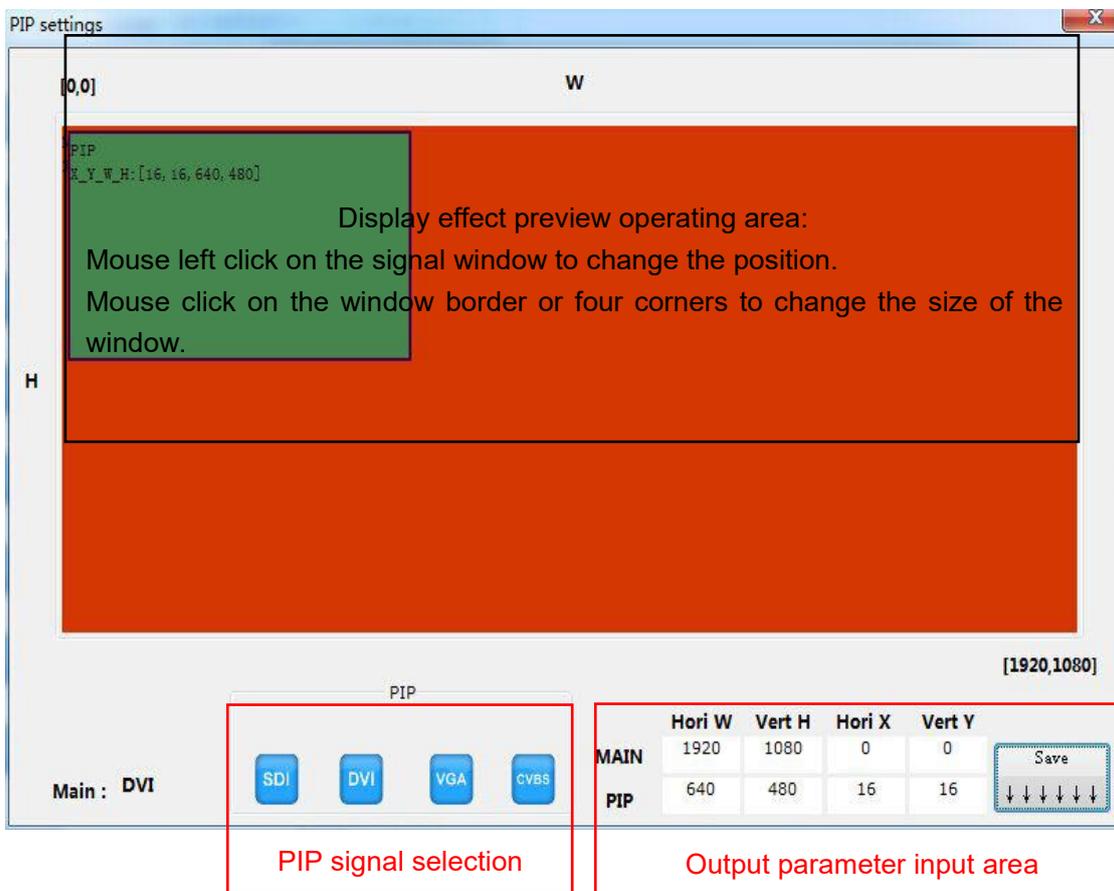
Diagram 4-2k VF2000 setting interface

The above diagram shows the PIP signal operation interface, which is divided into several

areas such as the display effect preview area, PIP signal selection buttons and output parameter inputs area. In the PIP display effect preview operation area, the size and the position of the main signal and the sub-signal can be previewed, and the size of the window position can be changed by clicking and dragging the mouse. The PIP parameter area shows the specific location of the main signal and sub-signal , and can input the value and press the save button to adjust parameters accurately.

1)   Text operations

Diagram 4-2l VF2000 setting interface

If you want to open text overlay display, you can click on the left screen. In the pop-up menu, select Text-Ready button , the text overlay function of this input card is opened, and then clicks the ≫ button on the right and setup in the pop-up text setting interface .
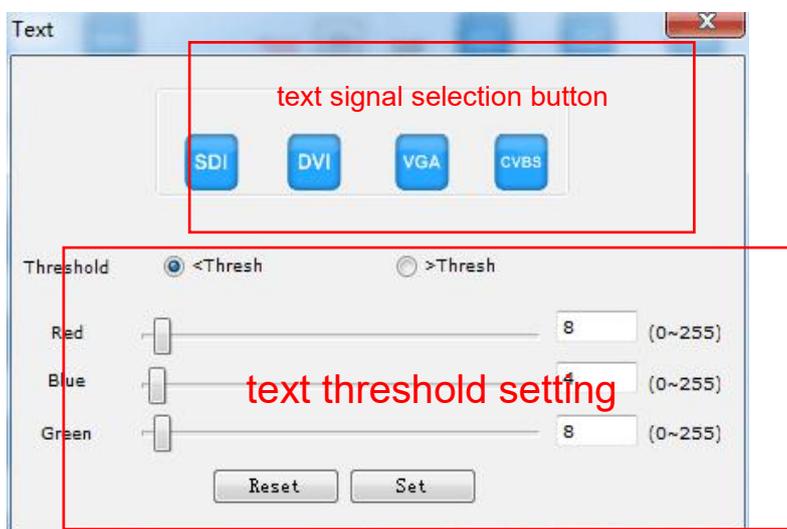
Diagram 4-2m VF2000 setting interface

The above diagram shows the text operation interface. Firstly, select text signal, prefer to select the DVI input digital signal, then adjust the text threshold >Thresh button or <Thresh button, and select the appropriate RGB threshold , and press the Set button saved,or press Reset button. recover the default parameters.

4) Input source interface
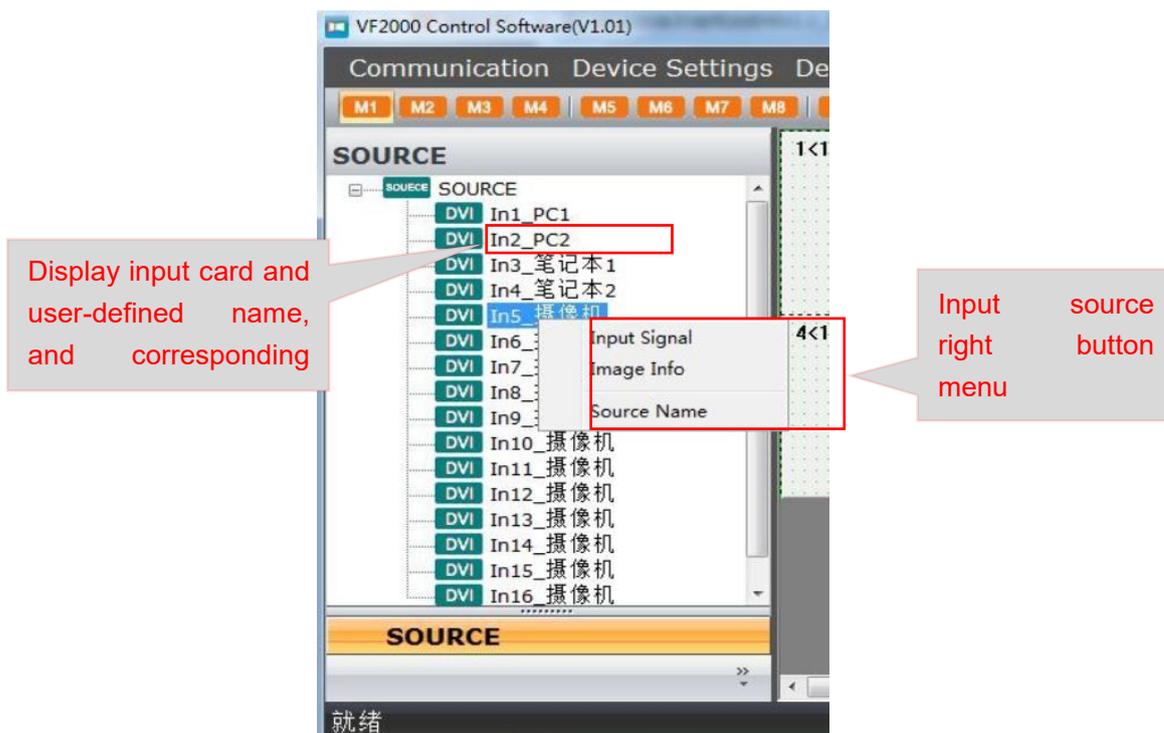
Diagram 4-2n VF2000 setting interface

The above diagram shows the input source interface, which shows all the detected input cards and the current signal source. left-click mouse the input source and drag it to the window of the operation area to change the signal source. right-click mouse the source to quickly call up the input card signal menu and the image menu,also support user-defined the input card name.
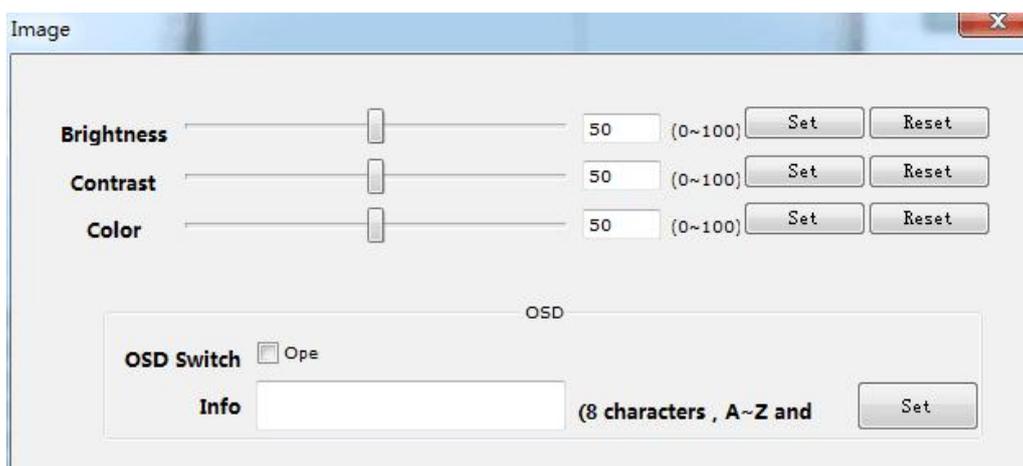
Diagram 4-2o VF2000 setting interface

The above picture shows the image properties menu,support setting the brightness, contrast and color menu of the input card, and opening the OSD function on the output image.

Setup the OSD:firstly check the OSD switching option , then input the OSD character and press the bottom right corner Set button.

5) Language selection
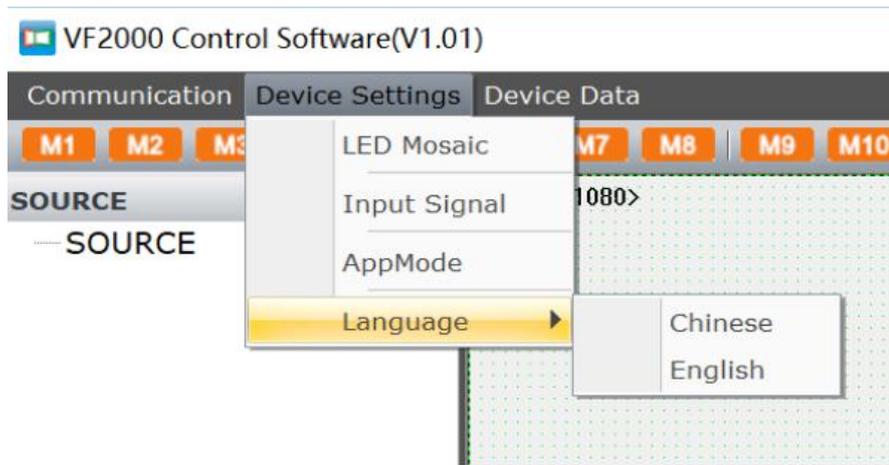
Diagram 4-2p VF2000 language setting interface

The VF2000 PC software supports Chinese and English interface languages. Click the corresponding language option and the PC interface language is replaced.

6) Mode selection

Diagram 4-2q VF2000 setting interface

VF2000 all output card parameter settings can be set to 16 display modes in the above mode selection menu, click the corresponding mode button, the mode is applied

7) Output window overlay operation area
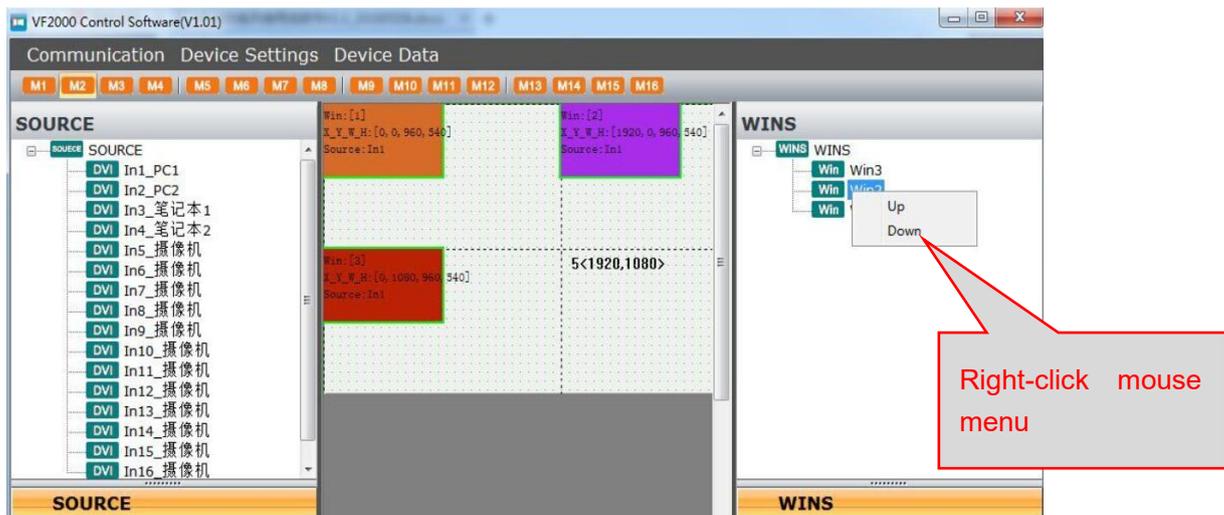
<div align="center">Diagram 4-2 VF2000 setting interface</div>

The above diagram is the output window overlay operation interface, can preview the overlay order of all output windows in the current display mode, and can click the window with the left mouse button and select the window Up button or Down button in the right-click menu.

8) Output image operation area
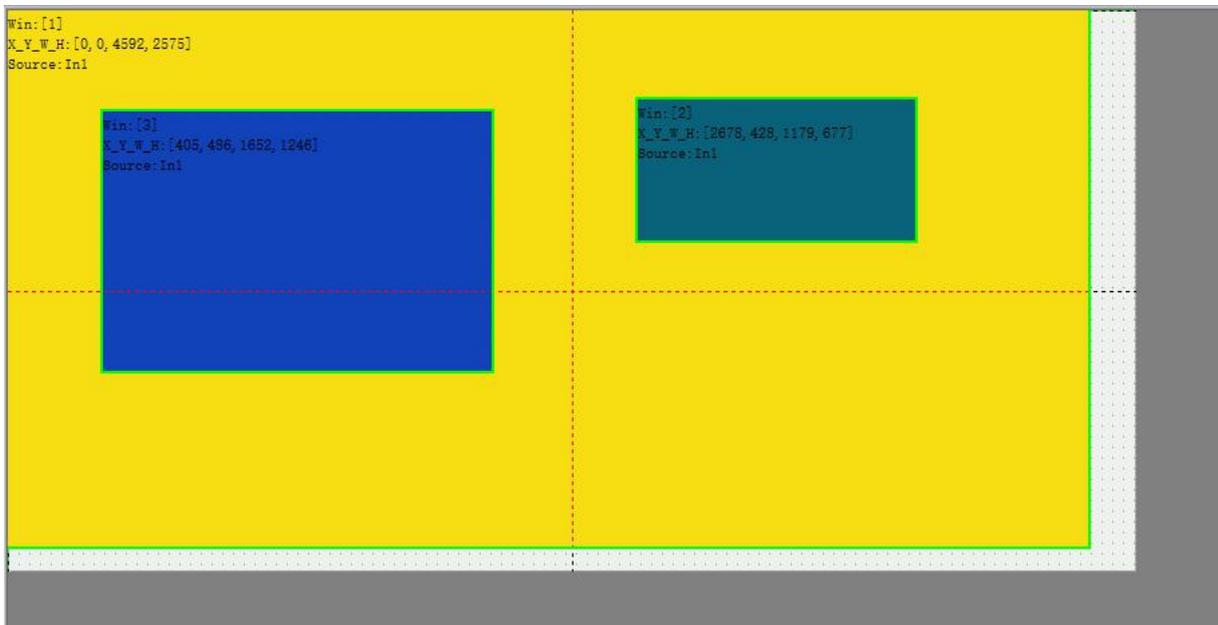
<div align="center">Diagram 4-2 VF2000 setting interface</div>

The above figure shows the output image operation interface, which can preview the actual display effect of the total output image, and can change the position of the window position by clicking and dragging the mouse, or realize more operations through the right-click menu.
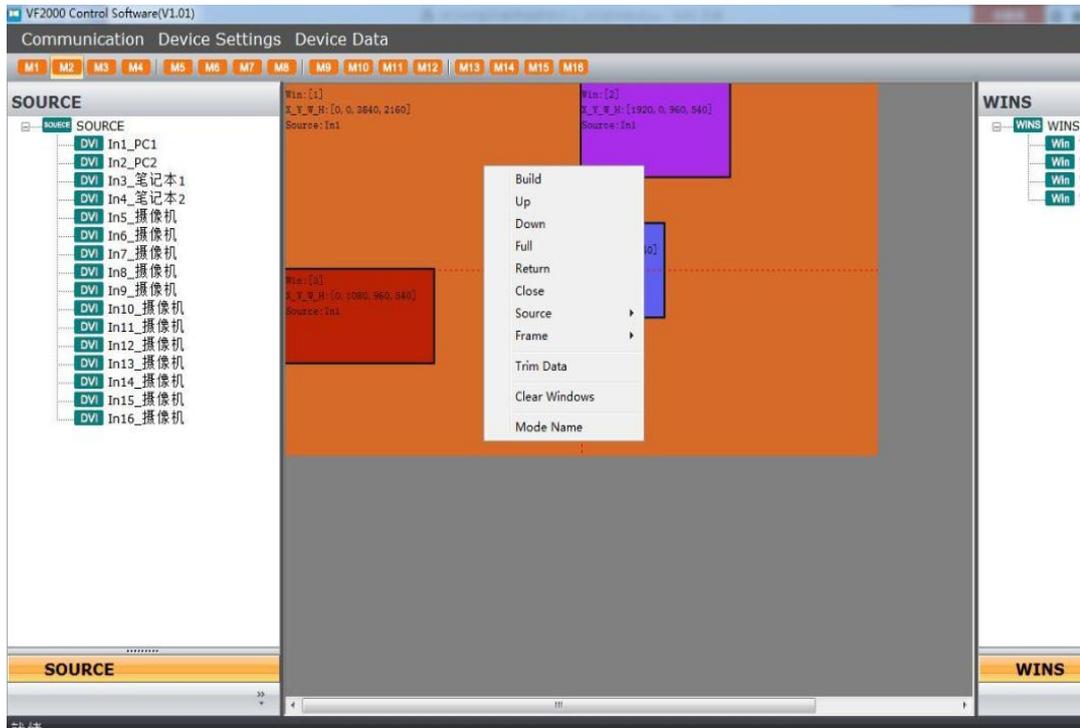
Diagram 4-2 VF2000 setting interface

Then, specific instructions for each operation：

1) Creat new window: right-click Build button in the corresponding location, a new window will be created.

2) Switch the input card signal displayed in the current window image:

Drag by the left mouse button: Left click on the corresponding input card signal from the input source and drag it to the corresponding window to release the left button. Then the current window image is switched to the corresponding input card signal.

Right-click menu: right-click the corresponding window, select the corresponding input card in the signal source option, the current window image is switched to the corresponding input card signal

3) Change the window image position and size

Move the window position: click the window image with the left mouse button, drag it to the corresponding position to release the left button, the window image position will be changed

Change the window size: Click the left mouse button on the edge or corner of the window image and drag to change the image size

Right-click to enlarge: right-click on the corresponding window, click Full button on the right-click menu, then the current window image is enlarged

Right-click to recover: right-click the corresponding window, click Return button in the right-click menu, the current window image is recovered to the size before enlarging

Fine-tuning: Right-click on the corresponding window, click Trim Data button in the right-click menu, input the specific parameters in the pop-up fine-tuning interface, click OK to save.

4) Border: Right-click the output window area, click the Frame button in the right-click menu, you can choose to open or close the border, after setting the window operation, the window

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border parameters will be updated.

5) Change the window overlap order: right-click on the corresponding window, click on the top or bottom in the right-click menu, then the window is topped or bottomed.

6) Close the window image: Right-click on the window, click Close button on the right click menu, the current window image is closed

7) Clean the window: Right-click anywhere in the window image operation area, click the Clear Windows button in the right-click menu, then all the data in the current display mode is cleared

8) Mode name: In the corresponding display mode, right-click anywhere in the window image operation area, and click the Mode Name button in the right-click menu , can user-defined the current display mode name in the pop-up dialog.

3. Device data
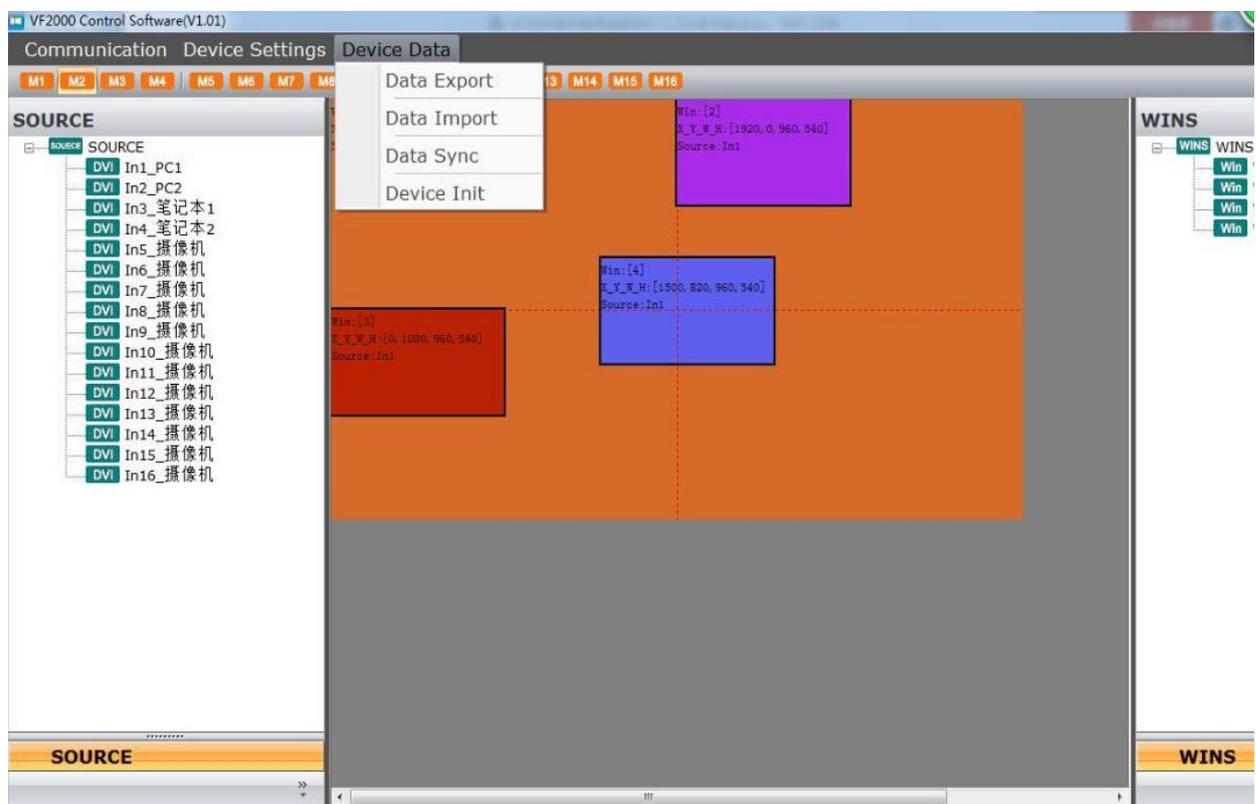
Diagram 4-2 VF2000 PC software interface function

The above diagram shows the device data menu. The main functions include: data export, data import, data synchronization and initialization equipment.

Data export:export all current display mode parameters of VF2000, save as PC text file (default file nameCopyData.txt）

Data import: Export all VF2000 display mode parameter export files to the current VF2000

Data synchronization: generally used after replacing new output card, update all set parameters to the new output card.

Device initialization: Clear all the current VF2000 parameters and recover to the factory default status.

Appendix：Instructions Modification Record Sheet

Version	Time	Description	Draft
1.0	2018.4.8	VF2000 first release	Lts
1.1	2018.5.8	Update input card and display mode user-defined name	Lts
1.1	2018.5.15	Translator	Francis.Sun