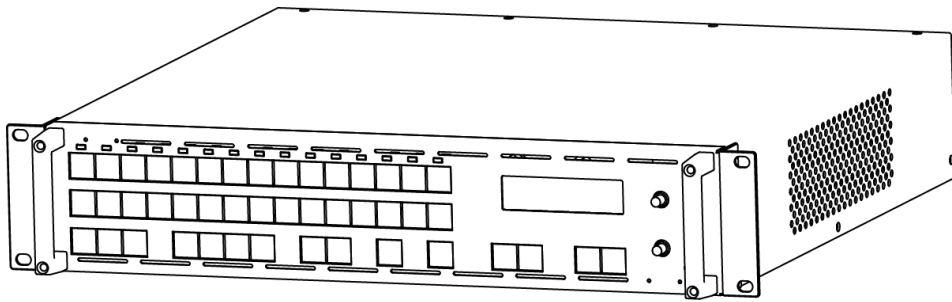


VSP 5360



USER MANUAL

RGBlink

Article No: RGB-RD-UM-V5360 E001
Revision No: V1.6

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Thank you for choosing our product!

This User Manual is designed to show you how to use this video processor quickly and make use of all the features. Please read all directions and instructions carefully before using this product.

Declarations

FCC/Warranty

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference, in which case the user will be responsible for correcting any interference.

Guarantee and Compensation

RGBlink provides a guarantee relating to perfect manufacturing as part of the legally stipulated terms of guarantee. On receipt, the purchaser must immediately inspect all delivered goods for damage incurred during transport, as well as for material and manufacturing faults. RGBlink must be informed immediately in writing of any complaints.

The period of guarantee begins on the date of transfer of risks, in the case of special systems and software on the date of commissioning, at latest 30 days after the transfer of risks. In the event of justified notice of compliant, RGBlink can repair the fault or provide a replacement at its own discretion within an appropriate period. If this measure proves to be impossible or unsuccessful, the purchaser can demand a reduction in the purchase price or cancellation of the contract. All other claims, in particular those relating to compensation for direct or indirect damage, and also damage attributed to the operation of software as well as to other service provided by RGBlink, being a component of the system or independent service, will be deemed invalid provided the damage is not proven to be attributed to the absence of properties guaranteed in writing or due to the intent or gross negligence or part of RGBlink. If the purchaser or a third party carries out modifications or repairs on goods delivered by RGBlink, or if the goods are handled incorrectly, in particular if the systems are commissioned operated incorrectly or if, after the transfer of risks, the goods are subject to influences not agreed upon in the contract, all guarantee claims of the purchaser will be rendered invalid. Not included in the guarantee coverage are system failures which are attributed to programs or special electronic circuitry provided by the purchaser, e.g. interfaces. Normal wear as well as normal maintenance are not subject to the guarantee provided by RGBlink either.

The environmental conditions as well as the servicing and maintenance regulations specified in this manual must be complied with by the customer.

Operators Safety Summary

The general safety information in this summary is for operating personnel.

Do Not Remove Covers or Panels

There are no user-serviceable parts within the unit. Removal of the top cover will expose dangerous voltages. To avoid personal injury, do not remove the top cover. Do not operate the unit without the cover installed.

Power Source

This product is intended to operate from a power source that will not apply more than 230 volts rms between the supply conductors or between both supply conductor and ground. A protective ground connection by way of grounding conductor in the power cord is essential for safe operation.

Grounding the Product

This product is grounded through the grounding conductor of the power cord. To avoid electrical shock, plug the power cord into a properly wired receptacle before connecting to the product input or output terminals. A protective-ground connection by way of the grounding conductor in the power cord is essential for safe operation.

Use the Proper Power Cord

Use only the power cord and connector specified for your product. Use only a power cord that is in good condition. Refer cord and connector changes to qualified service personnel.

Use the Proper Fuse

To avoid fire hazard, use only the fuse having identical type, voltage rating, and current rating characteristics. Refer fuse replacement to qualified service personnel.

Do Not Operate in Explosive Atmospheres

To avoid explosion, do not operate this product in an explosive atmosphere.

Installation Safety Summary

Safety Precautions

For all VSP 5360 processor installation procedures, please observe the following important safety and handling rules to avoid damage to yourself and the equipment.

To protect users from electric shock, ensure that the chassis connects to earth via the ground wire provided in the AC power Cord.

The AC Socket-outlet should be installed near the equipment and be easily accessible.

Unpacking and Inspection

Before opening VSP 5360 processor shipping box, inspect it for damage. If you find any damage, notify the shipping carrier immediately for all claims adjustments. As you open the box, compare its contents against the packing slip. If you find any shortages, contact your sales representative.

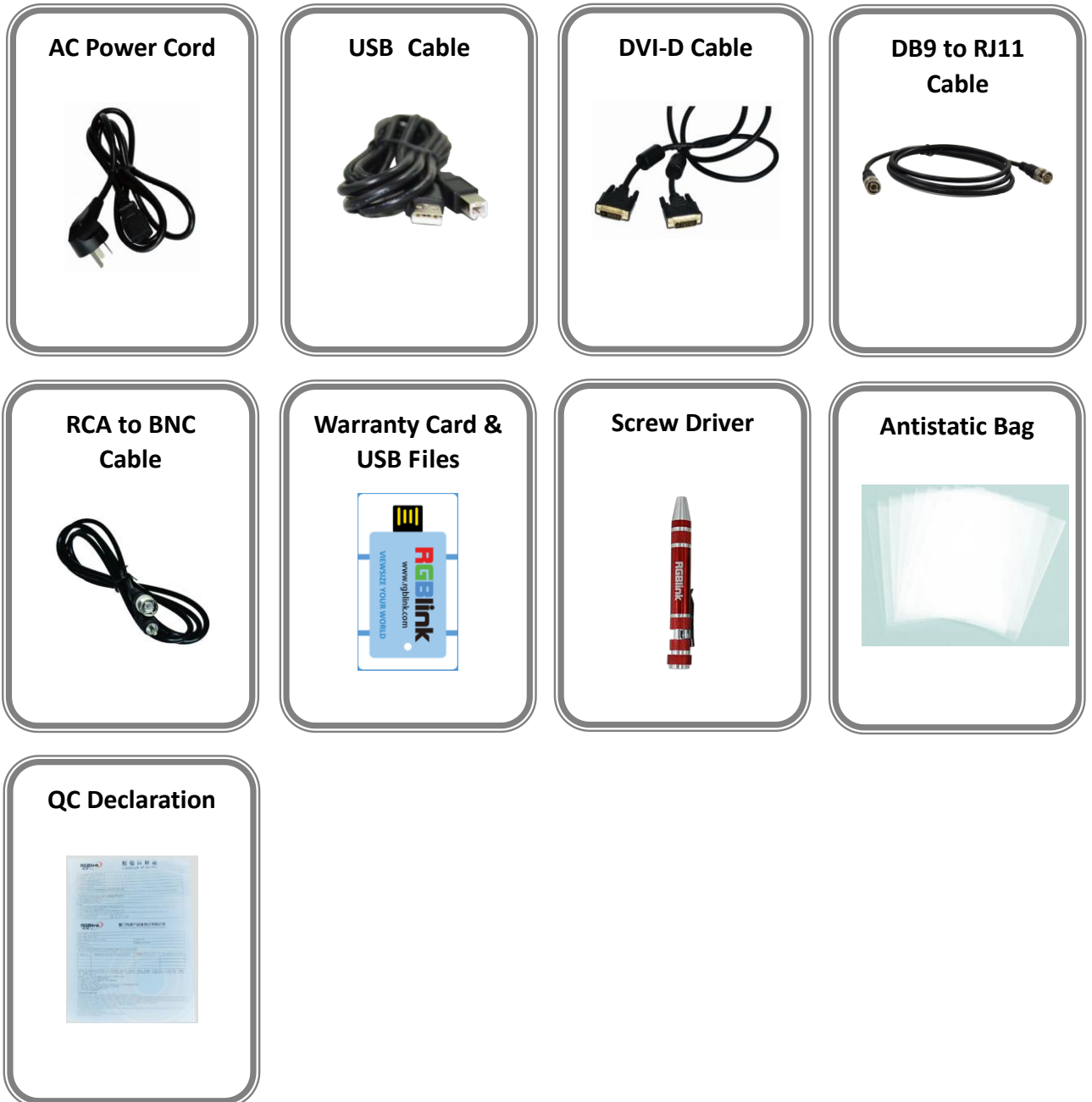
Once you have removed all the components from their packaging and checked that all the listed components are present, visually inspect the system to ensure there was no damage during shipping. If there is damage, notify the shipping carrier immediately for all claims adjustments.

Site Preparation

The environment in which you install your VSP 5360 should be clean, properly lit, free from static, and have adequate power, ventilation, and space for all components.

Chapter 1 Your Product

1.1 In the Box



Note:

AC Power Cable supplied as standard according to destination market.

USB is contained on the Warranty/Registration Card. Please keep.

1.2 Product Overview

The VSP 5360 is a landmark product which combines video processing algorithm CSMXP of RGBlink. Seamless switching between the 13 inputs, DSK for subtitle overlay, preview and program separately, 1 to 4 layers layout and seamless switching, multiple cascade with sync splicing.

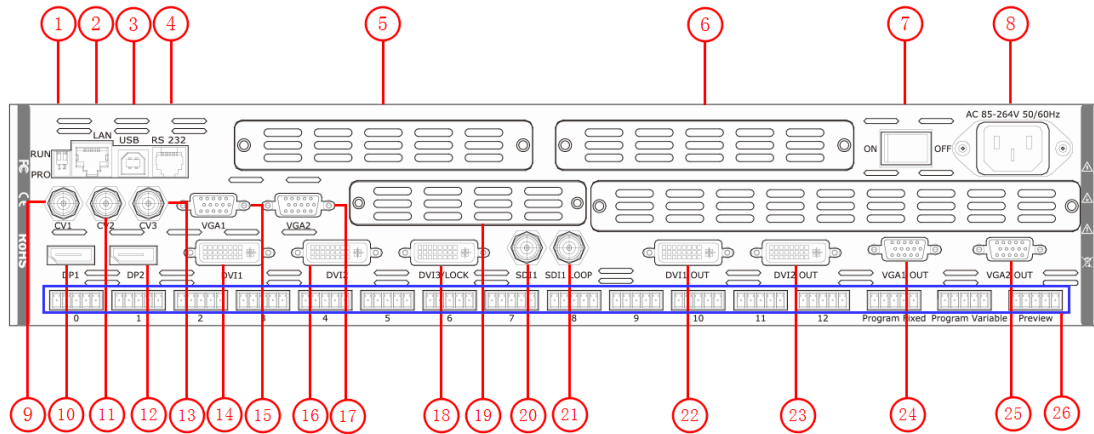
VSP 5360 is based on module based design, can easily expansion input interfaces including USB inputs for media files play.

VSP 5360 launches the new milestone for video scaler and switcher by introducing the latest 10 bit motion adaptive de-interlace, advance noise reduction and detail enhancement core processor.

VSP 5360 also release with seamless switching, cross and frame rate conversion with pixel based scale and zoom engine up to 4K×2K.

VSP 5360 can be widely applied to switcher and scale market, especially for the best presentation.

1.2.1 Back Panel



Input Connectors

9.11.13	<u>BNC – CVBS</u> Standard CVBS signals can input.
10.12	<u>DP</u> Standard DisplayPort signals can input.
15.17	<u>DB15 – VGA</u> Standard VGA signals can input. Additionally this VGA port supports Component (YPbPr) with the use of a VGA to Component adapter (supplied).
14.16.18	<u>DVI-I – DVI</u> Standard DVI signals can input. The DVI port supports up to HDMI 1.3 if the port format is set to HDMI.
20	<u>BNC – 3G-SDI</u> Standard 3G-SDI signals can input.
26	<u>Audio Connectors</u> Connect to the device with audio output connectors.

Output Connectors

21	<u>BNC – 3G-SDI Loop Out</u> Connect to the SDI input of the next VSP 5360 or the device with SDI input.
22.23	<u>DVI-I – DVI</u> Connect to the monitor or LED display which has DVI interface. (This connector does not support hotplug).
24.25	<u>DB15 – VGA</u> Connect to the monitor or LED display which has VGA interface. (This connector does not support hotplug).

Control Connectors

1	<p><u>Dial Switch</u></p> <p>If the two dial switches are upwards, the device is in normal work, and if they are downwards, the device is in upgrade state. OLED module light is off when the device is in upgrade state. Some of the button lights turn on, and the device will not work.</p>
2	<p><u>RJ45 – Ethernet</u></p> <p>Connect to Ethernet work for remote control by Windows software and for product firmware upgrades.</p>
3	<p><u>USB-B – USB</u></p> <p>Connect to Ethernet work for remote control by Windows software and for product firmware upgrades.</p>
4	<p><u>RS232 - Serial</u></p> <p>Connect to Ethernet work for remote control by Windows software and for product firmware upgrades.</p>

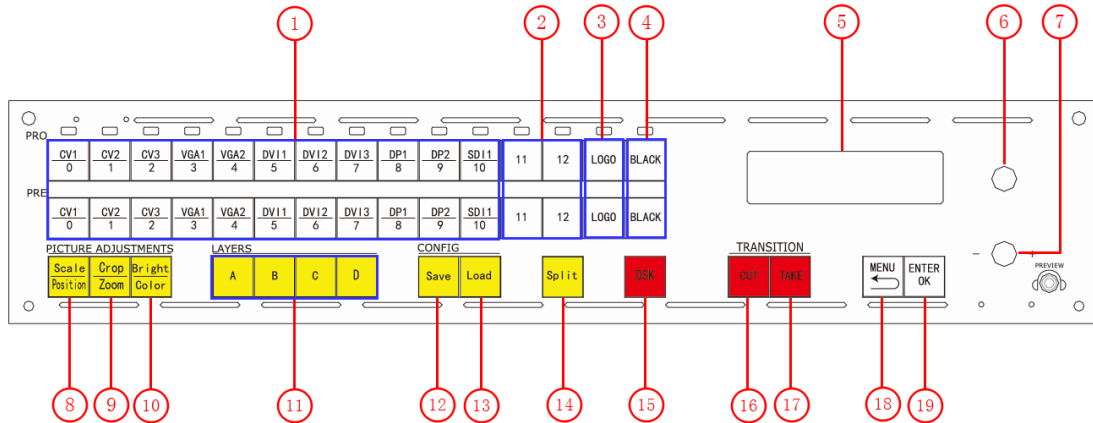
Power Connection

7	<p><u>Power Switch</u></p> <p>Illuminated power switch.</p>
8	<p><u>IEC – Power Input</u></p> <p>Main power input AC 85-264V Max 45W.</p>

Option Slots

19	<p><u>Input Option Slots</u></p> <p>Range of inputs are available for user fitting. Refer to Product Input Options.</p>
5.6	<p><u>Sender Card Slots</u></p> <p>Two Sender Cards can be installed in these slots. Support sender Card types including Linsn, Nova and Colorlight (sold separately). Refer to Product Sender Cards.</p>

1.2.2 Front Panel



Display

5	<p>OLED Display</p> <p>Displays current status of the product, and for feature selections provides interactive choices in conjunction with buttons on the front panel.</p>
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Multi-Function Buttons

6	<p>Rotary Button</p> <p>This button used for menu selections and confirmation. The button is both rotary (turn to left and right), and push-button (confirm selection)</p>
7	<p>Rotary Button</p> <p>This button used for volume adjustment.</p>

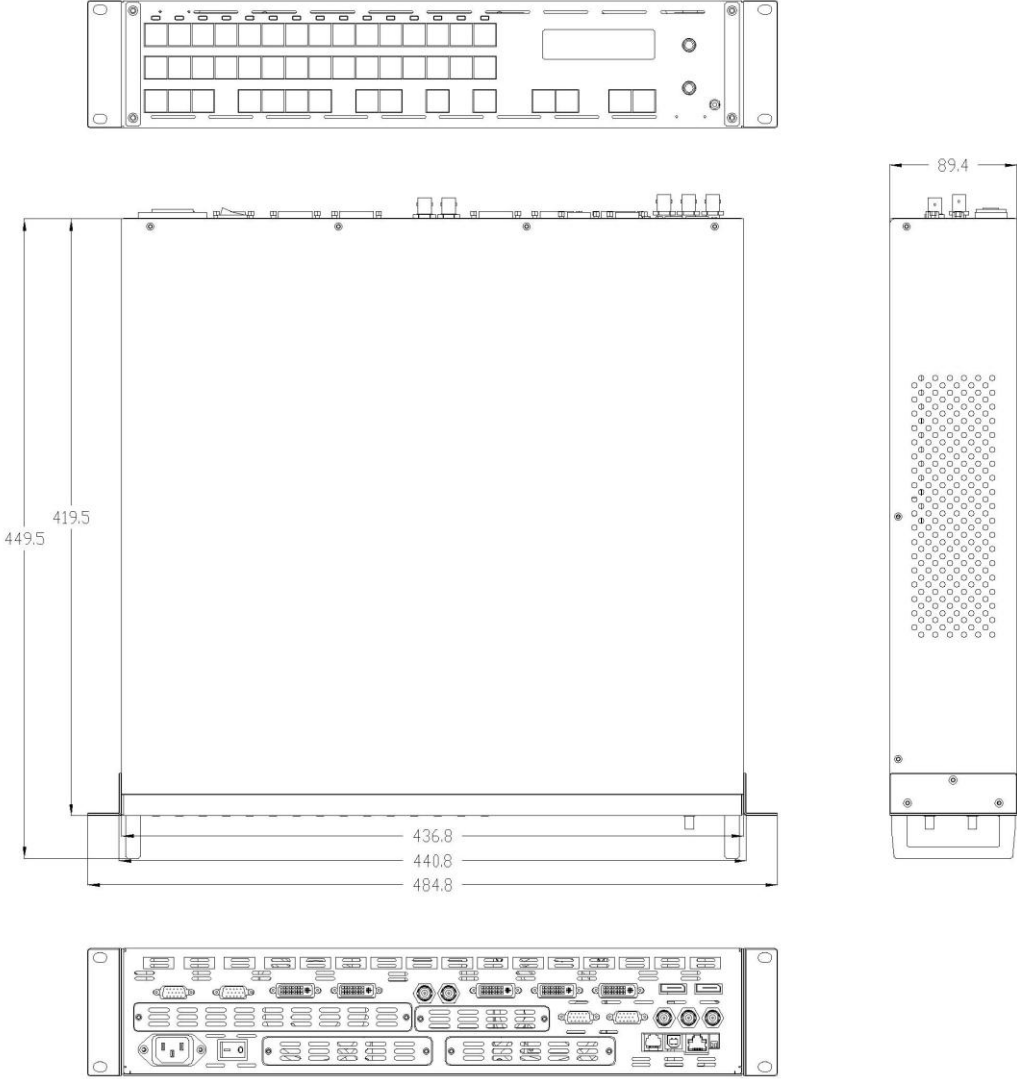
Illuminated Buttons

1	<p>Dedicated Signal Buttons</p> <p>For each of inputs on the back panel a dedicated backlit buttons are provided. When lit, the signal is selected for use, when red light is flashing, signal is in preview or the signal is not available.</p> <p>Additionally, each button in PRE bar is numbered and can be used as direct number entry when values such as resolution and size.</p>
2	<p>Optional Signal Buttons</p> <p>If optional input module is fitted, then these two buttons operate as per Dedicated Signal Buttons above.</p>
3	<p>LOGO Button</p> <p>Push LOGO button in PRE bar, the preview will display LOGO if there is LOGO, or it is black.</p>
4	<p>BLACK Button</p> <p>BLACK switch button, push the button, its LED light is on, program output will be</p>

	<p>switched to black, push the button again, its LED light is off, and output the video image.</p> <p>Besides BLACK, user can define this button as FREEZE.</p> <p>For more details, please refer to: User Define the BLACK Key.</p>
8	<p><u>Scale/Position Button</u></p> <p>This button used for size and position adjusting.</p>
9	<p><u>Crop/Zoom Button</u></p> <p>Crop and Zoom function reuse button.</p> <p>Push the button to enter to crop menus.</p> <p>Push the button again will enter to the zoom menus.</p>
10	<p><u>Bright/Color Button</u></p> <p>This button used for bright and color adjusting.</p>
11	<p><u>Layers Button</u></p> <p>These buttons used for layers choice. The LED light is on if the layer is open, and flashes when the layer is selected.</p>
12	<p><u>Save Button</u></p> <p>Save all current settings with the VSP 5360 to 1 of the 12 available slots.</p> <p>For details, please refer to Saving Views.</p>
13	<p><u>Load Button</u></p> <p>Restores/Loads all current settings with the VSP 5360 from 1 of the 12 available slots.</p> <p>For details, please refer to Recall Saved Settings.</p>
14	<p><u>Split Button</u></p> <p>This button used for split setting.</p>
15	<p><u>DSK Button</u></p> <p>This button used for DSK setting.</p> <p>For details, please refer to DSK Setting.</p>
16	<p><u>CUT Button</u></p> <p>This button used for cut switching.</p>
17	<p><u>TAKE Button</u></p> <p>This button used for seamless effect switching.</p>
18	<p><u>MENU Button</u></p> <p>This button used for menu selections – refer to Understanding the MENU Structure.</p> <p>Push the button again will return to the last level menu or exit the menu.</p>
19	<p><u>ENTER Button</u></p> <p>Confirm button.</p>

1.2.3 Dimension

Following is the dimension of VSP 5360 for your reference:



Chapter 2 Installing Your Product

2.1 Plugging in Signals

Connect signals to the product (ensure all devices are powered off first). Tighten connector screws/locks where provided.



2.2 Plugging in Main Power

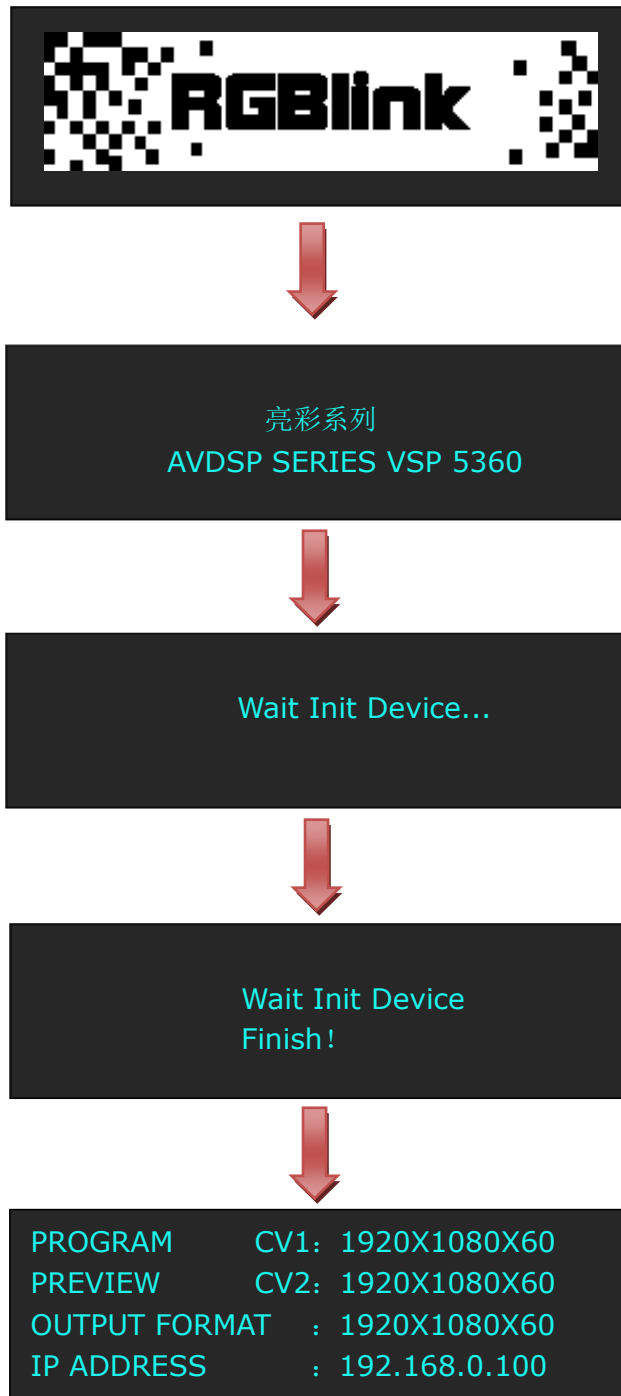
Connect IEC cable to device and plug into wall socket. Turn on power at wall socket.

2.3 Turning on Your Product

Turn the power switch on the rear of the product to the ON position.

OLED display will show as below, completing initialization before loading last settings and input/output configuration.

On delivery, CV1 will be the default input signal at 1920x1080@60, and the output format is defaulted to 1920x1080@60.



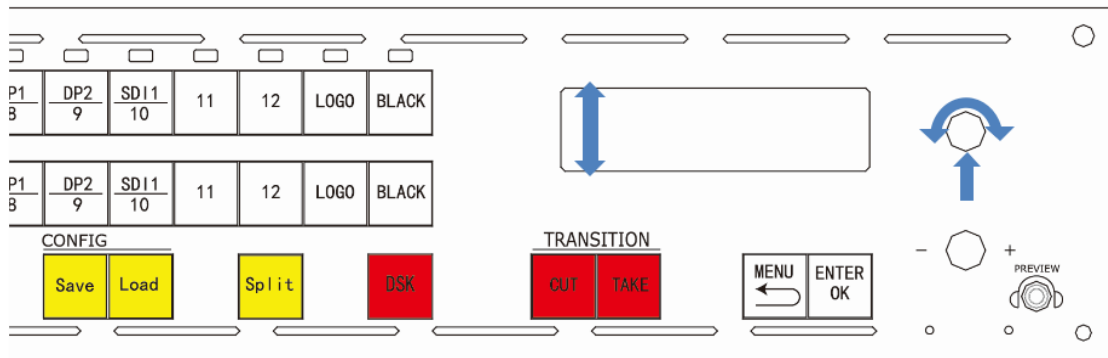
Chapter 3 Using Your Product

3.1 Using the MENU Button

Push the [MENU] button to enter the menu display.

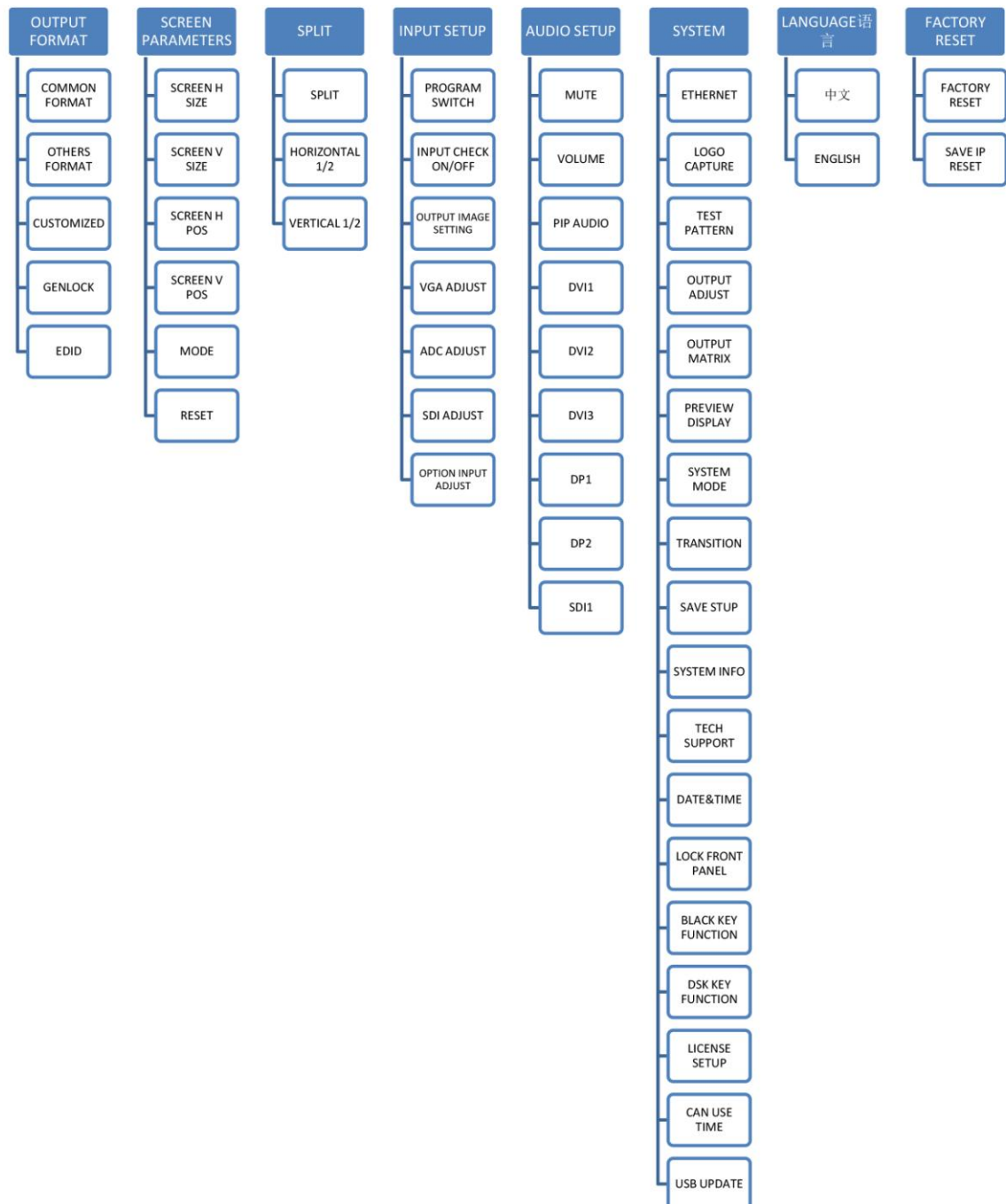
Turn the rotary knob to navigate to the menu item required. The → symbol shows the current item. Push the knob to select and enter into the menu item.

As shown in the figure below:



3.2 Understanding the MENU Structure

The MENU structure is shown in the figure below:

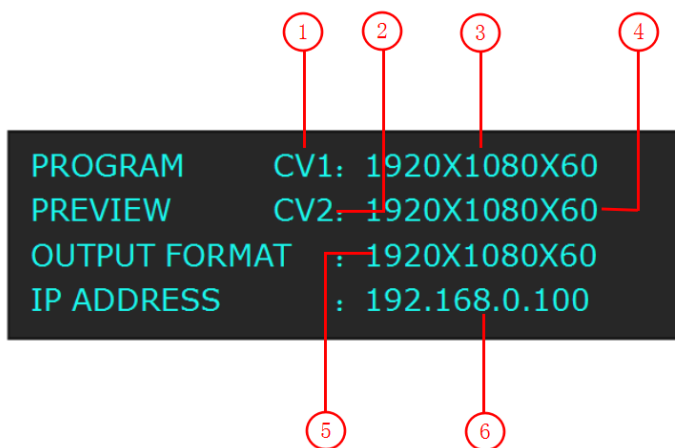


3.3 Using the Menu

Use the menu system for convenient and intuitive operation. VSP 5360 OLED display shows the menu items. The OLED display will show the default state when the menu is not in use, or the operation has timed out. Using the MENU button and rotary knob in the front panel, the OLED display will show the corresponding menus according to user selections.

3.3.1 Understanding the Display

Turn the power switch to the ON position, the OLED display will show the start-up interface and show the default menu after completing initialization as below:



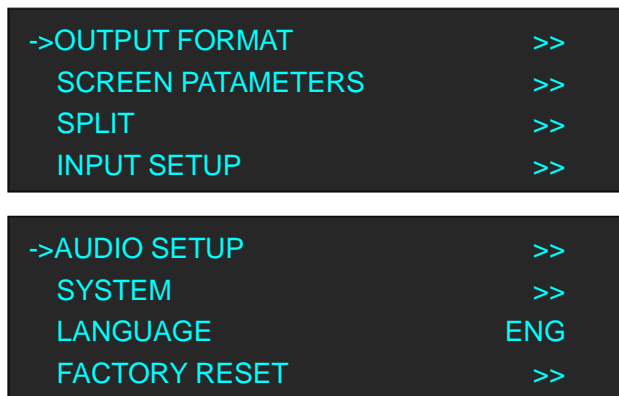
Introduce for the above information:

1	<p><u>Program Signal</u></p> <p>Shows the current program signal that is selected. The related dedicated signal button will be lit red.</p>
2	<p><u>Preview Signal</u></p> <p>Shows the current preview signal that is selected. The related dedicated signal button will be lit red.</p>
3	<p><u>Program Input Resolution</u></p> <p>Show the current program input resolution from the selected program input source. To configure input resolutions, use the EDID Management features. A wide range of input resolutions are supported depending the input – refer to Specification. If a # symbol is show after the resolution, then a custom resolution is being used.</p>
4	<p><u>Preview Input Resolution</u></p> <p>Show the current preview input resolution from the selected preview input source. To configure input resolutions, use the EDID Management features. A wide range of input resolutions are supported depending the input – refer to Specification. If a # symbol is show after the resolution, then a custom resolution is being used.</p>
5	<p><u>Output Resolution</u></p> <p>Show the current output resolution. To configure output resolutions, use the OUTPUT</p>

	<p>menu. A wide range of resolutions are supported – refer to Specification. If a # symbol is show after the resolution, then a custom resolution is being used.</p>
6	<p><u>IP address</u> Shows the IP address of the product. When not displayed here, the serial number can be found via the SYSTEM menu.</p>

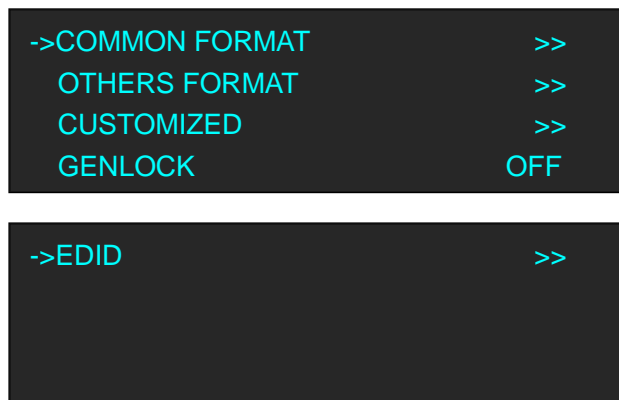
3.3.2 Understanding the Main Menu

Push the MENU button in the default state and turn the rotary knob, the OLED display will show the main menus as below:



There are 8 menu items in the main menu, and display in 2 pages. Turn the rotary knob, and select any menu above, push the rotary knob to confirm, the OLED display will show the submenu. If push the MENU button, the OLED display will return to the last level menu.

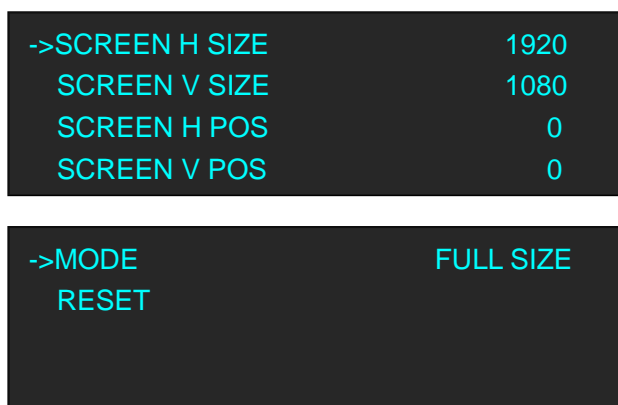
3.3.3 Output Format Menu



COMMON FORMAT	There are 15 kinds of common resolutions.
OTHERS FORMAT	There are 25 kinds of others resolutions.
CUSTOMIZED	The special display project or LED display application would like to require special resolution settings to meet the requirement--refer to Set the Output Resolution .

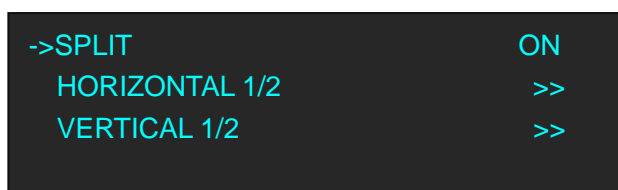
GENLOCK	Enable or disable the Genlock function.
EDID	SOURCE PORT Select the source port: RGBDVI, RGBHDMI or CUSTOM EDID.
	DEST PORT Select DVI1, DVI2 or DVI3.
	START WRITE EDID Start write EDID after select the source port and dest port.

3.3.4 Screen Parameters Menu



SCREEN H SIZE	Width setting.
SCREEN V SIZE	Height setting.
SCREEN H POS	Screen horizontal position setting.
SCREEN V POS	Screen vertical position setting.
MODE	Select screen size, full size, 16:9 or 4:3.
RESET	If image quality distorts by improper operation, it can be recover by reset.

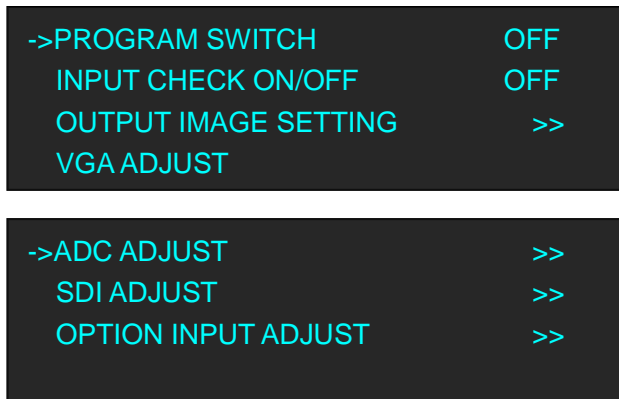
3.3.5 Split Menu



SPLIT	Enable or disable the split function.
HORIZONTAL 1/2	H TOTAL The total width points of LED display that will split.
	V TOTAL The total height points of LED display that will split.
	FIRST WIDTH The width of the device when do split.
	START X

	The horizontal position of the device when do split.
	<u>START Y</u> The vertical position of the device when do split.
VERTICAL 1/2	<u>H TOTAL</u> The total width points of LED display that will split.
	<u>V TOTAL</u> The total height points of LED display that will split.
	<u>FIRST HEIGHT</u> The height of the device when do split.
	<u>START X</u> The horizontal position of the device when do split.
	<u>START Y</u> The vertical position of the device when do split.

3.3.6 Input Setup Menu

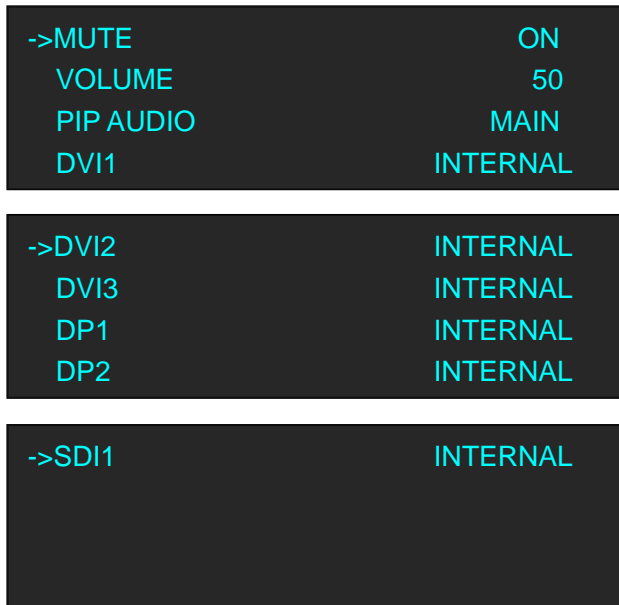


PROGRAM SWITCH	Enable or disable the program switch function.
INPUT CHECK	Enable or disable the input check function.
OUTPUT IMAGE SETTING	<u>LAYER A 90 ROTATE</u> Select NO ROTATE, LEFT ROTATE or RIGHT ROTATE.
	<u>LAYER A MIRROR</u> Select NO MIRROR, H MIRROR, V MIRROR and IMAGE MIRROR.
	<u>LAYER B MIRROR</u> Select NO MIRROR or H MIRROR.
	<u>LAYER C MIRROR</u> Select NO MIRROR or H MIRROR.
	<u>LAYER D MIRROR</u> Select NO MIRROR or H MIRROR.
VGA ADJUST	<u>H POS</u> Set the horizontal position.
	<u>V POS</u>

	Set the vertical position.
	<u>CLOCK</u> Set clock.
	<u>PHASE</u> Set phase.
	<u>AUTO ADJUST</u> Auto adjust VGA input signal H POS, V POS, CLOCK, PHASE, auto adjust to display in full screen image.
	<u>INPUT MODE</u> Select VGA or YPbPr.
ADC ADJUST	<u>ADC AUTO ADJUST</u> Auto adjust ADC.
	<u>ADC RESET ALL</u> When SDI input signal image shift, please adjust image's H POS and V POS to display in full screen image.
SDI ADJUST	<u>H POS</u> Set the horizontal position.
	<u>V POS</u> Set the vertical position.
	<u>BRIGHTNESS RED</u> Brightness red setting.
	<u>BRIGHTNESS GRN</u> Brightness green setting.
	<u>BRIGHTNESS BLUE</u> Brightness blue setting.
	<u>CONTRAST</u> Contrast setting.
	<u>SATURATION</u> Saturation setting.
	<u>SHARPNESS</u> Sharpness setting.
	<u>COLOR RED</u> Color res setting.
	<u>COLOR GRN</u> Color green setting.
	<u>COLOR BLUE</u> Color blue setting.
	<u>RESET</u> If image quality distorts by improper operation, it can be recover by reset.
OPTION INPUT ADJUST	<u>USB OPERATE</u> Turn the rotary to select the USB file.
	<u>H POS</u> Set the horizontal position.

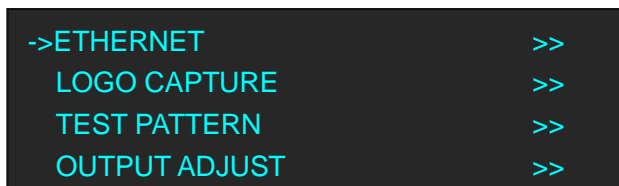
	<p><u>V POS</u> Set the vertical position.</p>
	<p><u>RESET</u> If image quality distorts by improper operation, it can be recover by reset.</p>
	<p><u>UPDATE USB INPUT BOARD</u> Update the USB input board version.</p>

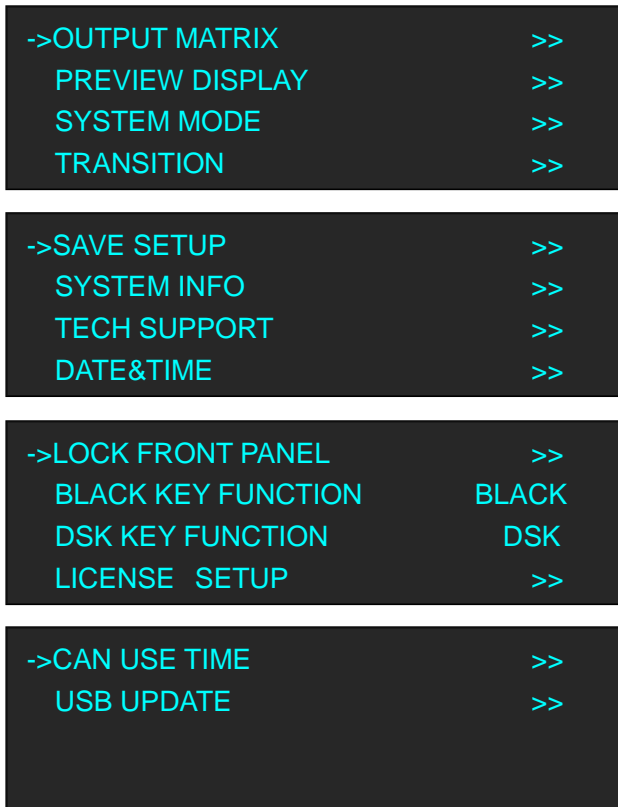
3.3.7 Audio Setup Menu



MUTE	Enable or disable the mute function.
VOLUME	Volume adjusting.
PIP AUDIO	Select audio input source for IMAGE A main image or IMAGE B sub-image.
DVI1	Select DVI1 audio as INTERNAL embedded audio or EXTERNAL audio.
DVI2	Select DVI2 audio as INTERNAL embedded audio or EXTERNAL audio.
DVI3	Select DVI3 audio as INTERNAL embedded audio or EXTERNAL audio.
DP1	Select DP1 audio as INTERNAL embedded audio or EXTERNAL audio.
DP2	Select DP2 audio as INTERNAL embedded audio or EXTERNAL audio.
SDI1	Select SDI1 audio as INTERNAL embedded audio or EXTERNAL audio.

3.3.8 System Menu



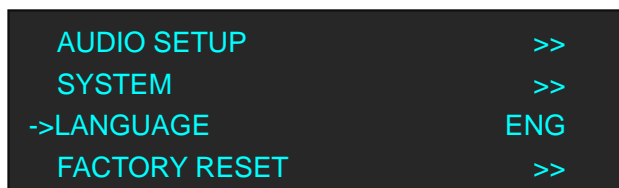


ETHERNET	Enable or disable the Ethernet function. Default IP address is 192.168.000.100, subnet mask is 255.255.255.000, gateway is 192.168.000.001.
LOGO CAPTURE	Select the input source. Freeze image, when capture, the program image should be frozen. Set the image horizontal position, vertical position, horizontal size and vertical size. Save the image to LOGO1 or LOGO2. Start to capture LOGO.
TEST PATTERN	<u>PROGRAM OUT IP</u> Enable or disable the program out IP function. When select "ON", the program out will switched to test pattern.
	<u>PREVIEW OUT IP</u> Enable or disable the preview out IP function. When select "ON", the preview out will switched to test pattern.
OUTPUT ADJUST	<u>DVI1</u> Select the DVI MODE, BIT DEPTH and DATA RANGE, and set DE ADJUST. If image quality distorts by improper operation, it can be recover by reset.
	<u>DVI2</u> Select the DVI MODE, BIT DEPTH and DATA RANGE, and set DE ADJUST. If image quality distorts by improper operation, it can be recover by reset.
	<u>DVI OUTPUT</u>

	Select program or preview.
	<u>VGA1 OUTPUT</u> Select program or preview.
	<u>VGA2 OUTPUT</u> Select program or preview.
	<u>TEST PATTERN</u> Enable or disable the program/preview out IP function. When select “ON”, the program/preview out will switched to test pattern. There are 66 kinds of test patterns. If select <AUTO SWITCH>, VSP 5360 will output all the test patterns one by one, and the interval between is 1 to10S.
OUTPUT MATRIX	<u>DVI1</u> Select the DVI MODE, BIT DEPTH and DATA RANGE, and set DE ADJUST. If image quality distorts by improper operation, it can be recover by reset.
	<u>DVI2</u> Select the DVI MODE, BIT DEPTH and DATA RANGE, and set DE ADJUST. If image quality distorts by improper operation, it can be recover by reset.
	<u>DVI OUTPUT</u> Select program or preview.
	<u>VGA1 OUTPUT</u> Select program or preview.
	<u>VGA2 OUTPUT</u> Select program or preview.
	<u>TEST PATTERN</u> Enable or disable the program/preview out IP function. When select “ON”, the program/preview out will switched to test pattern. There are 66 kinds of test patterns. If select <AUTO SWITCH>, VSP 5360 will output all the test patterns one by one, and the interval between is 1 to10S.
PREVIEW DISPLAY	<u>PREVIEW DISPLAY</u> Enable or disable the preview display function.
	<u>DISPLAY POS X</u> The horizontal position of preview display setting.
	<u>DISPLAY POS Y</u> The vertical position of preview display setting.
	<u>DISPLAY COLOR RED</u> Color red of preview display setting.
	<u>DISPLAY COLOR GREEN</u> Color green of preview display setting.
	<u>DISPLAY COLOR BLUE</u> Color blue of preview display setting.
SYSTEM MODE	<u>3 SCREEN PRVIEW</u> Default 3 screen preview mode. For details, please refer to 3 Screen Preview Setting .
	<u>SPLIT</u>

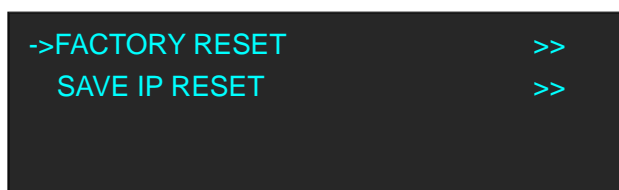
	Select split mode, horizontal 1/2 and vertical 1/2 can be set.
	<u>OUTPUT MATRIX</u> Select output matrix, DVI1, DVI2, DVI OUTPUT, VGA1 OUTPUT, VGA2 OUTPUT and test pattern can be set.
	<u>COMMON MODE</u> Can select common mode.
TRANSITION	<u>FADE TIME</u> Fade time setting, the adjust range is between 0S~10S.
	<u>PREVIEW SWAP</u> Enable or disable the preview swap function.
SAVE SETUP	<u>SAVE TO</u> Provide 12 positions for saving parameters.
	<u>RECALL</u> Provide 12 saving modes for recall.
	<u>CLEAR</u> Clear one saving mode.
	<u>CLEAR ALL</u> Clear all saving modes.
	<u>DELAY CALL</u> Delay recall time setting.
SYSTEM INFO	System information, including Com Board version, Core Image Pro version, Back Pro Firmware version, Front Pro Firmware version, SDI version and serious number.
TECH SUPPORT	Include the sales hotline, customer service number, company telephone number, email and website.
DATE&TIME	Display the date, time, work time, total time and boot times. User can also change the date and time.
LOCK FRONT PANEL	Lock front panel function. If the key is locked, the equipment will remind: "PRESS MENU+ENTER KEY TO UNLOCK PANEL!"
BLACK KEY FUNCTION	Default black function, can define this button as FREEZE. For details, please refer to User Define BLACK Key .
DSK KEY FUNCTION	Default DSK function, can define this button as FREEZE. For details, please refer to User Define DSK Key .
LICENSE SETUP	The device will not work if excess the prescribed time, there are no signal output, it needs to input password and modify the using time to continue to work.
CAN USE TIME	Display the rest of the working time.
USB UPDATE	User can upgrade the device by USB.

3.3.9 Language Menu



LANGUAGE	Select Chinese or English.
----------	----------------------------

3.3.10 Factory Reset Menu

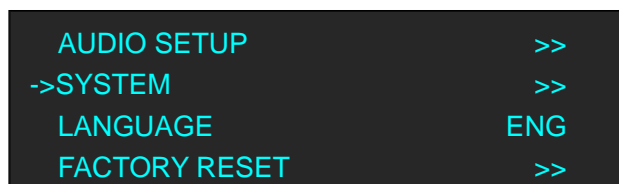


FACTORY RESET	Select "YES" or "NO". Select "YES" to restore default settings.
SAVE IP RESET	Select "YES" or "NO". Select "YES" to restore default settings, but keep the IP.

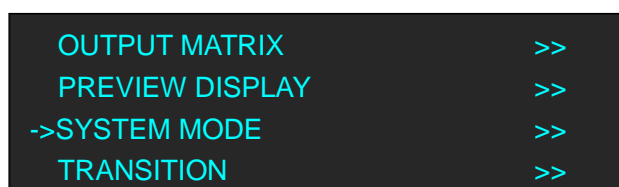
3.4 3 Screen Preview Setting

3.4.1 Select 3 Screen Preview Mode

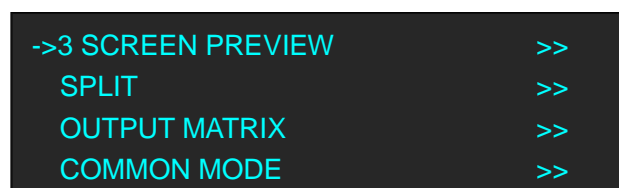
1. Push the [MENU] button, and enter to the menu items, turn the rotary knob, select <SYSTEM>:



2. Push the knob to confirm. Turn the knob, and select <SYSTEM MODE>:



3. Push the knob to confirm. Turn the knob, and select <3 SCREEN PREVIEW>:



4. Push the knob to confirm, and enter to the 3 screen preview modes.

3.4.2 3 Screen Preview Setting

VSP 5360 supports 3 Layers Preview and 3 layers Program seamless switching, select the layer, set on Preview output, and switch it to the program output by the [CUT] or [TAKE] button.

Note

Layer A supports DVI3/SDI/LOGO output, and layer B and layer C, any signal.

For example, to display the DVI3, VGA1, CVBS1 on preview monitor.

1. Select Layer B, and click VGA1 in PRE area, the [VGA1] light is on.
2. Select Layer A, and click DVI3 in PRE area, the [DVI3] light is on.
3. Select Layer C, and click CV1 in PRE area, the [CV1] light is on.

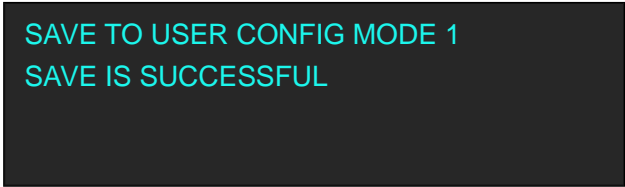
Then the VGA1, DVI3 and CV1 signals are displayed on the preview monitor display.

4. User can do the scale for any layer, the layer only changed on preview output, but not changed

on program output.

3.4.3 Preset

After setting, the layers on the preview output, we do not need to switching to the program output. Push the [Save] button, the button light is on, and some of the buttons 0~12 in PRE area are on, and some flash. The buttons on can be saved, and flash will be overwrite. Select the location that need to save , for example, button 1, OLED shows as follows.



```
SAVE TO USER CONFIG MODE 1
SAVE IS SUCCESSFUL
```

3.4.4 Load

User can load the saved settings by pushing the [Load] button. For example, push button 1, the SAVE 1 will display on preview monitor, then touch [TAKE] button to switch it to the program display after confirmation.

3.5 Single Image Switching

VSP 5360 can realize seamless effects switch between two channels, select the signal in PRE area, then push [CUT] or [TAKE] button, the signal will be switched to LED display.

For example, switch VGA1 to LED display, first push the [VGA1] button in PRE area, then push [CUT] or [TAKE] button, and the LED display will show VGA1 signal.

Default the switch time is 1 seconds for [TAKE] button, if need to adjust the fade in fade out time, push [MENU] button and enter to the menu items, turn the knob, select <SYSTEM>, push the knob to confirm. Turn the rotary knob, select <TRANSITION>, and set the fade time, push the [TAKE] button again, the signal will be switched to the LED display with the adjusted time.

User can also switch the signal by pushing the signal button in PRO area, but the signal in monitor will not change.

3.6 Set the Output Resolution

3.6.1 Select the Output Resolution

1. Push the [MENU] button, and enter to the menu items, turn the rotary knob and select <OUTPUT FORMAT>:

```
->OUTPUT FORMAT      >>
  SCREEN PARAMETERS  >>
    SPLIT            >>
    INPUT SETUP      >>
```

2. Push the rotary to confirm, and enter to the menus as below:

```
->COMMON FORMAT      >>
  OTHERS FORMAT      >>
  CUSTOMIZED         >>
  GENLOCK            OFF
```

3. Push the rotary to confirm. Turn the rotary knob, select <COMMON FORMAT> or <OTHERS FORMAT>, and select the output resolution according to actual need.

```
COMMON FORMAT
->1920×1080×60
```

3.6.2 Custom the Output Resolution

1. Push the [MENU] button, and enter to the menu items, turn the rotary knob and select <OUTPUT FORMAT>:

```
->OUTPUT FORMAT      >>
  SCREEN PARAMETERS  >>
    SPLIT            >>
    INPUT SETUP      >>
```

2. Push the rotary to confirm, and enter to the menus as below:

```

->COMMON FORMAT      >>
  OTHERS FORMAT      >>
  CUSTOMIZED         >>
  GENLOCK            OFF

```

3. Push the rotary to confirm. Turn the rotary knob, select <CUSTOMIZED>, push the knob to confirm.

```

CUSTOMIZED
->1920x1080x60

```

4. Enter digits of desired resolution by pushing the red number buttons. For example, input 1536 as following:

```

CUSTOMIZED
*1536x

```

5. After the digital, push the rotary knob will add ×, means before × is the horizontal size. Same operation for vertical size, For example, input 1536 as following:

```

CUSTOMIZED
*1536x1536x

```

6. After the digital, push the rotary knob will add ×, means before the × is the vertical size, and after the × is the refresh rate. Only digital 50 or digital 60 supports for the refresh rate. For example, input 60 as following. Use the digital buttons to finish the settings.

```

CUSTOMIZED
->1536x1536x60.0

```

7. After input all the values, push the rotary knob to enable VSP 5360 to output this resolution. VSP 5360 will take 5~10 seconds to enable this output resolution.

3.7 Add or Clear the Layer

Push any button of A, B, C, D in LAYERS area, or push all the 4 buttons, the button light is on, and the layer is selected, add layer finished.

For example, add layer B, push button B, button B light is on, and the OLED panel shows as follows:



```
ON LAYER B
H POS : 0          V POS : 0
H SIZE: 1024      V SIZE: 768
```

In LAYERS area, push any key of button A, B, C, D that to clear, the button light flashes. Push the button again, key light is off, and clear layer finished.

For example, clear layer B, OLED panel shows as follows:



```
OFF LAYER B
```

3.8 Set the Size and Position

Push the [Scale/Position] button, and enter to the scale menus, the OLED module show as follows:

->H SIZE	1920
V SIZE	1080
H/V	0
H POS	0
->V POS	0
FAST SCALE MODE	FULL SIZE
RESET	

The lights of number button 0~9 are on, user can adjust the following items by rotary knob or number buttons.

H SIZE: Width setting.

V SIZE: Height setting.

H/V: Width and height equal proportion scale setting.

H POS: Horizontal phase setting.

V POS: Vertical phase setting.

FAST SCALE MODE: User can choose FULL SIZE, SCREEN SIZE, 16:9 or 4:3.

RESET: If image quality distorts by improper operation, it can be recover by reset.

3.9 Crop the Image

1. Push the [Crop/Zoom] button, the button light is on and open the crop function.

```
->H LEFT CROP      0
   V UP CROP        0
   H RIGHT CROP     1024
   V DOWN CROP      768
```

```
->RESET
```

2. The lights of number button 0~9 are on, user can crop H LEFT, V UP, H RIGHT, V DOWN of the image by knob or number buttons.
3. If image quality distorts by improper operation, it can be recover by reset.

3.10 Zoom the Image

The image can be zoom in horizontal or vertical separately, to meet the special effects required. Push the [Crop/Zoom] button, and enter to the menu items, user can zoom the image by the rotary knob or number buttons, settings are as follows:

```
->V UP           0
  V DOWN         0
  V UP/DOWN      0
  H LEFT         0
```

```
->H RIGHT        0
  H LEFT/RIGHT   0
  CENTER         0
  RESET          0
```

V UP: Zoom in vertical and the image will be zoom in to the top direction from its bottom.

V DOWN: Zoom in vertical and the image will be zoom in to the down direction from its top.

V UP/DOWN: Zoom in vertical but in both top and down direction from its middle.

H LEFT: Zoom in horizontal and the image will be zoom in to the left direction from its right.

H RIGHT: Zoom in horizontal and the image will be zoom in to the right direction from its left.

H LEFT/RIGHT: Zoom in horizontal but in both left and right direction from its middle.

CENTER: Zoom in 4 corner direction from center.

RESET: If image quality distorts by improper operation, it can be recover by reset.

3.11 Set the Brightness and Color

Push the [Bright/Color] button, and enter to the menu items, user can adjust the brightness and color of the image by the rotary knob or number buttons, settings are as follows:

->SET MAX ALPHA	128
BRIGHTNESS	50
CONTRAST	50
SATURATION	50
->SHARPNESS	0
COLOR RED	0
COLOR GREEN	1024
COLOR BLUE	768
->RESET	

SET MAX ALPHA: Set the max alpha of the image, the adjust range is among 0~128.

BRIGHTNESS: It can change the image brightness via BRIGHTNESS setting.

CONTRAST: It can change the image contrast via CONTRAST setting.

SATURATION: It can change the image saturation via SATURATION setting.

SHARPNESS: It can change the image sharpness via SHARPNESS setting.

COLOR RED: It can change the image color red via this setting.

COLOR GREEN: It can change the image color green via this setting.

COLOR BLUE: It can change the image color blue via this setting.

RESET: If image quality distorts by improper operation, it can be recover by reset.

Note: Users can set according to their actual situation, this function mainly suitable for these professional operator who knows how to set the image quality correctly. Others are not comments to do these operations. If image quality distorts by improper operation, it can be recover by reset.

3.12 LOGO Capture

1. Push the [MENU] button and enter to the menu items, turn the knob, and select <SYSTEM>, push the knob to confirm, turn the knob, and select <LOGO CAPTURE> option, OLED shows as follows:

->SELECT INPUT	LOGO
FREEZE IMAGE	OFF
H POS	0
V POS	0

->H SIZE	1024
V SIZE	768
SAVE TO	LOGO 1
START CAPTURE LOGO	

2. Select the input source.
3. Freeze image, when capture LOGO, the program image should be frozen.
4. Set the LOGO horizontal position, vertical position, horizontal size and vertical size.
5. Save the image to LOGO1 or LOGO2.
6. Start to capture LOGO.

Note

The [LOGO] button can also fulfill this setting.

3.13 Screen Size Setting

VSP 5360 supports the screen parameters to meet the requirement where user want to switch between scale screen size and full display size (like monitor). This is only enable for a single display window. Following is an example of a screen size is 1408 x 832.

Operator can defined the VSP 5360 output resolution from standard output resolution list or customized the output resolution which is higher than 1408 x 832. For this application 1440x900 is an example:

Push the [MENU] button to go into the menu items, turn the knob and choose <SCREEN PARAMETERS>, push the knob and goes into the screen menus as following:

SCREEN H SIZE--Horizontal pixels, turn knob or use the digital button to input the value 1408.

SCREEN V SIZE--Vertical pixels, turn knob or use the digital button to input the value 832.

SCREEN H POS--Horizontal position, default value is 0, set the value as the way of H SIZE and V SIZE.

SCREEN V POS--Vertical position, default value is 0, set the value as the way of H SIZE and V SIZE.

MODE-- Mode option, choose SCREEN SIZE.



3.14 DSK Setting

Before setting the text overlay, please make sure the input channel of the text. For example, select DVI3, the operations are as follows:

1. Push the [DVI3] button, and make sure there is input signal, and OLED shows DVI3 signal.
2. Set the size and position of DVI3: Push the [DVI3] button in PRE area, the button light is on, and the image can be edited, push the [Scale/Position] button to set the size.

```
->H SIZE      1920
  V SIZE      1080
  H/V         1920
  H POS        0
```

```
->V POS        0
  FAST SCALE MODE  FULL SIZE
  RESET
```

3. Select the input signal that will overlay in PRE area.
4. Push the [DSK] button, and open the DSK function.

```
->DSK          ON
  SELECT INPUT  DVI3
  PRESET       USER
  ALPHA        0
```

Turn the knob and select <PRESET>, push the knob to confirm, select the preset mode of DVI3, for example, WhOnBk2, push the knob to confirm.

```
  DSK          0
  SELECT INPUT  DVI3
->PRESET      WhOnBk2
  ALPHA        0
```

5. Push the [SAVE] button, and save the above settings.

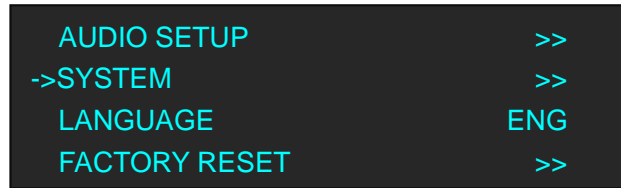
3.15 User Define BLACK Key

Default the [BLACK] button as black function. Push the button, its LED light is on, the output will be switched to black, push the button again, its LED light is off, and output the video image.

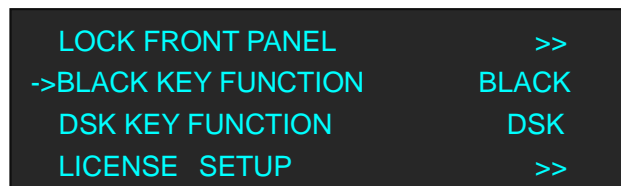
For more details, please refer to: [Using Black Out](#).

Besides BLACK, user can define this button as FREEZE, the operations are as follows:

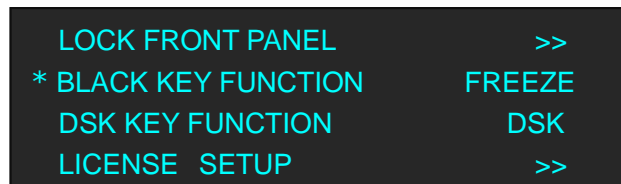
1. Push the [MENU] button, and enter to the menu items, turn the rotary knob, select <SYSTEM>:



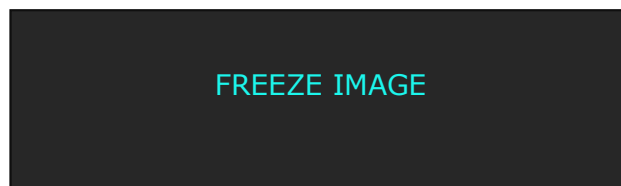
2. Push the knob to confirm, turn the rotary knob, and select <BLACK KEY FUNCTION>:



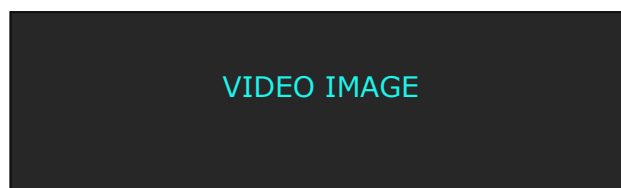
3. Push the knob to confirm, turn the rotary knob, and select <FREEZE>, push the knob to confirm:



After selecting <FREEZE>, push the button, its LED light is on, and freeze the image.



Push the button again, its LED light is off, and output the video image.



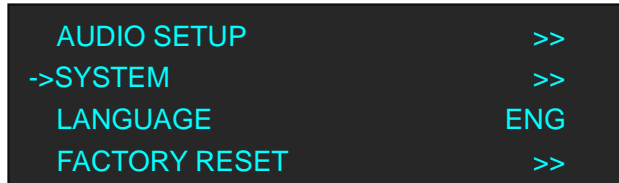
3.16 User Define DSK Key

Default the [DSK] button as DSK function. Push the button, its LED light is on, and enter to the DSK menu items.

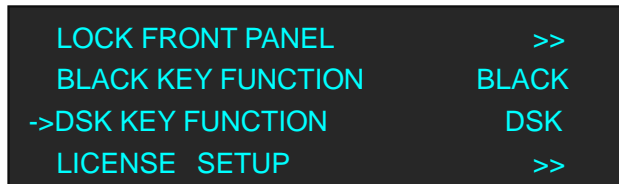
For more details, please refer to: [DSK Setting](#).

Besides DSK, user can define this button as FREEZE, the operations are as follows:

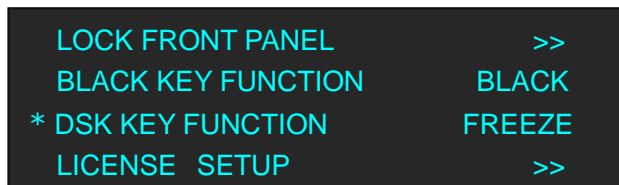
1. Push the [MENU] button, and enter to the menu items, turn the rotary knob, select <SYSTEM>:



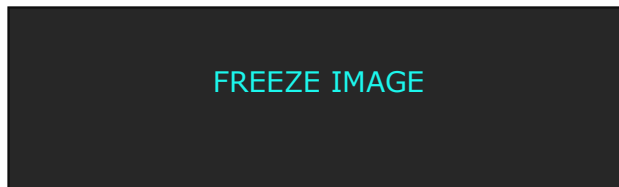
2. Push the knob to confirm, turn the rotary knob, and select <DSK KEY FUNCTION>:



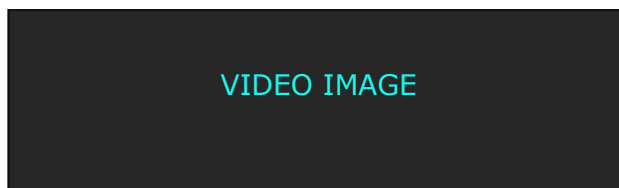
3. Push the knob to confirm, turn the rotary knob, and select <FREEZE>, push the knob to confirm:



After selecting <FREEZE>, push the button, its LED light is on, and freeze the image.



Push the button again, its LED light is off, and output the video image.



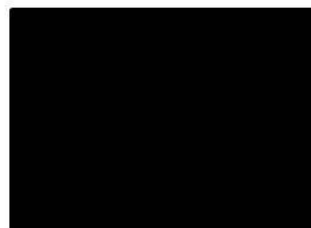
3.17 Using Black Out

Black out description:

BLACK signal realizes one-key-touch to the black screen.

VSP 5360 BLACK provides effect processing for Program output and Preview output with fade in fade out effect. Operations are as follows:

1. Select output signal.
2. Push the [BLACK] button, the button light is on.
3. Then push the [TAKE] button, and the LED display is switched to black with fade in fade out effect, as shown below:



3.18 Saving Views

VSP 5360 provides 12 positions for saving or recording parameters. To save current parameters and settings:

1. Push the [Save] button, the button light is on, and enable the SAVE function.

PUSH THE LEDS ARE ON TO SAVE

Button is on can be saved

Button flashes will be overwrite

2. Some of the buttons 0~12 in PRE area are on, and some flash. The buttons on can be saved, and flash will be overwrite. Select the location that need to save, for example, button 1, OLED shows as follows.

SAVE TO USER CONFIG MODE 1

SAVE IS SUCCESSFUL

3. User can also push the [MENU] button to enter the menu items, and choose <SYSTEM> option, turn the knob and choose <SAVE TO>, show as follows:

->SAVE TO	>>
RECALL	>>
CLEAR	SAVE1
CLEAR ALL	>>

4. Push the knob to confirm. Turn the knob again, and choose the save mode, for example, save to mode1, OLED shows as follows:

SAVE TO USER CONFIG MODE 1

SAVE IS SUCCESSFUL

Note

If position 1 is saved, this will be recalled and loaded at power on.

3.19 Recall Saved Settings

VSP 5360 provides 12 positions for saving or recording parameters. To recall saved settings:

1. Push the [Load] button, the button light is on, and enable the LOAD function.

Some of the number buttons 0~12 in PRE area are on and some flash. The buttons on is ready for recall, and flashes means just recall. OLED shows as follows:



PUSH THE LEDS ARE ON TO RECALLED

Button on is ready for recall

Button flashes means just recall

2. Push the button on to load, for example, button 1, OLED shows as follows:



RECALL USER CONFIG MODE 1

RECALL IS SUCCESSFUL

PROGRAM INPUT:CV2

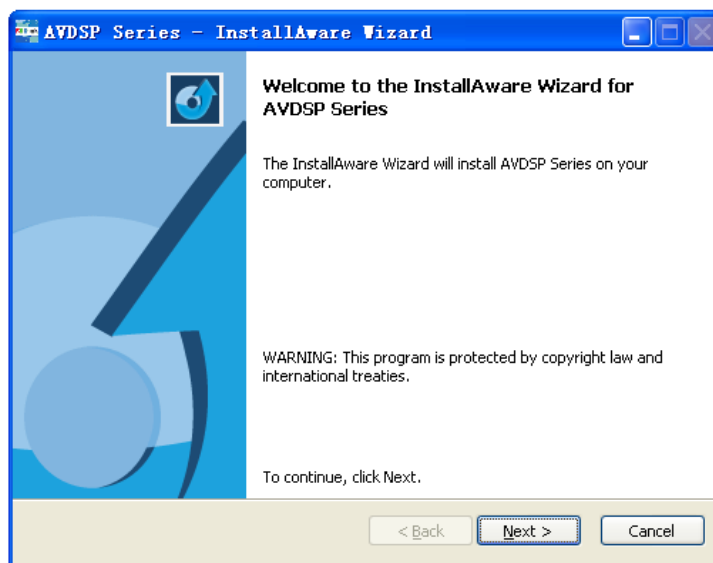
Chapter 4 Controlling Your Processor Remotely

4.1 Install the Software

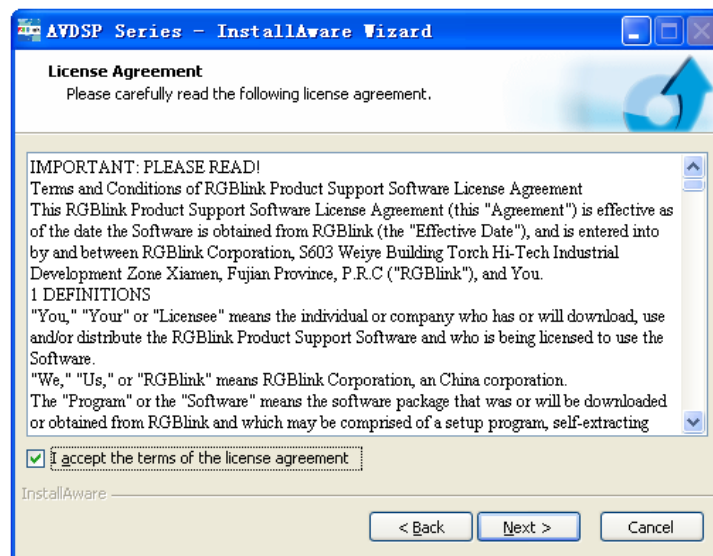


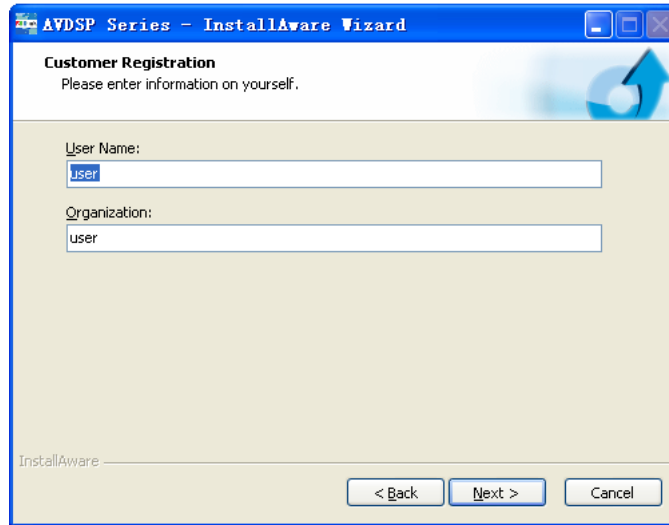
Double click

to install, default English version, click "next":

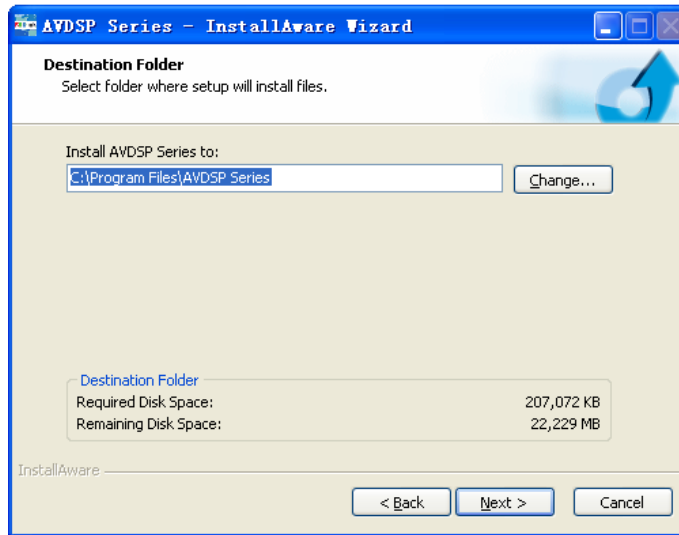


And in next dialog is the user agreement of the software, click Agree to go on:

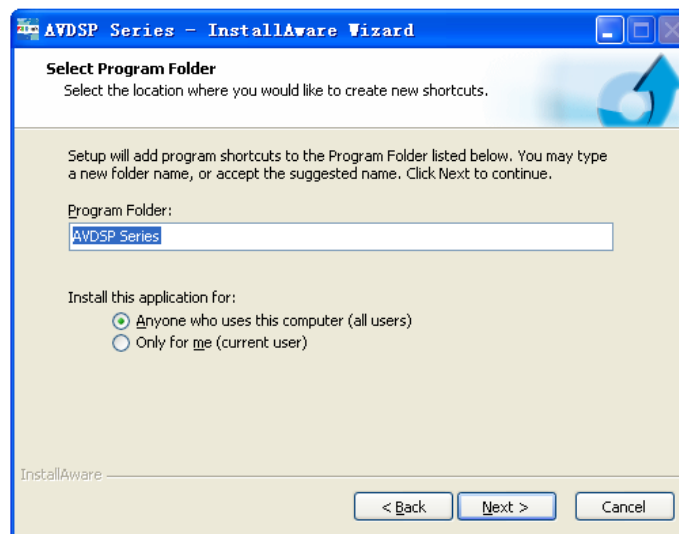




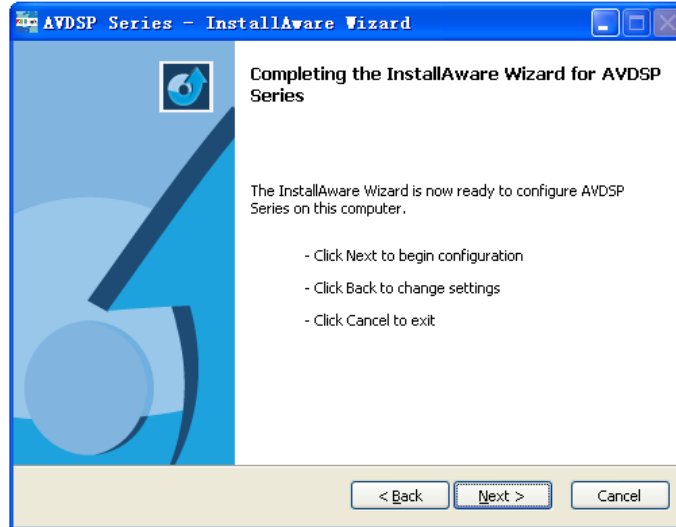
User can select "Change" to choose the VSP 5360 install software:



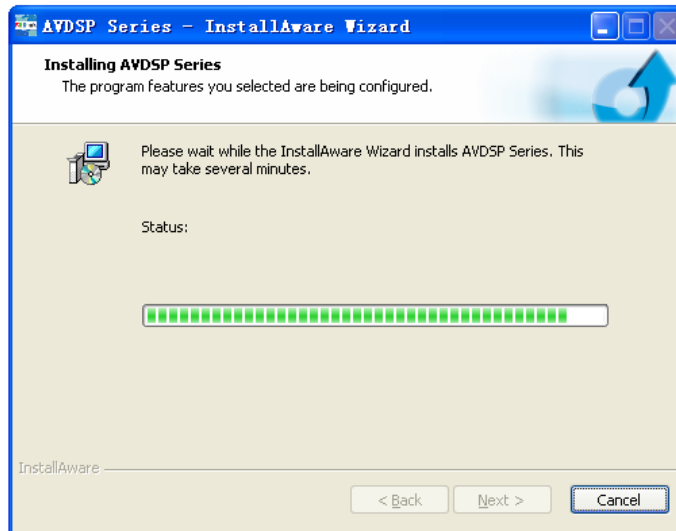
Click "Next":



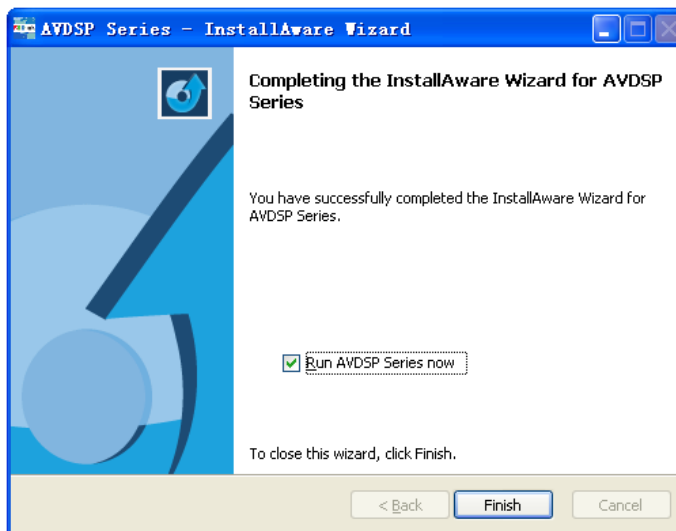
Click "Next":



Click "Next" to go on:




Click "Finish" and ready to run VSP 5360 console:




4.2 Use the Software

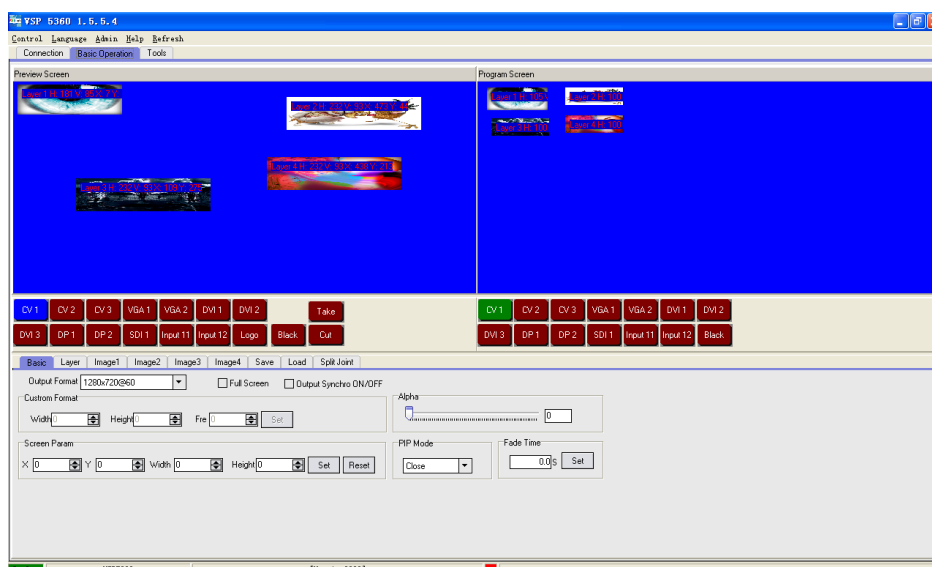


Double click  icon from home screen, and select



 to run the software.

VSP 5360 communication software interface as shown:





Connection

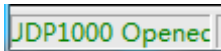
Besides the power cord, the product equipped with the DB9 to RJ11 cable to connect VSP 5360 to the windows control program.

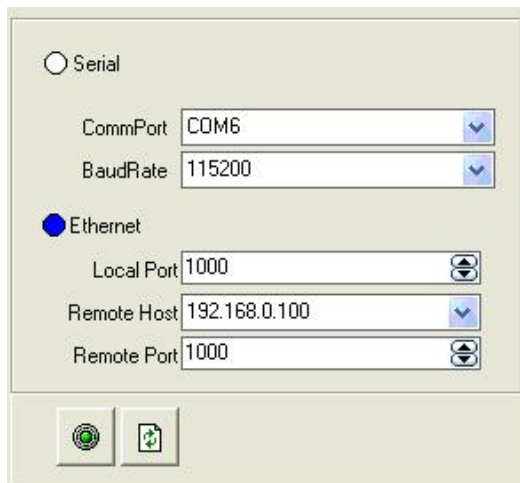
Note

RS 232 port and USB port can do 100M program upgrade.

For Ethernet, user can fill any number less than 1023 in local port, the remote port must be 192.168.0.100 and the remote port must be 1000. After setting above, click the icon  to

connect with the net work. If successful connect, the icon becomes , status on the left

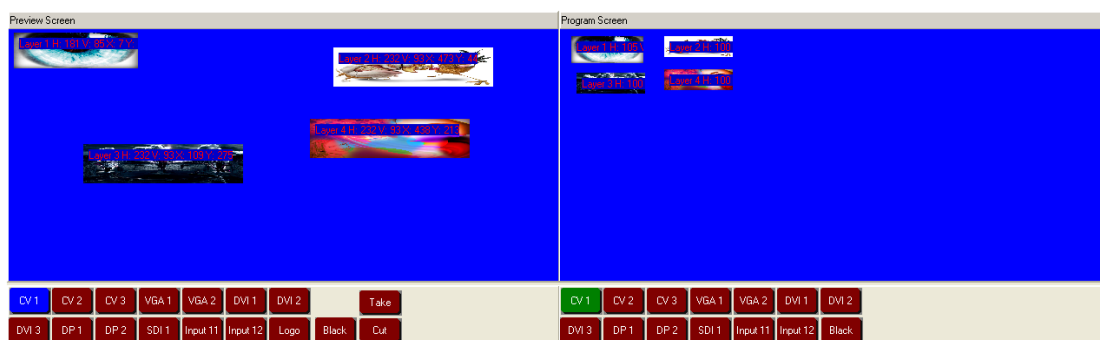
button showing .



Basic Operation

Image Toolbar

Show the image information, including layer, size and position.



Preview Screen

Left part is preview screen, the top left corner **Layer 1 H: 181 V: 85 X: 7 Y:** shows input signal information, layer, size and position, can preview the input signals.



buttons correspond with

preview channel, can be switched to program screen by **Take** or **Cut** button.

Program Screen

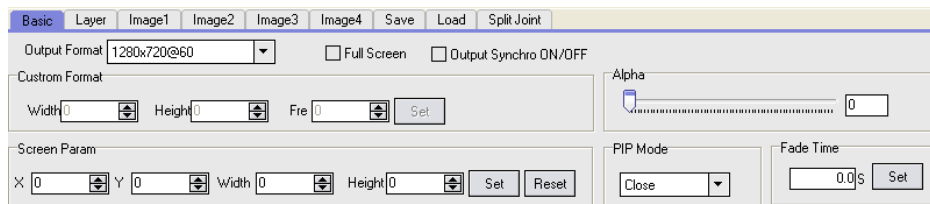
Right part is program screen, the top left corner **Layer 1 H: 105** shows input signal information,



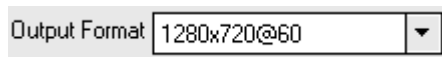
layer, size and position. buttons correspond with program channel, and program output image can be switched by these button. User can adjust the program image by setting the size and position.

Basic

Interface is as follows:



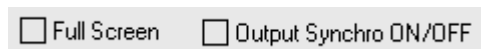
Choose different output resolutions by selecting from scrolling down list:



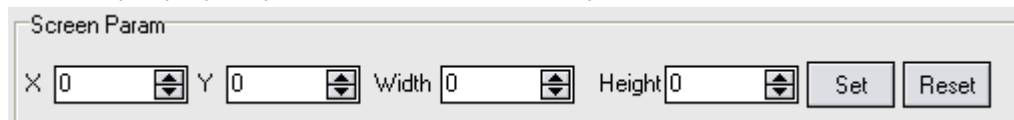
Custom format setting.



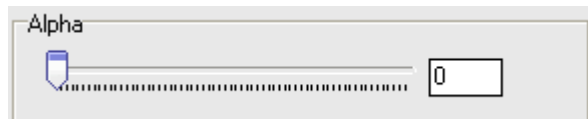
User can choose enable or disable the Full Screen, Output Synchro.



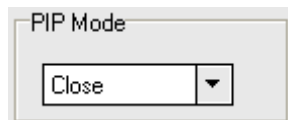
Set the X, Y, Width and Height according to actual need. Click Set after finish. If image quality distorts by improper operation, it can be recover by reset.



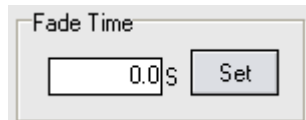
Set the alpha, the setting range is among 0 to 128.



Enable or disable the PIP function, VSP 5360 supports 12 kinds of PIP modes.



Fade time setting.



Layer

Add or clear the layer by selecting Layer 1, Layer 2, Layer 3 or Layer 4.

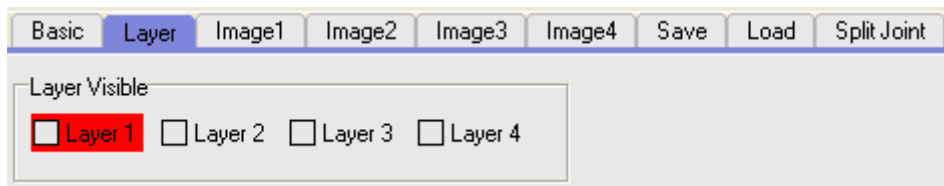
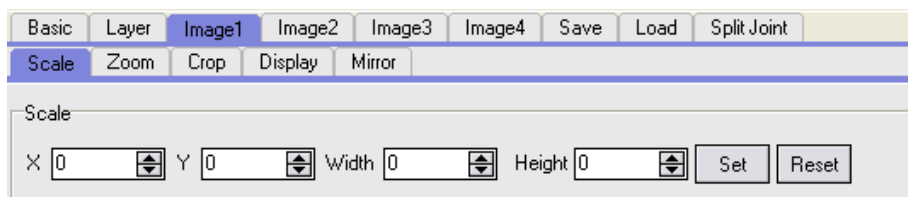


Image 1

Include the following settings.

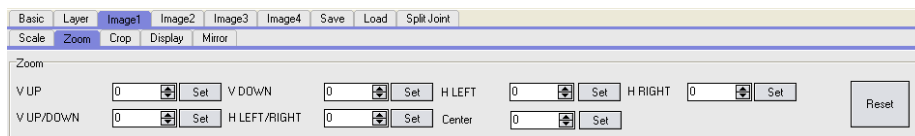
Scale

Scale the image by adjust X, Y, Width and Height. Click “Set” after finish. If image quality distorts by improper operation, it can be recover by reset.



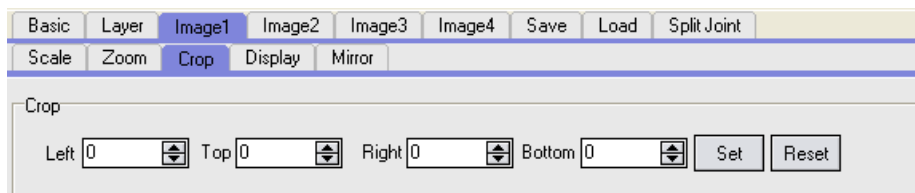
Zoom

Zoom the image. Click “Set” after finish. If image quality distorts by improper operation, it can be recover by reset.



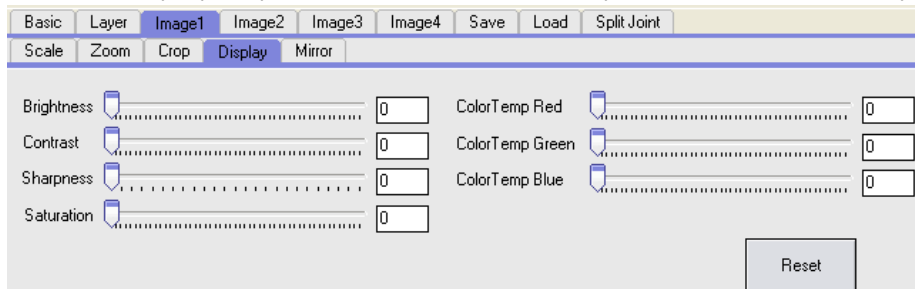
Crop

Crop the image. Click “Set” after finish. If quality image distorts by mistake in improper operation, it can be initialized operation to recover factory setting.



Display

Set the brightness, contrast, sharpness, saturation and color temp. If quality image distorts by mistake in improper operation, it can be initialized operation to recover factory setting.



Mirror

Rotate: User can select None, Left 90 and Right 90.

Mirror: User can select None, H Mirror, V Mirror and HV Mirror.

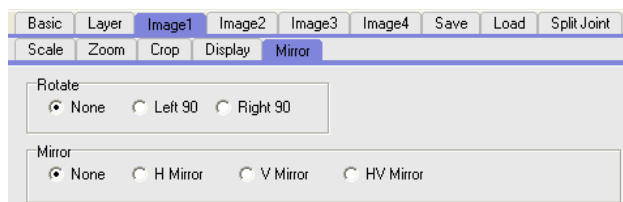
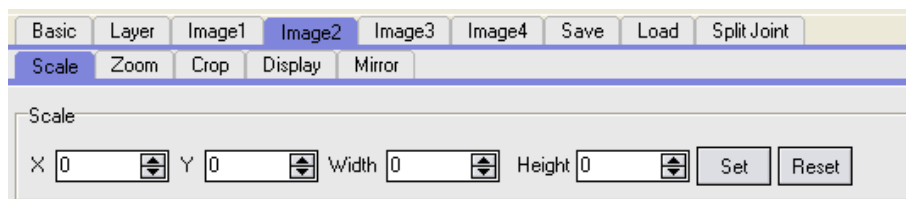


Image 2

Include the following settings.

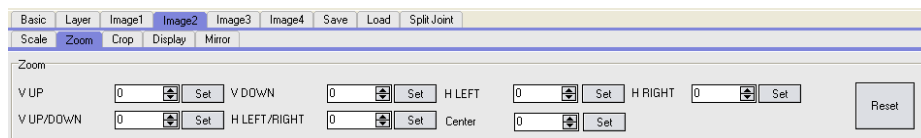
Scale

Scale the image by adjust X, Y, Width and Height. Click “Set” after finish. If image quality distorts by improper operation, it can be recover by reset.



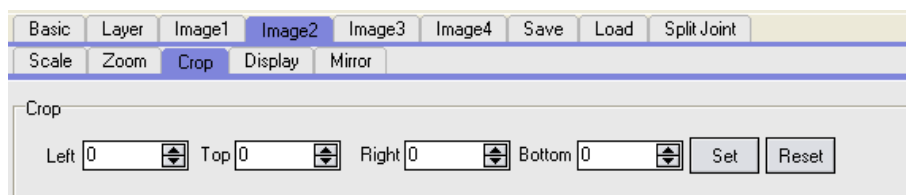
Zoom

Zoom the image. Click “Set” after finish. If image quality distorts by improper operation, it can be recover by reset.



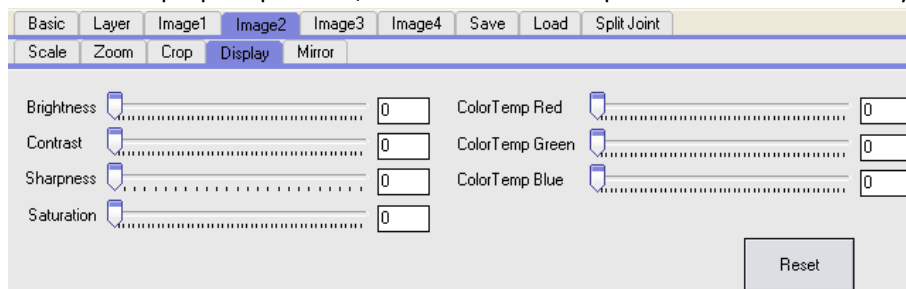
Crop

Crop the image. Click “Set” after finish. If quality image distorts by mistake in improper operation, it can be initialized operation to recover factory setting.



Display

Set the brightness, contrast, sharpness, saturation and color temp. If quality image distorts by mistake in improper operation, it can be initialized operation to recover factory setting.



Mirror

Rotate: User can choose None, Left 90 and Right 90.

Mirror: User can choose None, H Mirror, V Mirror and HV Mirror.

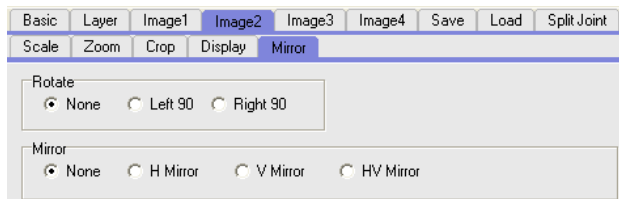
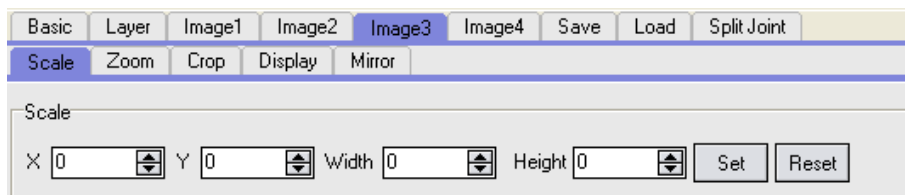


Image 3

Include the following settings.

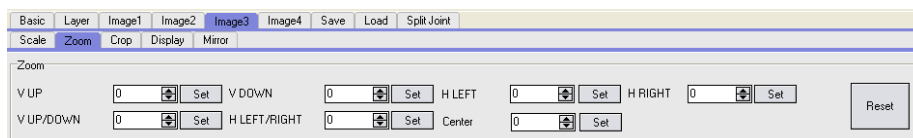
Scale

Scale the image by adjust X, Y, Width and Height. Click “Set” after finish. If image quality distorts by improper operation, it can be recover by reset.



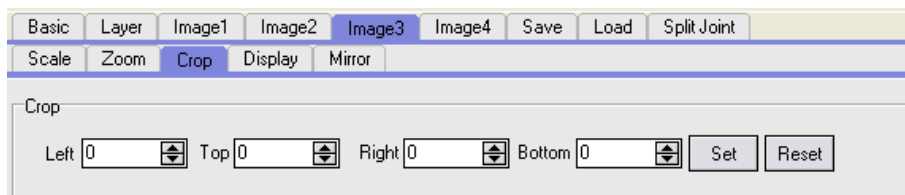
Zoom

Zoom the image. Click “Set” after finish. If image quality distorts by improper operation, it can be recover by reset.



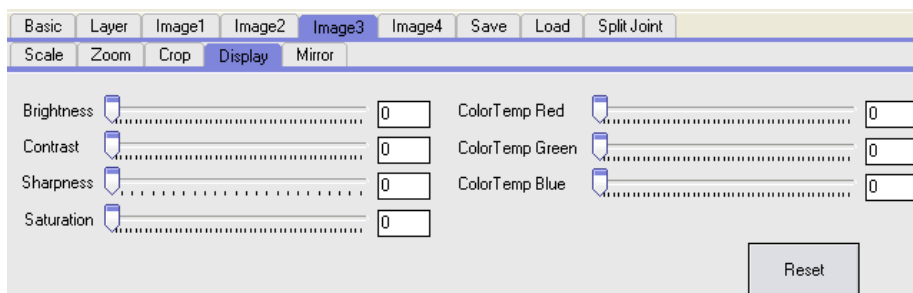
Crop

Crop the image. Click “Set” after finish. If quality image distorts by mistake in improper operation, it can be initialized operation to recover factory setting.



Display

Set the brightness, contrast, sharpness, saturation and color temp. If quality image distorts by mistake in improper operation, it can be initialized operation to recover factory setting.



Mirror

Rotate: User can select None, Left 90 and Right 90.

Mirror: User can select None, H Mirror, V Mirror and HV Mirror.

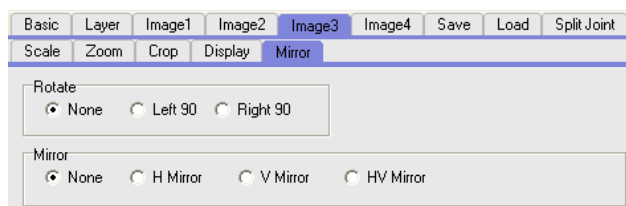
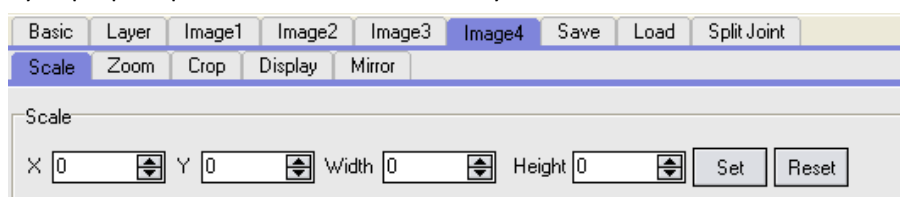


Image 4

Include the following settings.

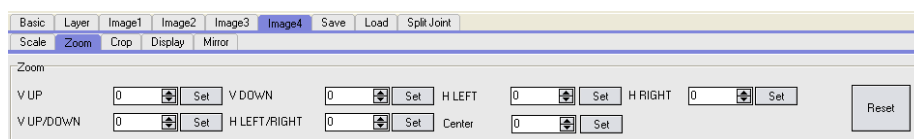
Scale

Scale the image by adjust X, Y, Width and Height. Click “Set” after finish. If image quality distorts by improper operation, it can be recover by reset.



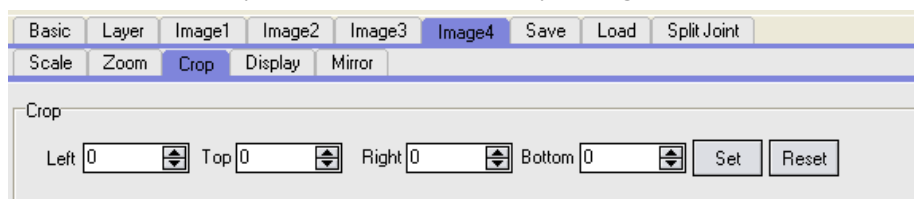
Zoom

Zoom the image. Click “Set” after finish. If image quality distorts by improper operation, it can be recover by reset.



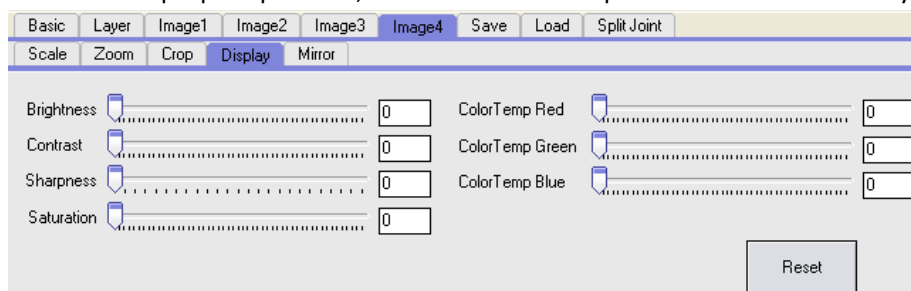
Crop

Crop the image. Click “Set” after finish. If quality image distorts by mistake in improper operation, it can be initialized operation to recover factory setting.



Display

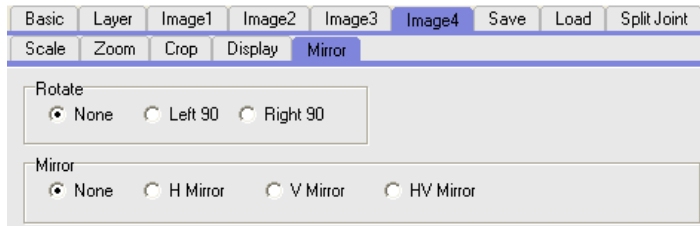
Set the brightness, contrast, sharpness, saturation and color temp. If quality image distorts by mistake in improper operation, it can be initialized operation to recover factory setting.



Mirror

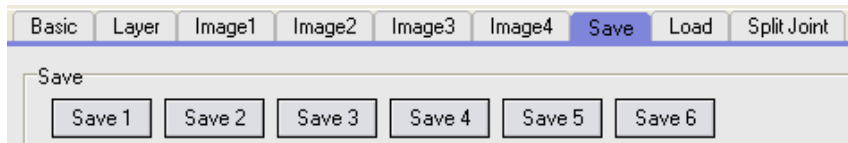
Rotate: User can select None, Left 90 and Right 90.

Mirror: User can select None, H Mirror, V Mirror and HV Mirror.



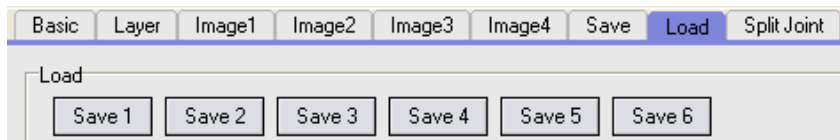
Save

Click the following save button to save the parameters.



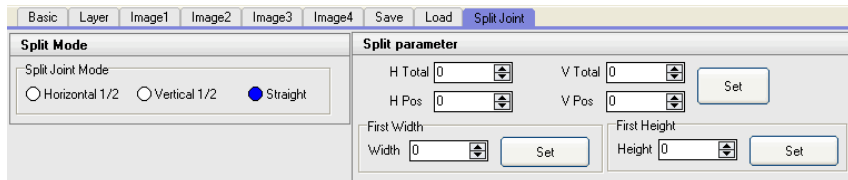
Load

Click the following save button to load the saved parameters.



Split Joint

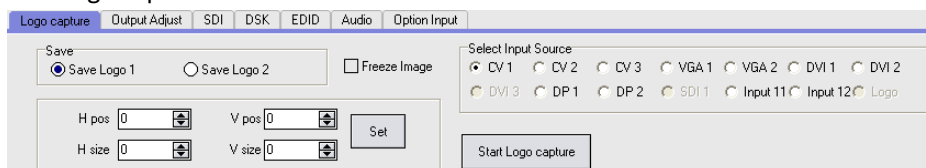
Select the split mode and set the split parameters.



Tools

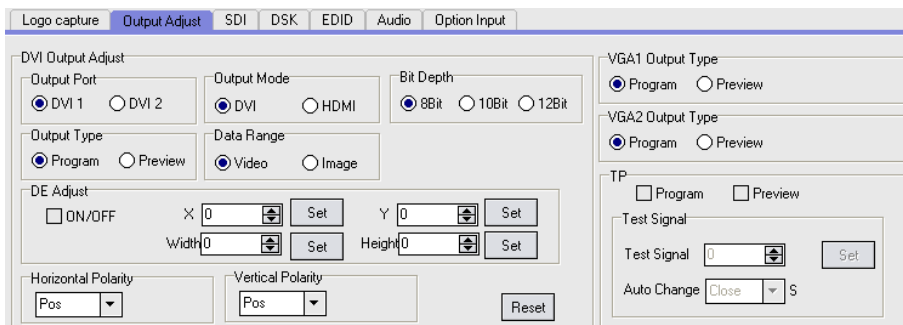
Logo Capture

Select input source and freeze image, set the position and size, and save to Logo 1 or Logo 2, then start logo capture.



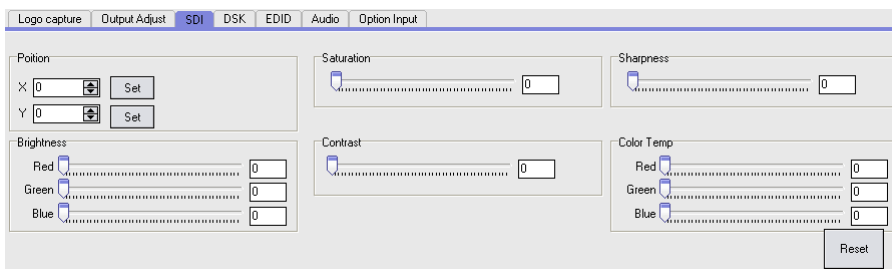
Output Adjust

Select output port, output mode, output type, etc, and set the parameters.



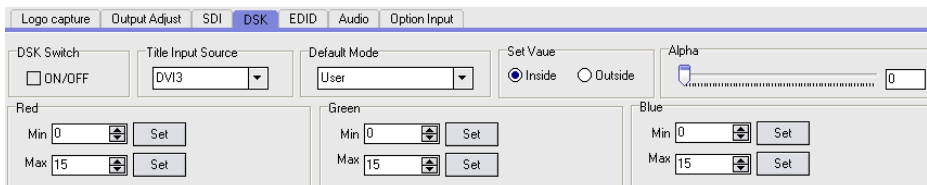
SDI

Set the position, brightness, saturation, contrast, sharpness and color temp of SDI signal.



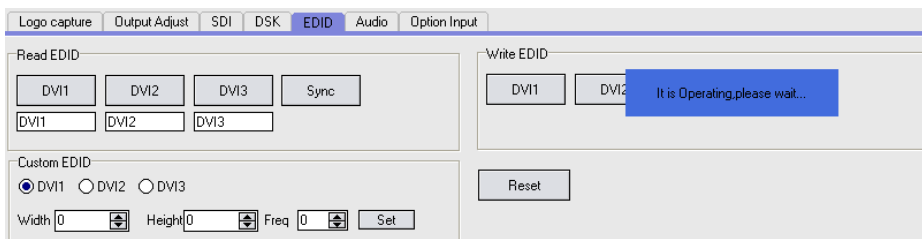
DSK

Enable the DSK switch function, select title input source, default mode and set value, and set the alpha and color.



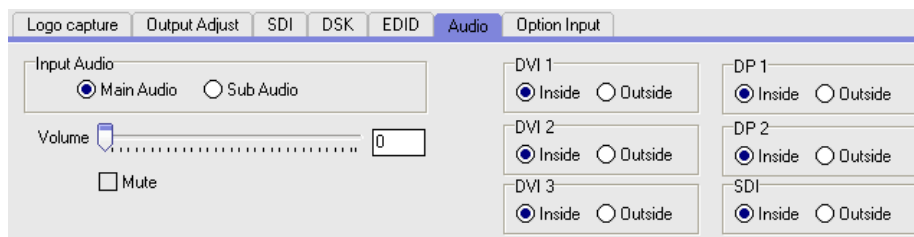
EDID

User can read, write and custom EDID.



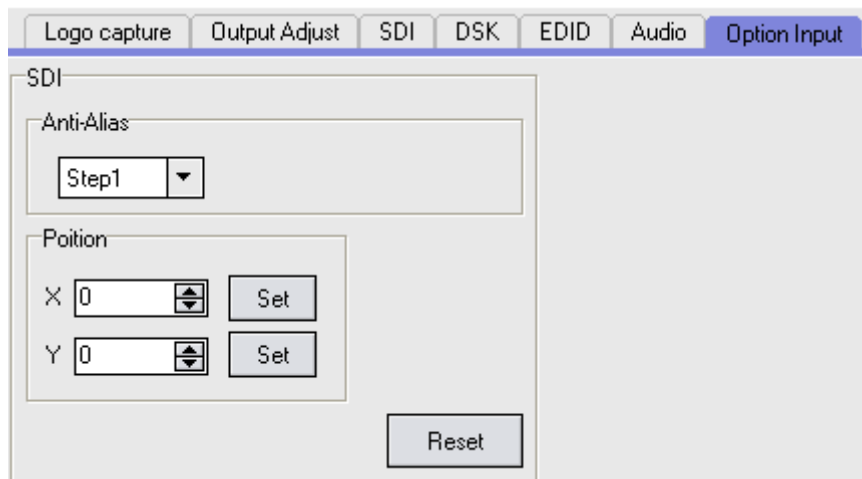
Audio

Choose input audio and set the volume.

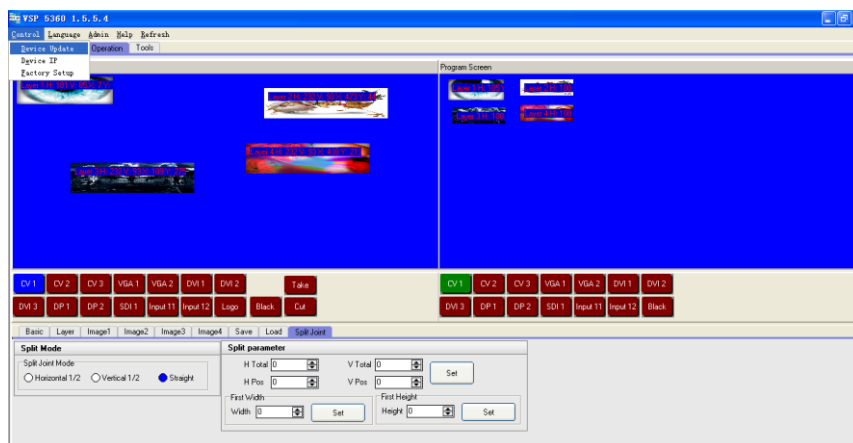


Option Input

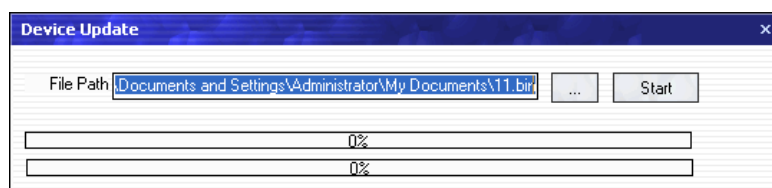
Set the position of the option input, anti-alias processing is available for SDI signal.



Control

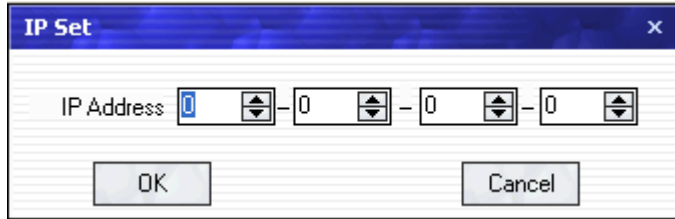


Device Update



Device IP

Users can set equipment IP, usually used when one computer control many devices or remote control. It takes effect immediately after users change IP through serial port, and when users change IP through network, it takes effect after reopen the software.



Factory Setup

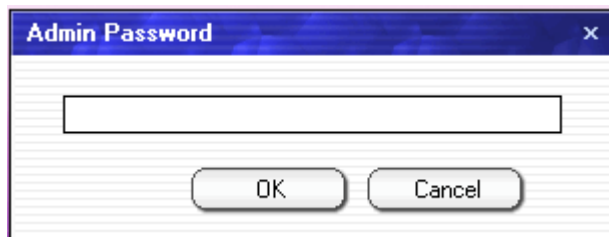
Click “Factory Setup”, previously saved user mode will be cleared.

Language

This software supports both Chinese and English. User can switch the language by “Language” option.

Admin

Advance Debug: User should input the password in the “Admin Password” dialog for advance debug.



Note

Advance is only done by engineer. If need, please connect us for password.

Help

Version Explain: Show the content of software update history.

About: Show software version and company information.



Refresh

Refresh the current page.

Information Toolbar

It shows the VSP 5360 software version, core board version, firmware version and the serial number in the bottom of the software interface.

Chapter 5 Ordering Codes

5.1 Product

100-5360-01-0 VSP 5360

5.2 Options

5.2.1 Input Options

190-0628-01-0	Dual CVBS/Composite Input Module 2 × CVBS
190-0628-02-0	Dual USB Input Module 2 × USB
190-0628-03-0	Dual VGA Input Module 2 × VGA
190-0628-04-0	Dual HDMI Input Module 2 × HDMI
190-0628-05-0	Dual DVI Input Module 2 × DVI
190-0628-06-0	Dual SDI Input/Loop Module 2 × BNC for 3G-SDI each with loop
190-0628-07-0	4K Display Port & HDMI Input Module 1 × DP1.2 + DP1.2 LOOP + HDMI1.4

5.2.2 Other Options

200-2048-01-0 CP 2048

5.3 Sender Cards

RCRCPJ00090	Linsn TS801
RCRCPJ00091	Linsn TS802
RCRCPJ00110	Nova MSD300
RCRCPJ00112	Nova MSD600
RCRCFJ00133	Colorlight iT7

Chapter 6 Support

6.1 Questions and Troubleshooting

6.1.1 No Output in LED Display

Frequently Asked Question	No output in LED Display
Troubleshooting	<u>Confirm If There is Any Input Signal</u> Check whether the input signal is normal, if normal, check the front-end signal lines, and please note to do dual display or extended in computer . User can enter other format signals to view in the same operation.
	<u>Confirm If Signal Output</u> Find a belt VGA input (best for DVI) display, connect to the corresponding output port of processor, and check whether the signal is correct on the monitor. If not display properly, please check whether there is input signal, or if input wire interface is taken tight, output wire interface is picked up tightly. If display normally, check if sending card is normally working or need to replace sending card test.

6.1.2 Flash Point in LED Display Output

Frequently Asked Question	Flash point in LED display output
Troubleshooting	<u>Confirm If Monitor Output is Normal</u> Find a belt VGA input (best for DVI) display, connect to the corresponding output port of processor, and check whether the signal is correct on the monitor. If display normally shows and no flash point, please check whether DVI outlets put tight or replace to DVI line of sending card. If display flashes point, please judge if input signal, wire, and interface are normal.

6.1.3 LED Display Only Displays part of the Image

Frequently Asked Question	LED Display only displays part of the image
Troubleshooting	<u>Scale the Image</u> Push [Scale/Position] button in the processor and knob to adjust the actual screen size of the screen, including “H Size”, “V Size”, “H Pos”, “V Pos” and

	“Reset”. Push the knob to confirm.
--	------------------------------------

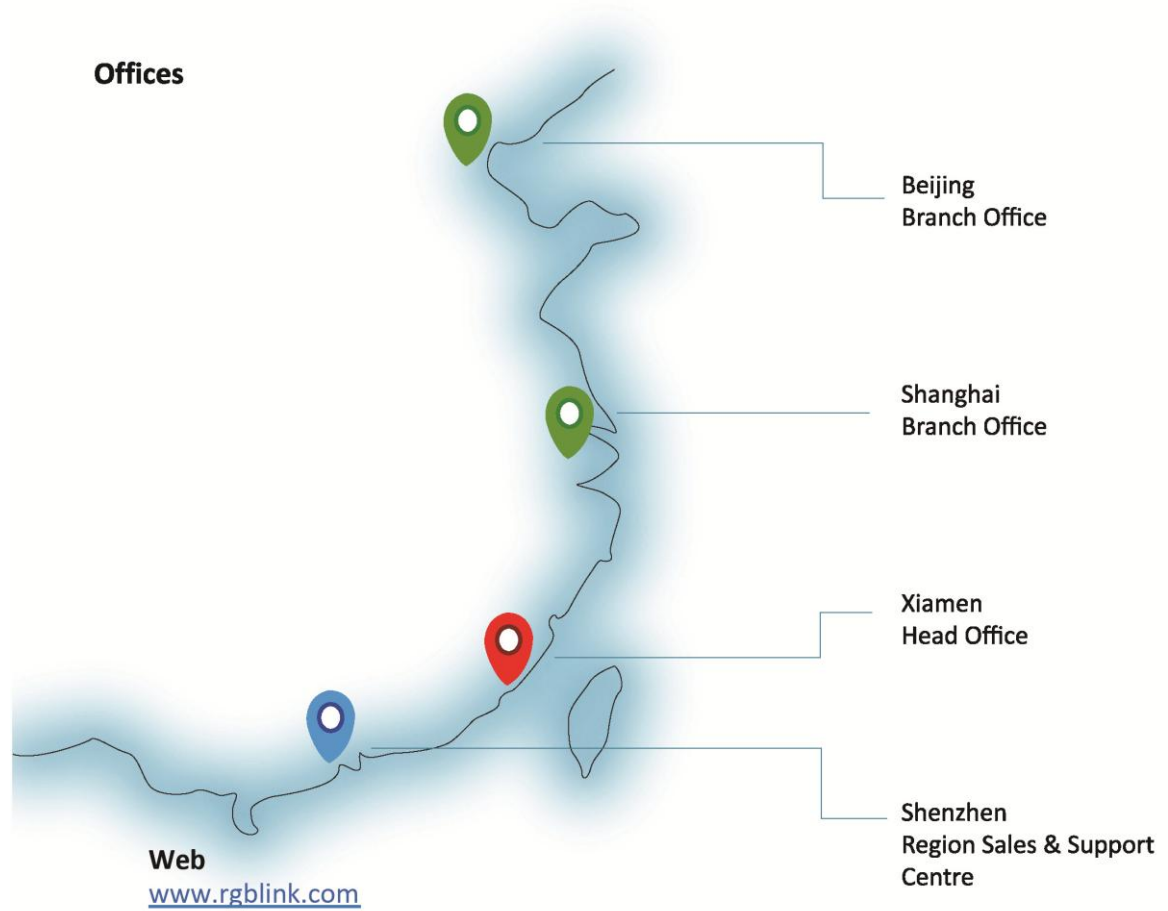
6.1.4 No Display in the Second Half of LED Display

Frequently Asked Question	No Display in the second half part of LED display
Troubleshooting	<p><u>Resolution is Insufficient</u></p> <p>Please make sure the points of the screen width and height, choose the resolution to be bigger than screen width via push the [MENU] button to find <OUTPUT FORMAT>, and push the knob to confirm.</p>

6.1.5 All Key Lights are on Simultaneously

Frequently Asked Question	All Key lights are on simultaneously
Troubleshooting	<p><u>Check If Dial Switch is Normal</u></p> <p>Shut the power, check if two red dial switches near CV are upward. Reboot if they face down, and reboot. The function of the red dial switched is mainly upgraded.</p>

6.2 Contact Us



Web
www.rgblink.com

Phone
+86-592-577-1197

Email
Sales sales@rgblink.com
Support support@rgblink.com

Social Media



@RGLINK



/rgblink



+rgblink



/rgblink



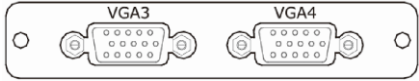

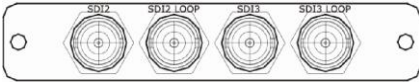
rgblink




Chapter 7 Appendix

7.1 Specification

BNC Input	
Number of Inputs	3
Supported Standards	PAL/NTSC
Signal Level	1Vpp±3db (0.7V Video+0.3v Sync) 75 ohm
Multiplex	480i,576i
VGA DB15 Input	
Number of Inputs	2
Connector	Standard DB15 Socket
Supported Standard	VGA-UXGA
Signal Level	R、G、B、Hsync、Vsync:0 to1Vpp±3dB (0.7V Video+0.3v Sync) 75 ohm black level: 300mV Sync-tip: 0V
Supported Resolution	VGA-UXGA (800×600@60 1024×768@60 1280×1024@60 1440×900@60 1600×1200@60)
DVI Input	
Number of Outputs	3
Connector	Standard DVI-I socket
Supported Resolution	SMPTE: 625/25/50 PAL 525/29.97/59.94 NTSC, 1080P50/59.94/60 1080i50/59.94/60 720p50/59.94/60 VESA: 800×600@60 1024×768@60 1280×768@60 1280×1024@60 1600×1200@60 1920×1080@60
Signal Level	TMDS pwl, single pixel input,165MHz bandwidth
Format Standard	HDMI 1.3
DP (Displayport) Input	
Number of Inputs	2
Connector	Standard
Supported Resolution	Support resolution: WQXGA + (1920 x 1200), and color depth: 30/36 bit (each primary 10/12 bit)
Supported Bandwidth	10.8Gb/s
Format Standard	DP1.1
3G-SDI Input	
Number of Inputs	1
Connector	BNC
Data Rate	2.97Gb/s, 2.97/1.001Gb/s, 1.485Gb/s, 1.485/1.001Gb/s and 270Mb/s
Supported Standard	SMPTE 425M (Level A and Level B), SMPTE424M, SMPTE 292M, SMPTE 259M-C and DVB-ASI

Balance	Belden 1694A cable: 150m at 2.97Gb/s 250m at 1.485Gb/s 480m at 270Mb/s
SDI Loop Out	
Number of Inputs	1
Connector	BNC
Data Rate	2.97Gb/s, 2.97/1.001Gb/s, 1.485Gb/s, 1.485/1.001Gb/s and 270Mb/s
Supported Standard	SMPTE 425M (Level A and Level B), SMPTE424M, SMPTE 292M, SMPTE 259M-C and DVB-ASI
Balance	Belden 1694A cable: 150m at 2.97Gb/s 250m at 1.485Gb/s 480m at 270Mb/s
DVI Output	
Number of Outputs	2
Connector	Standard DVI-I Socket
Signal Level	TMDS pw, 165MHz bandwidth
Supported Resolution	SMPTE: 625/25/50 PAL 525/29.97/59.94 NTSC, 1080P50/59.94/60 1080i50/59.94/60 720p50/59.94/60, 1280×720×23.98 1280×720×24 1280×720@25 1280×720@29.97 1280×720@30 1920×1080@23.98 1920×1080@24 1920×1080@25 1920×1080@29.97 1920×1080@30. VESA: 800×600@60 1024×768@60 1024×768@75 1024×768@85 1280×720@60 1280×768@60 1280×800@60 1280×1024@60 1360×768@60 1366×768@60 1400×1050@60 1440×900@60 1600×1200@60 1680×1050@60 1920×1080@60 1920×1200@60 2048×1152@60 2560×816@60
VGA Output	
Number of Outputs	2
Connector	Standard DB15 Socket
Supported Resolution	VESA: 800×600@60 1024×768@60 1024×768@75 1024×768@85 1280×720@60 1280×768@60 1280×800@60 1280×1024@60 1360×768@60 1366×768@60 1400×1050@60 1440×900@60 1600×1200@60 1680×1050@60 1920×1080@60 1920×1200@60 2048×1152@60 2560×816@60

Signal Level	R、G、B、Hsync、Vsync:0 to1Vpp±3dB (0.7V Video+0.3v Sync) 75 ohm black level: 300mV Sync-tip: 0V
VGA Input (Optional Module)	
Interface Appearance	
Board Size	93.8(L)×17(W) (mm)
Number of Inputs	2
Connector	Standard DB15 Socket
Supported Standard	VGA-UXGA
Signal Level	R、G、B、Hsync、Vsync:0 to1Vpp±3dB (0.7V Video+0.3v Sync) 75 ohm black level: 300mV Sync-tip: 0V
Supported Resolution	VGA-UXGA (800×600@60 1024×768@60 1280×1024@60 1440×900@60 1600×1200@60)
DVI Input (Optional Module)	
Interface Appearance	
Board Size	93.8(L)×17(W) (mm)
Number of Outputs	2
Connector	Standard DVI-I socket
Supported Resolution	SMPTE: 625/25/50 PAL 525/29.97/59.94 NTSC, 1080P50/59.94/60 1080i50/59.94/60 720p50/59.94/60 VESA: 800×600@60 1024×768@60 1280×768@60 1280×1024@60 1600×1200@60 1920×1080@60
Signal Level	TMDS pwl, single pixel input,165MHz bandwidth
Format Standard	HDMI 1.3
SDI Input (Optional Module)	
Interface Appearance	
Board Size	93.8(L)×17(W) (mm)
SDI Input	
Number of Inputs	2
Connector	BNC
Supported Standard	ITU-R BT.656,ITU-R BT.601,SMPTE 259M, SMPTE 292, SMPTE 297
Balance	Belden 1694A 100m self-adaptive 3G,200m self-adaptive 1.485G,350m self-adaptive 270Mbps
SDI Loop Out	
Number of Inputs	2
Connector	BNC

Signal Level	800mV±10%
Supported Standard	SMPTE: 625/25 PAL 525/29.97 NTSC 625/50p PAL 525/59.94p NTSC 720p50 720p59.94/60 1080i50 1080i59.94/60 1080p50/59.94/60
Balance	Belden 1694A 100m self-adaptive 3G,200m self-adaptive 1.485G,350m self-adaptive 270Mbps
USB Input (Optional Module)	
Interface Appearance	
Board Size	93.8(L)×17(W) (mm)
Number of Inputs	2
Connector	Standard USB port
Supported Standard	Support general Image and video formats
HDMI Input (Optional Module)	
Interface Appearance	
Board Size	93.8(L)×17(W) (mm)
Number of Inputs	2
Connector	HDMI standard type A interface
Supported Resolution	SMPTE: 625/25/50 PAL 525/29.97/59.94 NTSC 1080P50/59.94/60 1080i50/59.94/60 720p50/59.94/60 VESA: 800×600@60 1024×768@60 1280×768@60 1280×1024@60 1600×1200@60 1920×1080@60
Embedded Audio Channels	Select one from the two inputs
Format Standard	HDMI 1.3
4K DP&HDM Input (Optional Module)	
Interface Appearance	
Board Size	93.8(L)×17(W) (mm)
DP Input	
Number of Inputs	1
Connector	DisplayPort
Supported Resolution	VESA: 3840×2160×24 3840×2160×25 3840×2160×30 SMPTE: 625/25/50 PAL, 525/29.97/59.94 NTSC, 1080P50/59.94/60 1080i50/59.94/60, 720p50/59.94/60
Supported Bandwidth	21.6Gb/s
Format Standard	DP 1.2
DP Loop Out	

Number of Loop Out	1
Connector	DisplayPort
Supported Resolution	VESA: 3840×2160×24 3840×2160×25 3840×2160×30 SMPTE: 625/25/50 PAL, 525/29.97/59.94 NTSC, 1080P50/59.94/60 1080i50/59.94/60, 720p50/59.94/60
Supported Bandwidth	21.6Gb/s
Format Standard	DP 1.2
HDMI Input	
Number of Inputs	1
Connector	HDMI standard type A interface
Supported Resolution	VESA: 3840×2160×24 3840×2160×25 3840×2160×30 SMPTE: 625/25/50 PAL, 525/29.97/59.94 NTSC, 1080P50/59.94/60 1080i50/59.94/60, 720p50/59.94/60
Format Standard	HDMI 1.4
Function	
Input channel configuration	Support each input channel signal programming configuration
Switch	Support any two inputs fade in fade out
Extras	
Communication	RS232 USB UDP/IP
Power Supply	85-264V IEC-3
Working Environment	0°C~45°C
Stored Environment	10% to 90%
Product Warranty	3 years parts and labor warranty

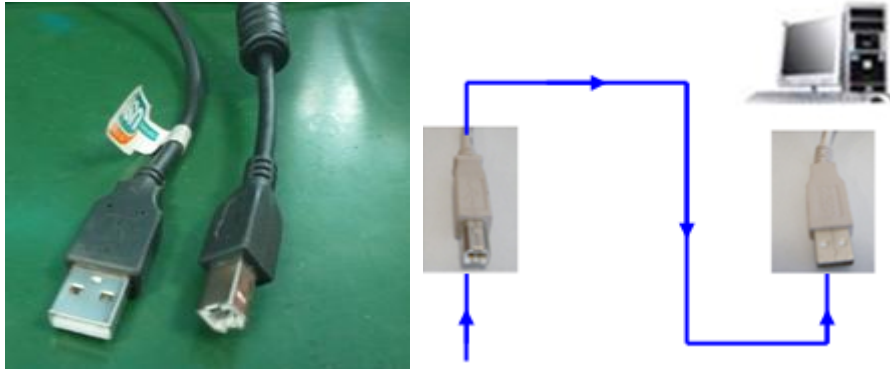
7.2 Software Upgrade

If the version of VSP 5360 is older than V6.2.2R, need to upgrade the MCU repair file VSP5360_V2.51R.MCU first.

Upgrade step (from left to right): Communication firmware core processing firmware.

1. Communication Firmware Upgrade

(1) Connect the device to PC via USB cable.



(2) Power on VSP 5360 and enter to USB upgrade function:

Steps: MENU→SYSTEM→USB UPDATE→SEL.

(3) Open the USB disk which shown in PC, deleted file"firmware.bin", then copy the file VSP5360_V2.51R.MCU to USB disk.

(4) Restart the device after being upgraded, enter the Menu to check the version and factory reset.

Step: MENU→SYSTEM→SYSTEM INFO→CONT VER.

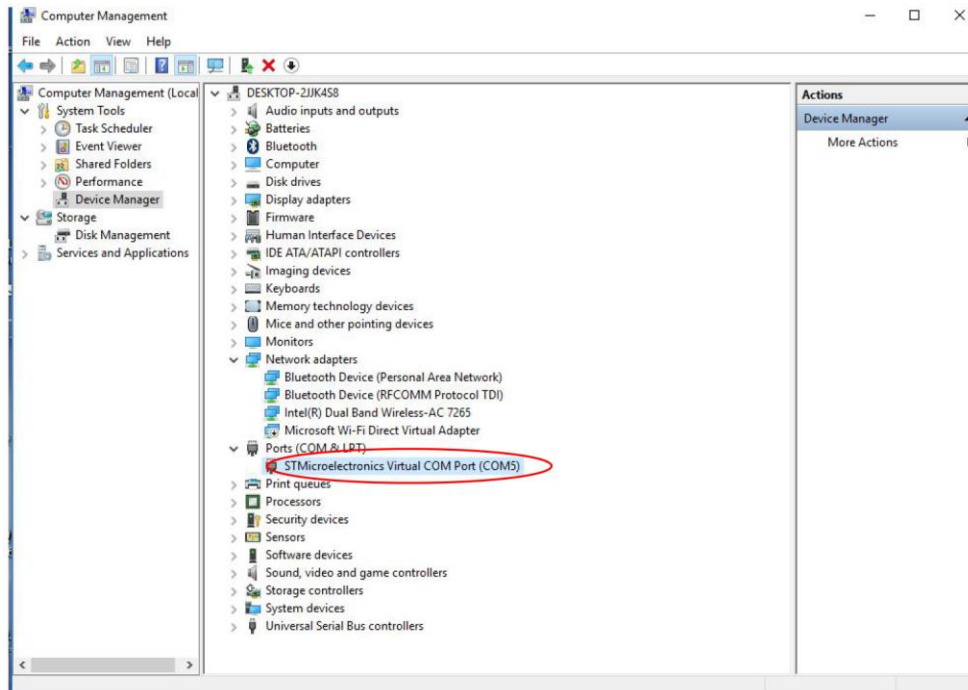
2. Core processing Firmware Upgrade


(1) Connect VSP 5360 to PC via USB/RS232 cable. (File format: ".bin")

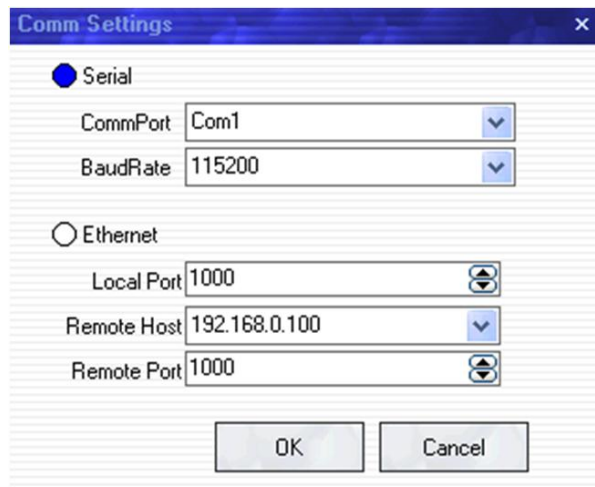


Click to open the software (software will be included in the upgrade file.)

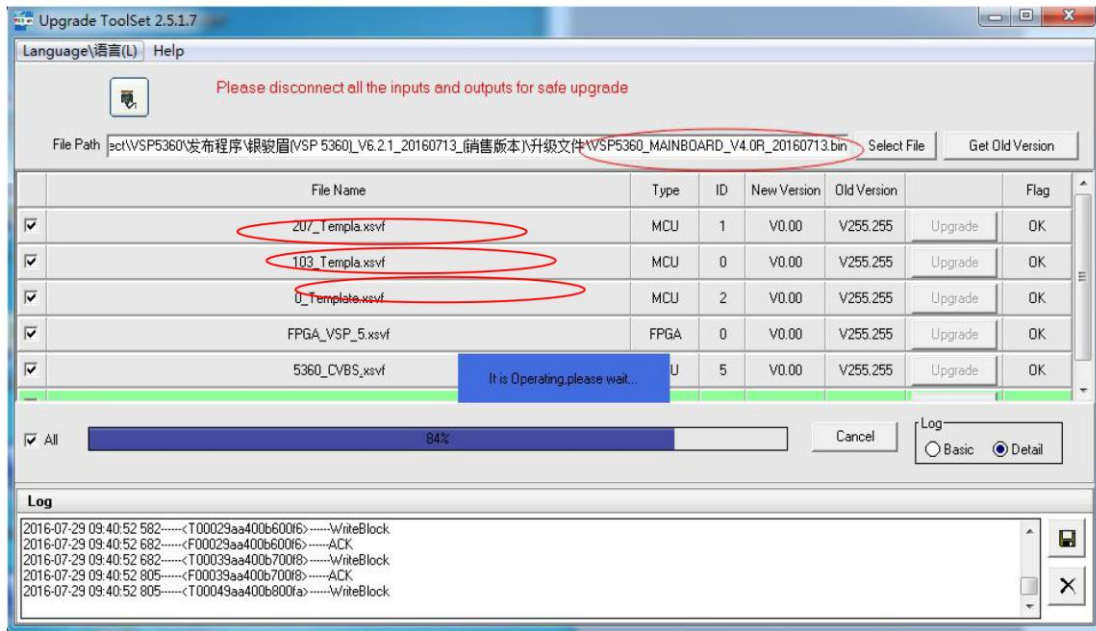
(2) Before starting to upgrade, check if computer can recognize the serial port or not, (If not, please refer to the upgrade manual in upgrade tool kit shown as below). If the series port is recognized, move to next step.



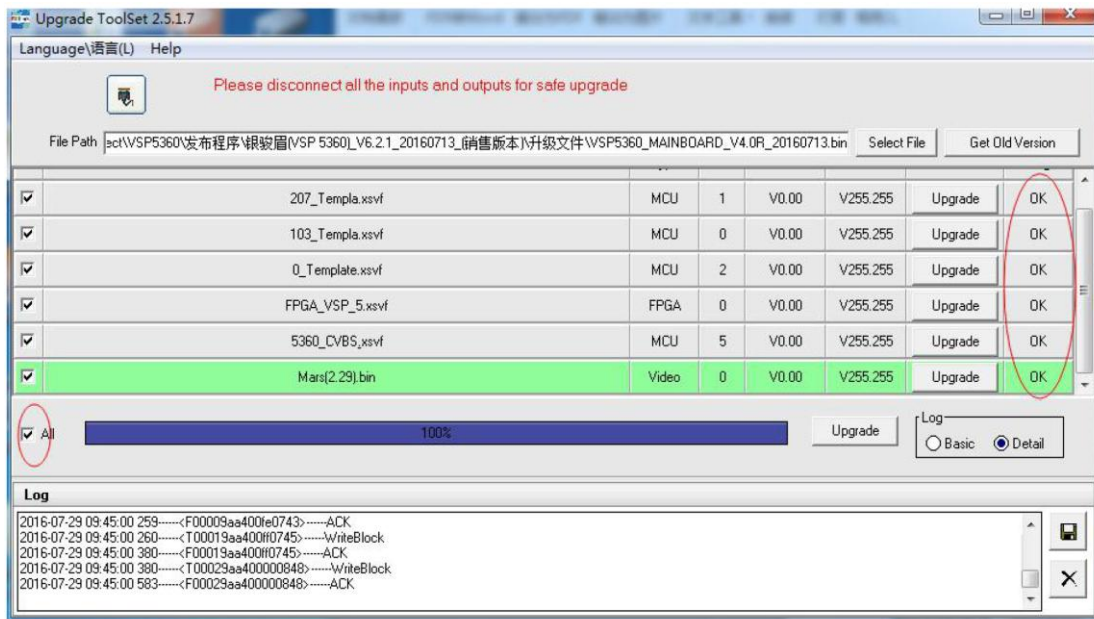
(3) Click  to configure the parameter like below:



(4) Select upgrade file as shown below, choose "ALL" and click "Upgrade", like below:



(5) If all the upgrade firmwares show OK like below ,the upgrade is succeed.



(6) If some of upgrade firmwares failed, click and re-upgrade the failed files accordingly as shown below:

File Name	Type	ID	New Version	Old Version	Upgrade	Flag
207_Templa.xsvf	MCU	1	V0.00	V255.255	Upgrade	Fail

(7) Power on VSP 5360 to view the version, step: MENU→SYSTEM→SYSTEM INFO→CONT VER.

3. Version amendment description

Date	Version	Amended Content
20160819	V6.2.2R	1. Add 3 pictures Preview controlled by CP 2048. 2. Change some Bugs.

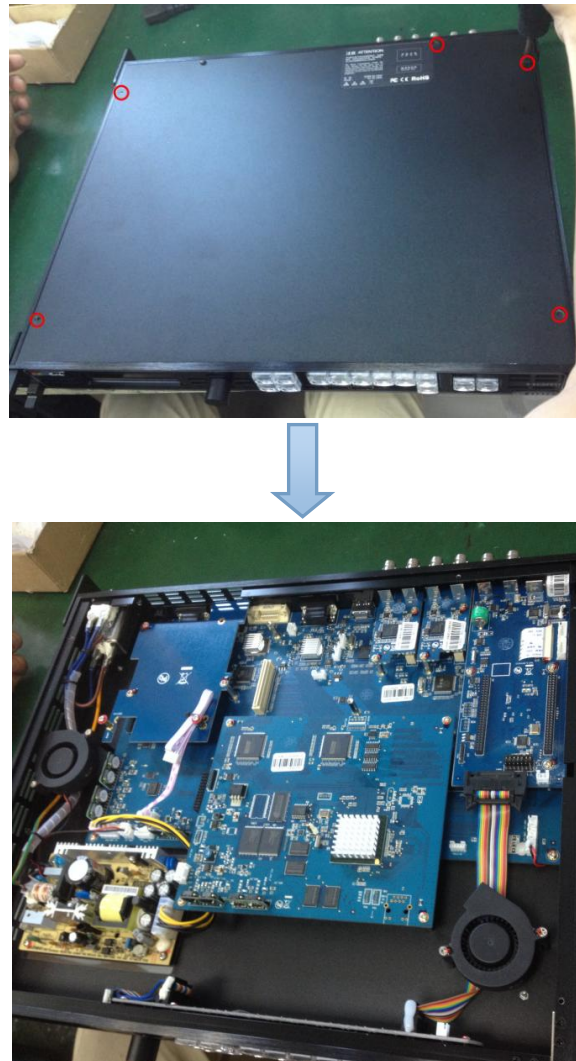
20160713	V6.2.1R	<ol style="list-style-type: none"> 1. Add three pictures Preview feature. 2. Open two screen under the splicing model. 3. Add 4 working models in the Menu.
20150810	V6.2.0	<ol style="list-style-type: none"> 1. Add "Preview" display. 2. Amend vertical mirror and 180 degrees rotation Feature. 3. Amend TP feature. 4. Add "Freeze" feature under "BLACK" key.
20150515	V5.2.0	<ol style="list-style-type: none"> 1. Mapping parameter will be lose under DVI3 input mapping if no signals. 2. Add output matrix feature.
20150211	V5.1.0	<ol style="list-style-type: none"> 1. DVI3 input supports customized resolution. 2. Add CP 2048 control VSP 5360.
20150123	V5.0.1	<ol style="list-style-type: none"> 1. Add fade in fade out feature under "Load" feature. 2. Change some bugs of Logo.

7.3 Installing Options

VSP 5162PRO, VSP 5360 and VSP 628PRO are based on module based structure, user can install or replace the optional module according to actual need. The installation steps of VSP 5162PRO, VSP 5360 and VSP 628PRO are the same. Here we take VSP 628PRO for example, specific steps are as follows:

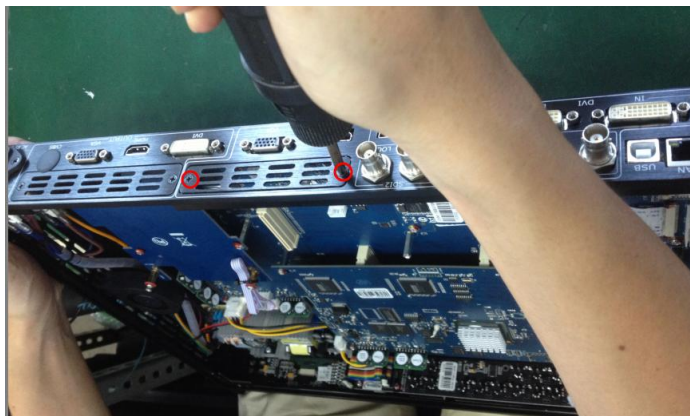
Install the Optional Module

1. Disconnect the power and all the signal and control cables.
2. Unscrew the 5 fixed screws on the top panel and remove the top panel (Figure 1):



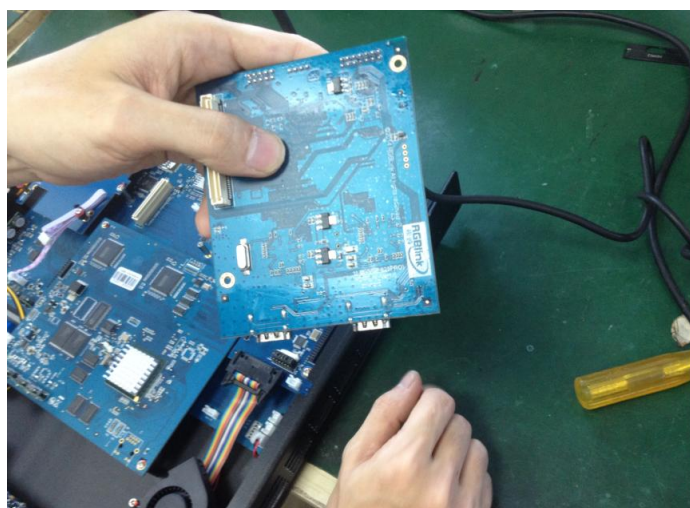
(Figure 1)

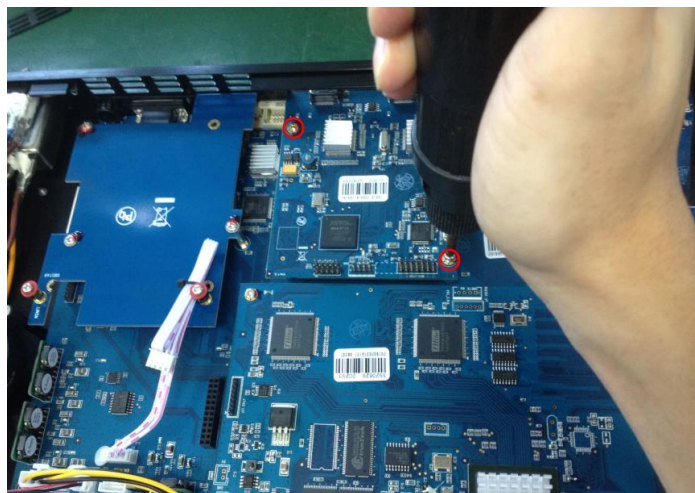
3. Unscrew the 2 fixed screws on input optional module slot, and pull out the input block (Figure 2):



(Figure 2)

4. Push the input module into the input module slot, and fix it with 2 fixed screws (Figure 3):





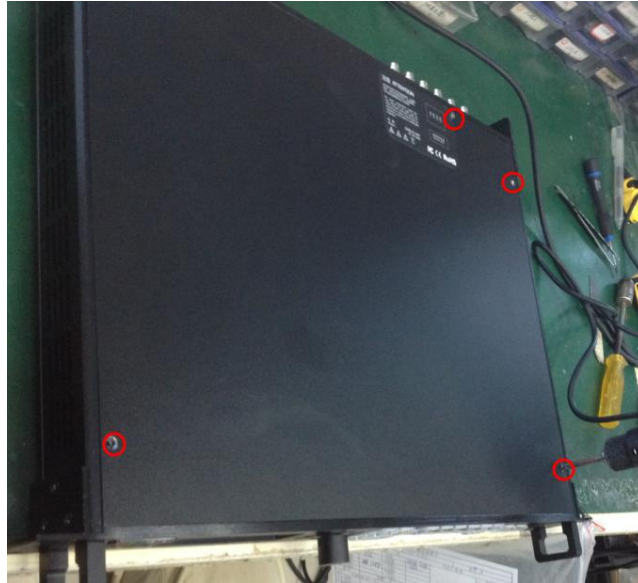
(Figure 3)

5. Embed the input module block in the input module slot, and fix it with 2 fixed screws (Figure 4):



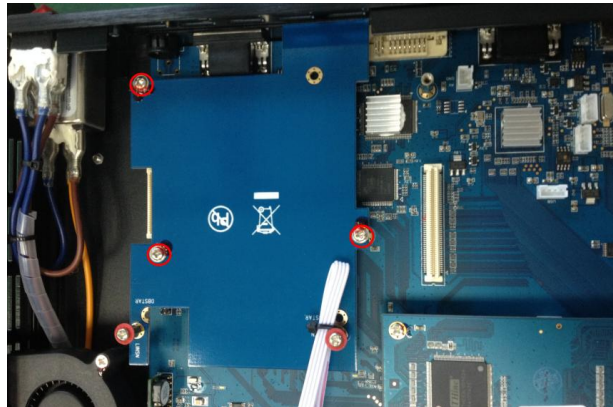
(Figure 4)

6. Assemble the top panel, and fix it with 5 fixed screws that removed in step 2, then optional module installation is finished (Figure 5):



(Figure 5)

Note: Above instructions are only for input optional module. For VSP 628PRO, if user would install the output optional module, first, take apart the top panel, and unscrew the 3 fixed screws on sending card board to remove it (Figure 6).



(Figure 6)

Then unscrew the 2 fixed screws on output optional module, and pull out the output module block (Figure 7).



(Figure 7)

Finally, push the output module into the output module slot, the install steps are the same as step 4 to step 6 in “Install the Optional Module” part.

Note: There is the case that some customers connect the power cord of the sending card to the F optional module, shown as Figure 8. This is not allowed to happen, or the F optional module will be damaged.

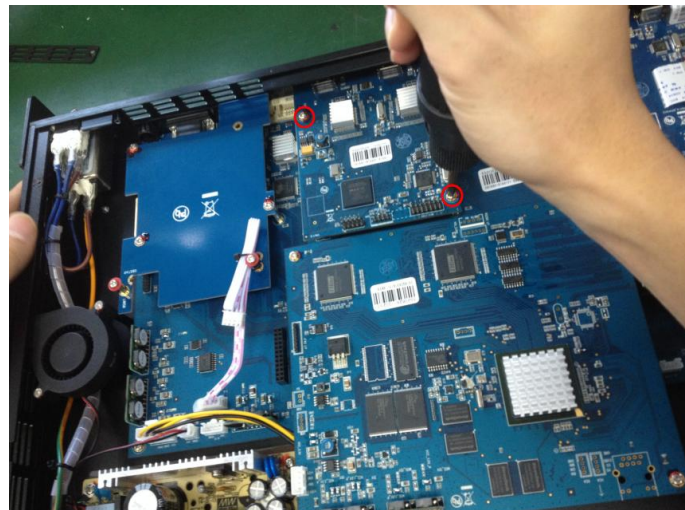


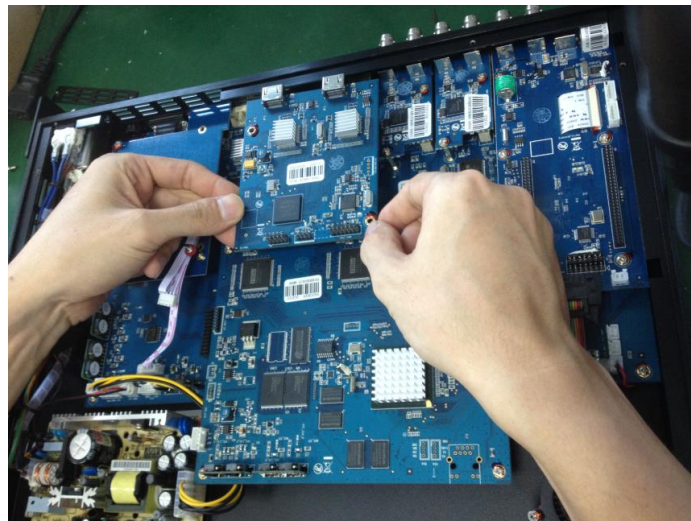
(Figure 8)

Replace the Optional Module

The install steps for optional module replacement are the same as above, but the following need to note:

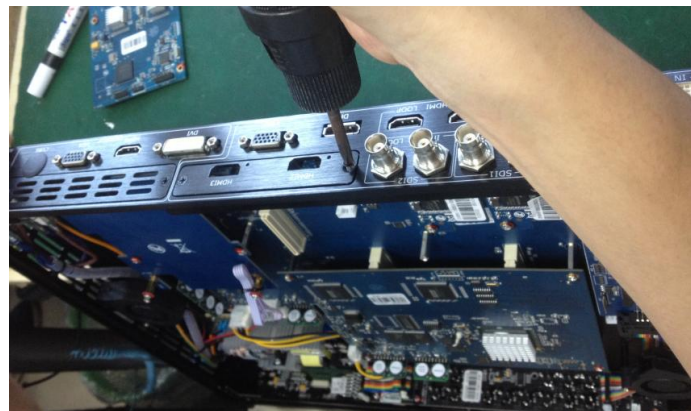
1. Take apart the top panel, and unscrew the 2 fixed screws on input optional module to remove it (Figure 9).





(Figure 9)

2. Unscrew the 2 fixed screws on input optional module, and pull out the input module block (Figure 10).



(Figure 10)

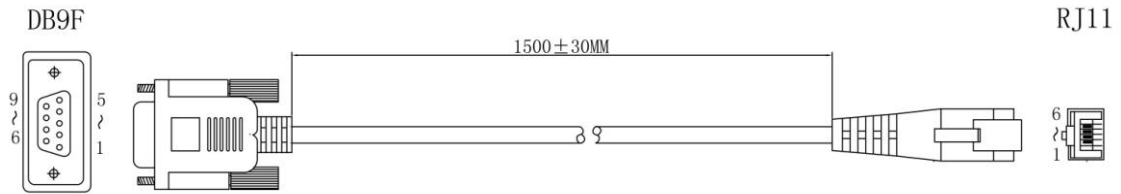
3. Push the input module into the input module slot, the install steps are the same as step 4 to step 6 in “**Install the Optional Module**” part.

Note: The install steps for output optional module replacement are the same as above.

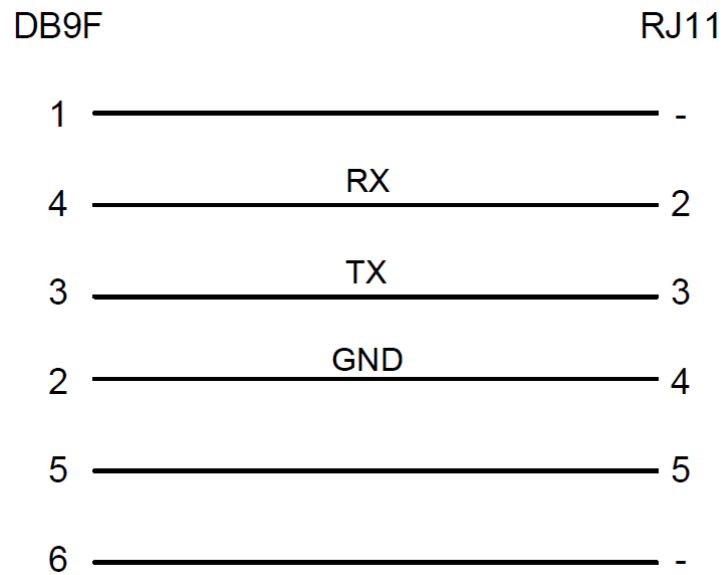
7.4 Using the Serial Cable

Serial cable is used with selected RGBlink products to access remote commands via a serial interface.

Following is the picture of the serial cable -- RJ11/DB9.



And connections are shown as follows:



7.5 Terms & Definitions

The following terms and definitions are used throughout this guide.

- **“ASCII”**: American Standard for Information Interchange. The standard code consisting of 7-bit coded characters (8 bits including parity check) used to exchange information between data processing systems, data communication systems, and associated equipment. The ASCII set contains control characters and graphic characters.
- **“Aspect ratio”**: The relationship of the horizontal dimension to the vertical dimension of an image. In viewing screens, standard TV is 4:3, or 1.33:1; HDTV is 16:9, or 1.78:1. Sometimes the “:1” is implicit, making TV = 1.33 and HDTV = 1.78.
- **“AV”**: Audio visual, or audio video.
- A **“Background”** is an unscaled source, typically originating from a computer. A background source appears at the system’s lowest priority — visually in back of all other sources.
- **“Baudrate”**: Named of J.M.E. Baudot, the inventor of the Baudot telegraph code. The number of the electrical oscillations per second, called baud rate. Related to, but not the same as, transfer rate in bits per second (bps).
- **“Blackburst”**: The video waveform without the video elements. It includes the vertical sync, horizontal sync, and the chroma burst information. Blackburst is used to synchronize video equipment to align the video output. One signal is normally used to set up an entire video system or facility. Sometimes it is called House sync.
- **“BNC”**: Bayonet Neill-Concelman. A cable connector used extensively in television and named for its inventors. A cylindrical bayonet connector that operates with a twist-locking motion. To make the connection, align the two curved grooves in the collar of the male connector with the two projections on the outside of the female collar, push, and twist. This allows the connector to lock into place without tools.
- **“Brightness”**: Usually refers to the amount or intensity of video light produced on a screen without regard to color. Sometimes called “black level.
- **“CAT 5”**: Category 5. Describes the network cabling standard that consists of four unshielded twisted pairs of copper wire terminated by RJ-45 connectors. CAT 5 cabling supports data rates up to 100 Mbps. CAT 5 is based on the EIA/TIA 568 Commercial Building Telecommunications Wiring Standard.
- **“Color bars”**: A standard test pattern of several basic colors (white, yellow, cyan, green, magenta, red, blue, and black) as a reference for system alignment and testing. In NTSC video, the most commonly used color bars are the SMPTE standard color bars. In PAL video, the most commonly used color bars are eight full field bars. In the computer, the most commonly used color bars are two rows of reversed color bars.
- **“Color burst”**: In color TV systems, a burst of subcarrier frequency located on the back porch of the composite video signal. This serves as a color synchronizing signal to establish a frequency and phase reference for the chroma signal. Color burst is 3.58 MHz for NTSC and 4.43 MHz for PAL.
- **“Color temperature”**: The color quality, expressed in degrees Kelvin(K), of a light source. The higher the color temperature, the bluer the light. The lower the temperature, the

redder the light. Benchmark color temperature for the A/V industry include 5000°K, 6500°K, and 9000°K.

- **“Contrast ratio”**: The ratio of the high light output level divided by the low light output level. In theory, the contrast ratio of the television system should be at least 100:1, if not 300:1. In reality, there are several limitations. In the CRT, light from adjacent elements contaminate the area of each element. Room ambient light will contaminate the light emitted from the CRT. Well-controlled viewing conditions should yield a practical contrast ratio of 30:1 to 50:1.
- **“DVI”**: Digital Visual Interface. The digital video connectivity standard that was developed by DDWG (Digital Display Work Group). This connection standard offers two different connectors: one with 24 pins that handles digital video signals only, and one with 29 pins that handles both digital and analog video.
- **“EDID”**: Extended Display Identification Data – EDID is a data structure used to communicate video display information, including native resolution and vertical interval refresh rate requirements, to a source device. The source device will then output the optimal video format for the display based on the provided EDID data, ensuring proper video image quality. This communication takes place over the DDC – Display Data Channel.
- **“Ethernet”**: A Local Area Network (LAN) standard officially known as IEEE 802.3. Ethernet and other LAN technologies are used for interconnecting computers, printers, workstations, terminals, servers, etc. within the same building or campus. Ethernet operates over twisted pair and over coaxial cable at speeds starting at 10Mbps. For LAN interconnectivity, Ethernet is physical link and data link protocol reflecting the two lowest layers of the OSI Reference Model.
- **“Frame”**: In interlaced video, a frame is one complete picture. A video frame is made up of two fields, or two sets of interlaced lines. In a film, a frame is one still picture of a series that makes up a motion picture.
- **“Gamma”**: The light output of a CRT is not linear with respect to the voltage input. The difference between what you should have and what is actually output is known as gamma.
- **“HDMI” - High – Definition Multimedia Interface**: An interface used primarily in consumer electronics for the transmission of uncompressed high definition video, up to 8 channels of audio, and control signals, over a single cable. HDMI is the de facto standard for HDTV displays, Blu-ray Disc players, and other HDTV electronics. Introduced in 2003, the HDMI specification has gone through several revisions.
- **“HDSDI”**: The high-definition version of SDI specified in SMPTE-292M. This signal standard transmits audio and video with 10 bit depth and 4:2:2 color quantization over a single coaxial cable with a data rate of 1.485 Gbit/second. Multiple video resolutions exists including progressive 1280x720 and interlaced 1920x1080 resolution. Up to 32 audio signals are carried in the ancillary data.
- **“JPEG” (Joint photographic Expects Group)**: Commonly used method of lossy compression for photographic images using a discreet cosine transfer function. The degree of compression can be adjusted, allowing a selectable tradeoff between storage size and image quality. JPEG typically achieves 10:1 compression with little perceptible loss in image quality. Produces blocking artifacts.
- **“MPEG”**: Motion Picture Expects Group. A standard committee under the auspices of the

International Standards Organization working on algorithm standards that allow digital compression, storage and transmission of moving image information such as motion video, CD-quality audio, and control data at CD-ROM bandwidth. The MPEG algorithm provides inter-frame compression of video images and can have an effective compression rate of 100:1 to 200:1.

- **“NTSC”**: The color video standard used in North America and some other parts of the world created by the National Television Standards Committee in the 1950s. A color signal must be compatible with black-and-white TV sets. NTSC utilizes an interlaced video signals, 525 lines of resolution with a refresh rate of 60 fields per second (60 Hz). Each frame is comprised of two fields of 262.5 lines each, running at an effective rate of 30 frames per second.
- **“Operator”**: Refers to the person who uses the system.
- **“PAL”**: Phase Alternate Line. A television standard in which the phase of the color carrier is alternated from line to line. It takes four full pictures (8 fields) for the color-to-horizontal phase relationship to return to the reference point. This alternation helps cancel out phase errors. For this reason, the hue control is not needed on a PAL TV set. PAL, in many transmission forms, is widely used in Western Europe, Australia, Africa, the Middle East, and Micronesia. PAL uses 625-line, 50-field (25 fps) composite color transmission system.
- **“PIP”**: Picture-in-Picture. A small picture within a larger picture created by scaling down one of the images to make it smaller. Each picture requires a separate video source such as a camera, VCR, or computer. Other forms of PIP displays include Picture-by-Picture (PBP) and Picture-with-Picture (PWP), which are commonly used with 16:9 aspect display devices. PBP and PWP image formats require a separate scaler for each video window.
- **“Polarity”**: The positive and negative orientation of a signal. Polarity usually refers to the direction or a level with respect to a reference (e.g. positive sync polarity means that sync occurs when the signal is going in the positive direction).
- **“RJ-45”**: Registered Jack-45. A connector similar to a telephone connector that holds up to eight wires, used for connecting Ethernet devices.
- **“RS-232”**: An Electronic Industries Association (EIA) serial digital interface standard specifying the characteristics of the communication path between two devices using either DB-9 or DB-25 connectors. This standard is used for relatively short-range communication and does not specify balanced control lines. RS-232 is a serial control standard with a set number of conductors, data rate, word length, and type of connector to be used. The standard specifies component connection standards with regard to the computer interface. It is also called RS-232-C, which is the third version of the RS-232 standard, and is functionally identical to the CCITT V.24 standard.
- **“Saturation”**: Chroma, chroma gain. The intensity of the color, or the extent to which a given color in any image is free from white. The less white in a color, the truer the color or the greater its saturation. On a display device, the color control adjusts the saturation. Not to be confused with the brightness, saturation is the amount of pigment in a color, and not the intensity. Low saturation is like adding white to the color. For example, a low-saturated red looks pink.
- **“Scaling”**: A conversion of a video or computer graphic signal from a starting resolution to a new resolution. Scaling from one resolution to another is typically done to optimize the

- signal for input to an image processor, transmission path or to improve its quality when presented on a particular display.
- **“SDI”**: Serial Digital Interface. The standard based on a 270 Mbps transfer rate. This is a 10-bit, scrambled, polarity independent interface with common scrambling for both component ITU-R 601 and composite digital video and four channels of (embedded) digital audio.
 - **“Seamless Switching”**: A feature found on many video switchers. This feature causes the switcher to wait until the vertical interval to switch. This avoid a glitch (temporary scrambling) which normally is seen when switching between sources.
 - **“SMPTE”**: Society of Motion Picture and Television Engineers. A global organization, based in the United States, that sets standards for baseband visual communications. This includes film as well as video and television standards.
 - **“S-Video”**: A composite video signal separated into the luma (“Y” is for luma, or black and white information; brightness) and the chroma (“C” is an abbreviation for chroma, or color information).
 - **“Sync”**: Synchronization. In video, sync is a means of controlling the timing of an event with respect to other events. This is accomplished with timing pulses to insure that each step in a process occurs at the correct time. For example, horizontal sync determines exactly when to begin each horizontal scan line. Vertical sync determines when the image is to be refreshed to start a new field or frame. There are many other types of sync in video system.(Also known as “sync signal” or “sync pulse.”)
 - **“TCP/IP”**: Transmission Control Protocol/Internet Protocol. The communication protocol of the Internet. Computers and devices with direct access to the Internet are provided with a copy of the TCP/IP program to allow them to send and receive information in an understandable form.
 - **“USB”**: Universal Serial Bus. USB was developed by seven PC and telecom industry leaders (Compaq, DEC, IBM, Intel, Microsoft, NEC, and Northern Telecom). The goal was easy plug-and-play expansion outside the box, requiring no additional circuit cards. Up to 127 external computer devices may be added through a USB hub, which may be conveniently located in a keyboard or monitor. USB devices can be attached or detached without removing computer power. The number of devices being designed for USB continues to grow, from keyboards, mice, and printers to scanners, digital cameras, and ZIP drives.
 - **“VESA”**: Video Electronics Standards Association. A nonprofit number organization dedicated to facilitating and promoting personal computer graphics through improved standards for the benefit of the end-user. www.vesa.org
 - **“VGA”**: Video Graphics Array. Introduced by IBM in 1987, VGA is an analog signal with TTL level separate horizontal and vertical sync. The video outputs to a 15-pin HD connector and has a horizontal scan frequency of 31.5 kHz and vertical frequency of 70 Hz (Mode 1, 2) and 60 Hz (Mode 3). The signal is non-interlaced in modes 1, 2, and 3 and interlaced when using the 8514/A card (35.5 kHz, 86 Hz) in mode 4. It has a pixel by line resolution of 640×480 with a color palette of 16 bits and 256,000 colors.
 - **“YCrCb”**: Used to describe the color space for interlaced component video.
 - **“YPbPr”**: Used to describe the color space for progressive-scan (non-interlaced) component video.

7.6 Revision History

The table below lists the changes to the Video Processor User Manual.

Format	Time	ECO#	Description	Principal
V1.0	2013-12-17	0000#	Release.	Vira
V1.1	2014-03-07	0001#	1. Update the front panel. 2. Update the menu.	Vira
V1.2	2014-10-28	0002#	1. Update the menu. 2. Add the windows control program.	Vira
V1.3	2015-07-17	0003#	Add "Optional Module Installation and Replacement Instruction"	Vira
V1.4	2015-09-21	0004#	1. Add the HDMI input optional module. 2. Update the menu.	Vira
V1.5	2016-09-09	0005#	1. Update the style and structure of the user manual. 2. Update the back panel. 3. Update the dimension. 4. Update the menu. 5. Add "3 Screen Preview Setting" and "User Define DSK Key". 6. Update "Software Upgrade". 7. Update the specification.	Vira
V1.6	2016-11-01	0006#	1. Add the description of the audio interface. 2. Add "Using the Serial Cable."	Vira