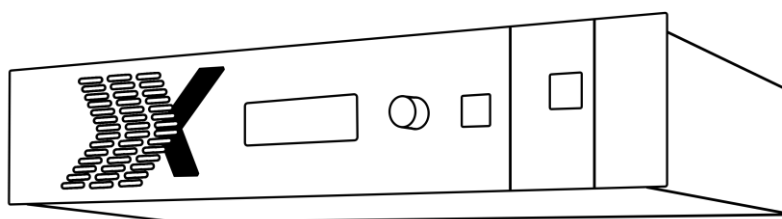


VENUS X2



USER MANUAL

RGBlink

Article No: RGB-RD-UM-VENUS X2 E001
Revision No: V1.0

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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 VENUS X2 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 VENUS X2 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.

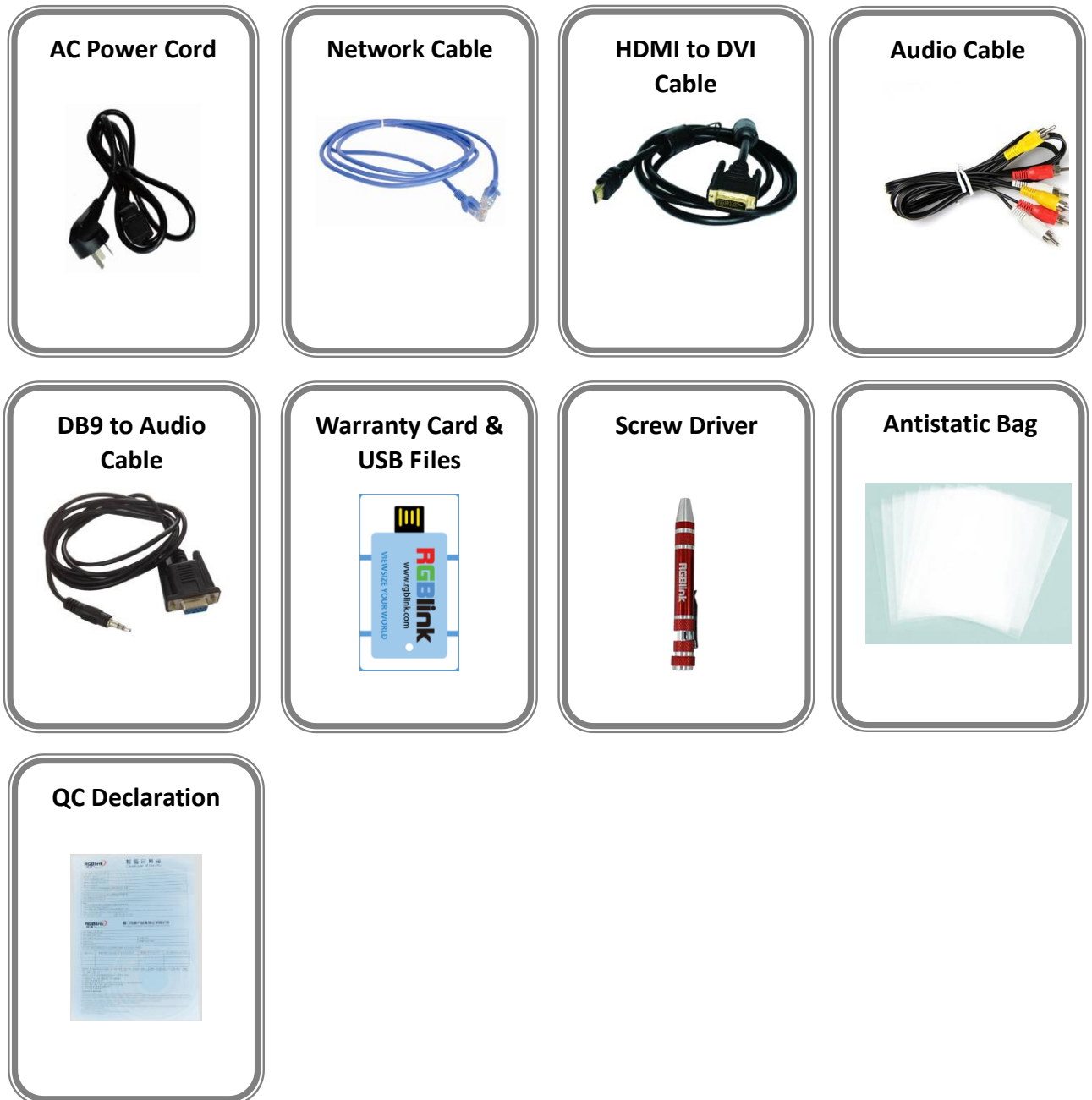
Once you have removed all the components from their packaging and checked that all the listed components are present, visually inspect the system to ensure there was no damage during shipping. If there is damage, notify the shipping carrier immediately for all claims adjustments.

Site Preparation

The environment in which you install your VENUS X2 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.

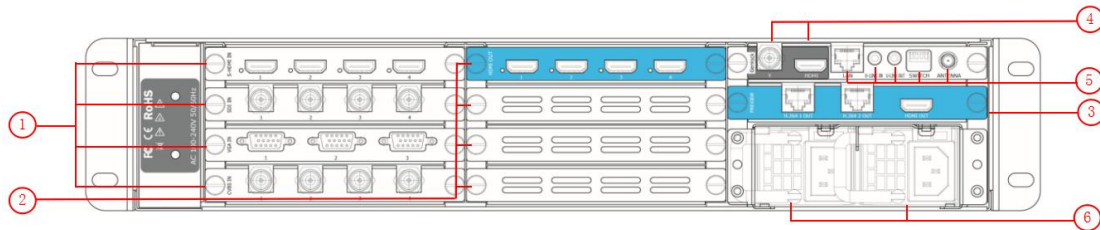
1.2 Product Overview

VENUS X2 is a multiple outputs video processor, it offers nine card cages that accepts a wide variety of video signals, including VGA, CVBS, S-HDMI, SDI, HDMI, H.264, 4K and USB (for media files play). VENUS X2 combines truly seamless, fade in fade out, glitch-free switching with advanced scaling technologies to meet the requirements of high quality, high resolution video presentations.

VENUS X2 supports EDID editing for VGA, HDMI input ports and read EDID for output ports, the EDID can be modified by windows control program, users can edit the EDID of input port according to the resolution of outputs to achieve the optimal input resolution.

VENUS X2 also supports resolution real-time total adaptation, color uniformity compensation technology and 90°, 180° and 270° rotate. In addition, it supports local front panel operation, remote windows based software control by Ethernet, and WIFI control. In addition, VENUS X2 is based on replaceable input optional modules structure, with different modules, you can reach more possibility and application range.

1.2.1 Back Panel



Input Option Slots

1	<p>VENUS X2 provides 4 input option slots, range of inputs are available for user fitting, including S-HDMI, SDI, VGA, CVBS, USB, HDMI, H.264 and 4K.</p> <p><u>HDMI-A – S-HDMI</u></p> <p>Each S-HDMI module supports 4 HDMI-A inputs. Standard signal from computer can input. It supports signal merger and effects processing.</p> <p><u>BNC – 3G-SDI</u></p> <p>Each SDI module supports 4 SDI inputs. Standard 3G-SDI signals can input.</p> <p><u>DB15 – VGA</u></p> <p>Each VGA module supports 3 DB15 inputs. Standard VGA signals can input.</p> <p><u>BNC – CVBS</u></p> <p>Each CVBS module supports 4 BNC inputs. Standard video signal from players, cameras can input.</p> <p><u>USB-A– USB</u></p> <p>Each USB module supports 4 USB-A inputs. Access the USB device or mobile hard disk with USB storage function. Support general image and video formats.</p> <p><u>HDMI-A – HDMI</u></p> <p>Each HDMI module supports 4 HDMI-A inputs. Standard signal from computer can input.</p> <p><u>RJ45 – H.264</u></p> <p>Each H.264 module supports 4 RJ15 inputs. Standard signal from cameras and router can input.</p> <p><u>4K</u></p> <p>Each 4K module supports 1 HDMI input and 1 DP input, each with loop.</p> <p>The HDMI input can input the image signal from computer. The HDMI Loop can connect to the HDMI input of the next VENUS X2 or the device with HDMI input.</p> <p>Standard DisplayPort signals can be input for DP input. The DP Loop can connect to the DP input of the next VENUS X2 or the device with DP input.</p>
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Program Output Option Slots

2	<p>VENUS X2 provides 4 output option slots, range of inputs are available for user fitting, including HDMI and SDI.</p>
---	-------------------------------------------------------------------------------------------------------------------------

	<p><u>HDMI-A – HDMI</u> Connect to the display device, video processor or matrix with HDMI input.</p> <p><u>BNC – 3G-SDI</u> Connect to the next device with SDI input.</p>
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Preview Output Option Slots

3	<p>The preview module supports 2 H.264 output and 1 HDMI output.</p> <p><u>RJ45 – H.264</u> Connect to the next device with RJ45 input.</p> <p><u>HDMI-A – HDMI</u> Connect to the display device, video processor or matrix with HDMI input.</p>
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Genlock Connectors

4	<p>It includes 1 genlock input and 1 HDMI input.</p> <p><u>BNC – Genlock</u> Input signal from the controller or signal generator and other devices.</p> <p><u>HDMI-A – HDMI</u> Input the image signal from computer.</p>
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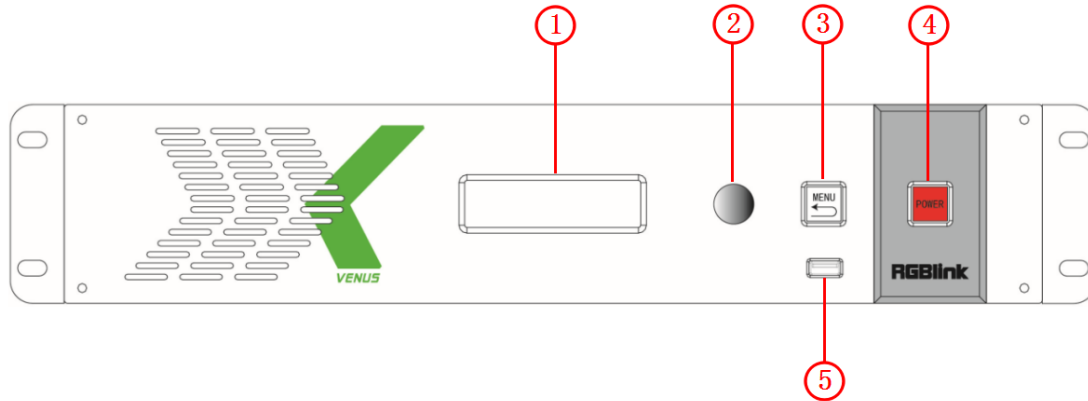
Control Connectors

5	<p>It includes 1 LAN port, 1 U-LINK IN, 1 U-LINK OUT, 1 DIP switch and 1 antenna port.</p> <p><u>RJ45 – Ethernet</u> Connect to Ethernet work for remote control by windows software.</p> <p><u>U-LINK IN</u> Connect to the U-LINK output of the next VENUS X2, adopt 3.5mm analog audio interface, for multiple cascade.</p> <p><u>U-LINK OUT</u> Connect to the U-LINK input of the next VENUS X2, adopt 3.5mm analog audio interface, for multiple cascade.</p> <p><u>DIP Switch</u> To set the machine code, which is for identify the machine cascade.</p> <p><u>Antenna</u> To install the antenna of the wireless network card.</p>
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Power Connection

6	<p><u>IEC – Power Input</u> Main power input AC 100-240V Max 205W.</p>
---	-----------------------------------------------------------------------------------

1.2.2 Front Panel



Display

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

Multi-Function Buttons

2	<u>Rotary Button</u> This button used for menu selections and confirmation. The button is both rotary (turn to left and right), and push-button (confirm selection)
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Illuminated Buttons

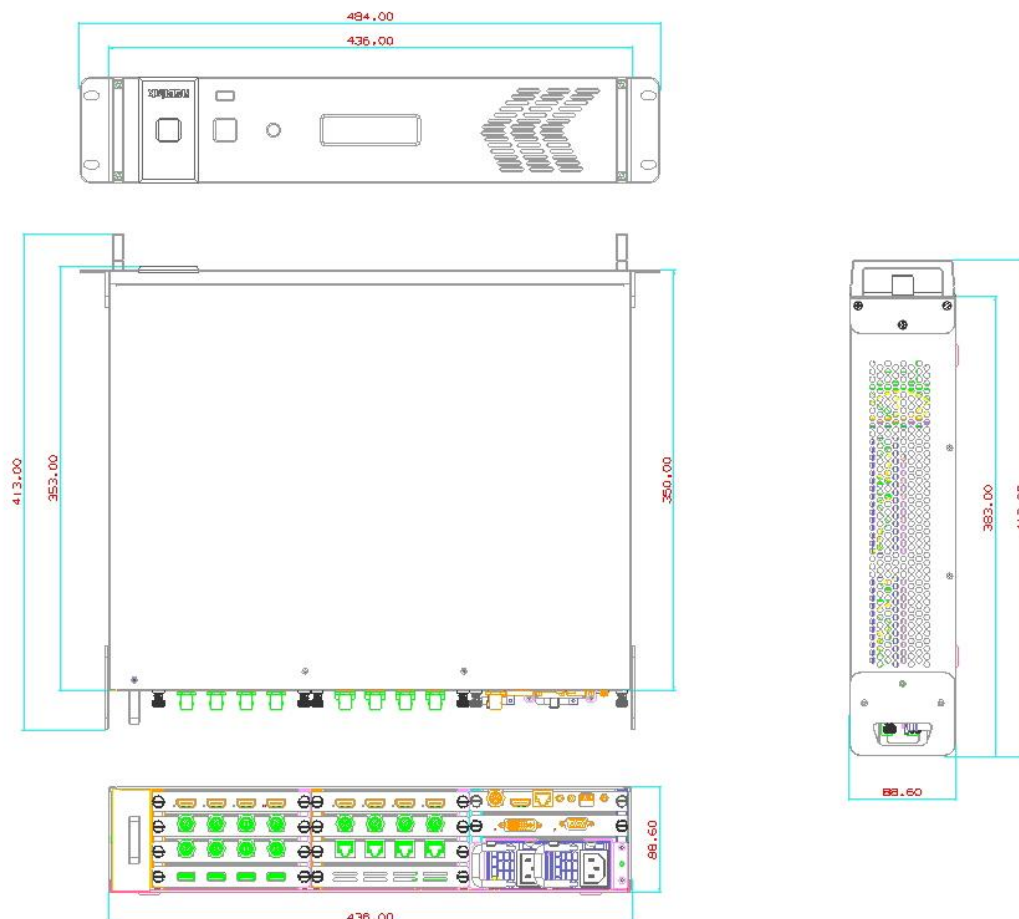
3	<u>MENU Button</u> This button used for menu selections – refer to Understanding the MENU Structure . Push the button again will return to the last level menu or exit the menu.
4	<u>POWER Button</u> Power button, push the button, the touch screen will pop up the confirm box, select “OK”, and turn the device off.

Control Interface

5	<u>USB Interface</u> Use for device upgrade.
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1.2.3 Dimension

Following is the dimension of VENUS X2 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.



For connector protection and for additional cable support this product is fitted with protection frames on either side of the device. For cable support use cable ties to attached to the protection frames to avoid stress on signal connectors.

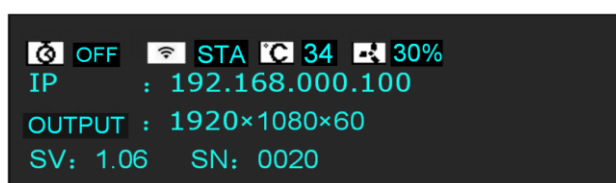
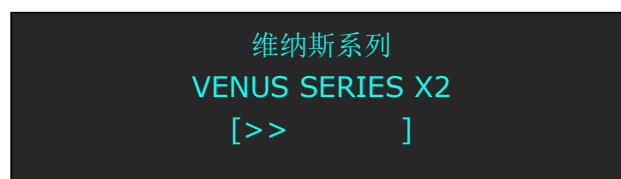
2.2 Plugging in Main Power

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

2.3 Turning on Your Product

The device will enter to the boot interface, and OLED display will show as below, completing initialization before loading last settings and input/output configuration.

On delivery, the output format is defaulted to 1920x1080x60.



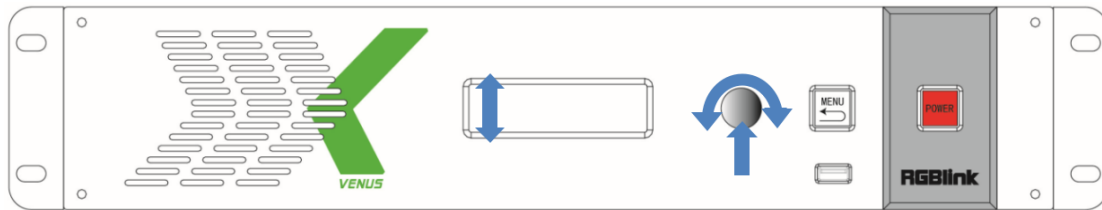
Chapter 3 Using Your Product

3.1 Using the MENU Button

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

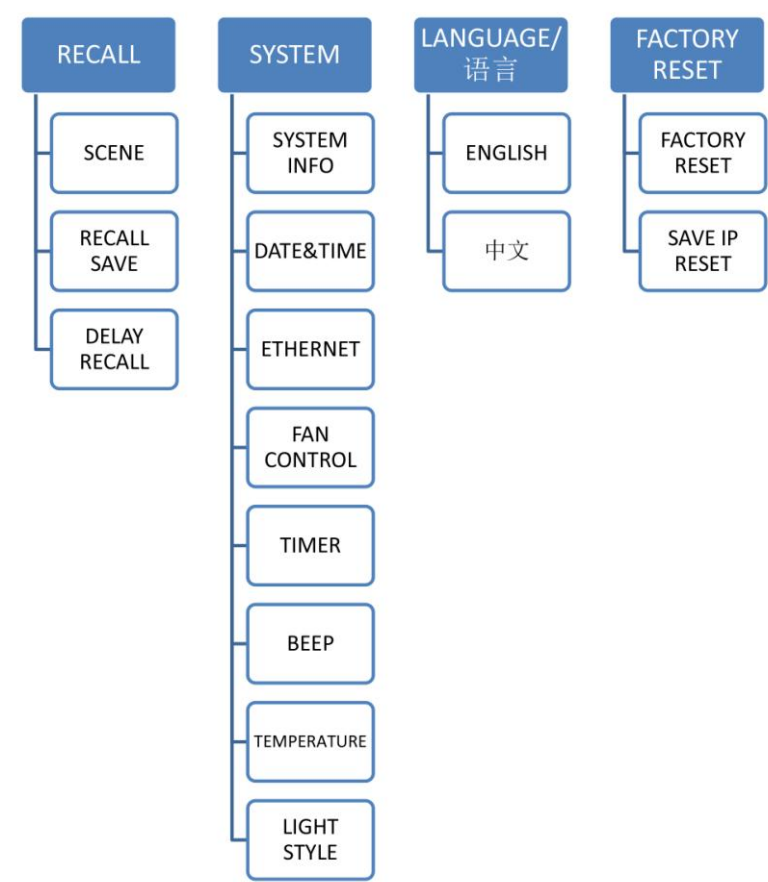
Turn the rotary knob to navigate to the menu item required. The → symbol shows the current item. Push the knob to select and enter into the menu item.

As shown in the figure below:



3.2 Understanding the MENU Structure

The MENU structure is shown in the figure below:

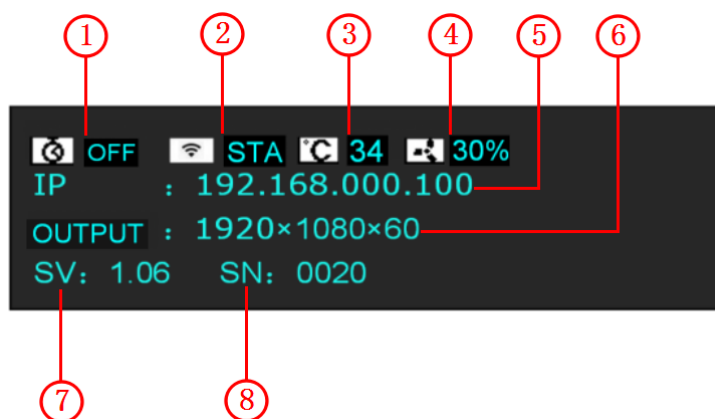


3.3 Using the Menu

Use the menu system for convenient and intuitive operation. VENUS X2 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	<u>Timer</u> Shows the timer state of the product. When not displayed here, the timer can be set via the SYSTEM menu.
2	<u>Ethernet</u> Displays whether Ethernet connection is active or inactive. Ethernet settings are available in the SYSTEM menu.
3	<u>Temperature</u> Shows the temperature of the product. When not displayed here, the temperature can be found via the SYSTEM menu.
4	<u>Fan Control</u> Shows the current speed of the product. When not displayed here, the speed can be set via the SYSTEM menu.
5	<u>IP Address</u> Shows the IP address of the product. When not displayed here, the IP address can be set via the SYSTEM menu.
6	<u>Output Resolution</u> Show the current output resolution. A wide range of resolutions are supported – refer to Specification .

7	<u>Software version</u> Shows the software version of the product. When not displayed here, the serial number can be found via the SYSTEM menu.
8	<u>Serial Number</u> Shows the serial of the product. When not displayed here, the serial number can be found via the SYSTEM menu.

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:

```

->RECALL          >>
  SYSTEM          >>
  LANGUAGE/语言    >>
  FACTORY RESET    >>

```

There are 4 menu items in the main menu, and display in 1 page. 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 Recall Menu

```

->SCENE           SCENE 1
  RECALL SAVE      PAGE 1
  DELAY RECALL      >>

```

SCENE	Save all current settings with the VENUS X2 to 1 of the 16 available slots.
RECALL SAVE	Restores/Loads all current settings with the VENUS X2 from 1 of the 16 available slots.
DELAY RECALL	<u>SCENE</u> Select the scene that will delay call.
	<u>SAVE PAGE</u> Select the save page that will delay call.
	<u>DELAY TIME</u> Delay output time setting.

3.3.4 System Menu

```

->SYSTEM INFO      >>
    DATE&TIME      >>
    ETHERNET        >>
    FAN CONTROL     >>

```

```

->TIMER            >>
    BEEF            ON
    TEMPERATURE     >>
    LIGHT STYLE     MODE 7

```

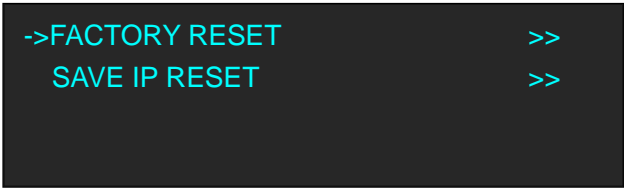
SYSTEM INFO	<u>SN</u> Display the serial number of the device.
	<u>DEVICE INFO</u> Display the version of input card, output card, COM. CARD and KEYPAD.
	<u>TECH SUPPORT</u> Display the factory sales, customer service, email and other contact information, etc.
DATE&TIME	User can view and change the date, time and week, view the current time, total time and boot times.
ETHERNET	DHCP, IP, mask, gateway, MAC and WIFI setting. User can enable or disable the DHCP function. Default IP address is 192.168.000.100, mask is 255.255.255.000, gateway is 192.168.000.001. Enable or disable the WIFI function. When select "ON", STA or AP mode can be selected.
FAN CONTROL	<u>AUTO SPEED</u> Enable or disable the auto speed function
	<u>CURRENT SPEED</u> Set the current speed.
TIMER	User can set the timer power on and timer power off from Sunday to Saturday. When set timer as "ON", the timer tasks will take effect.
BEEF	Enable or disable the beep function.
TEMPERATURE	<u>ALARM</u> Set the alarm temperature. The device will alarm when reach the alarm temperature.
	<u>UNIT</u> Select the unit as °C or °F.
LIGHT STYLE	VENUS X2 provides 8 kinds of light style, user can select any mode from mode 0 to mode 7 according to actual need.

3.3.5 Language Menu



Language	Select Chinese or English.
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3.3.6 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.

Chapter 4 Ordering Codes

4.1 Product

310-0002-01-0 VENUS X2

4.2 Options

4.2.1 Input Options

190-0002-02-1	Quad HDMI Input Module 4 × HDMI
190-0002-03-0	Triple VGA Input Module 3 × VGA
190-0002-04-1	Quad SDI Input Module 4 × SDI
190-0002-05-1	4 way CVBS Input Module 4 × CVBS
190-0002-09-1	Quad H.264 IP Streaming Input Module 4 × H.264
190-0002-10-1	Quad USB Input Module 4 × USB
190-0002-11-0	4K Input Module (DP/HDMI) 1 × HDMI + 1 × DP (each with loop)

4.2.2 Output Options

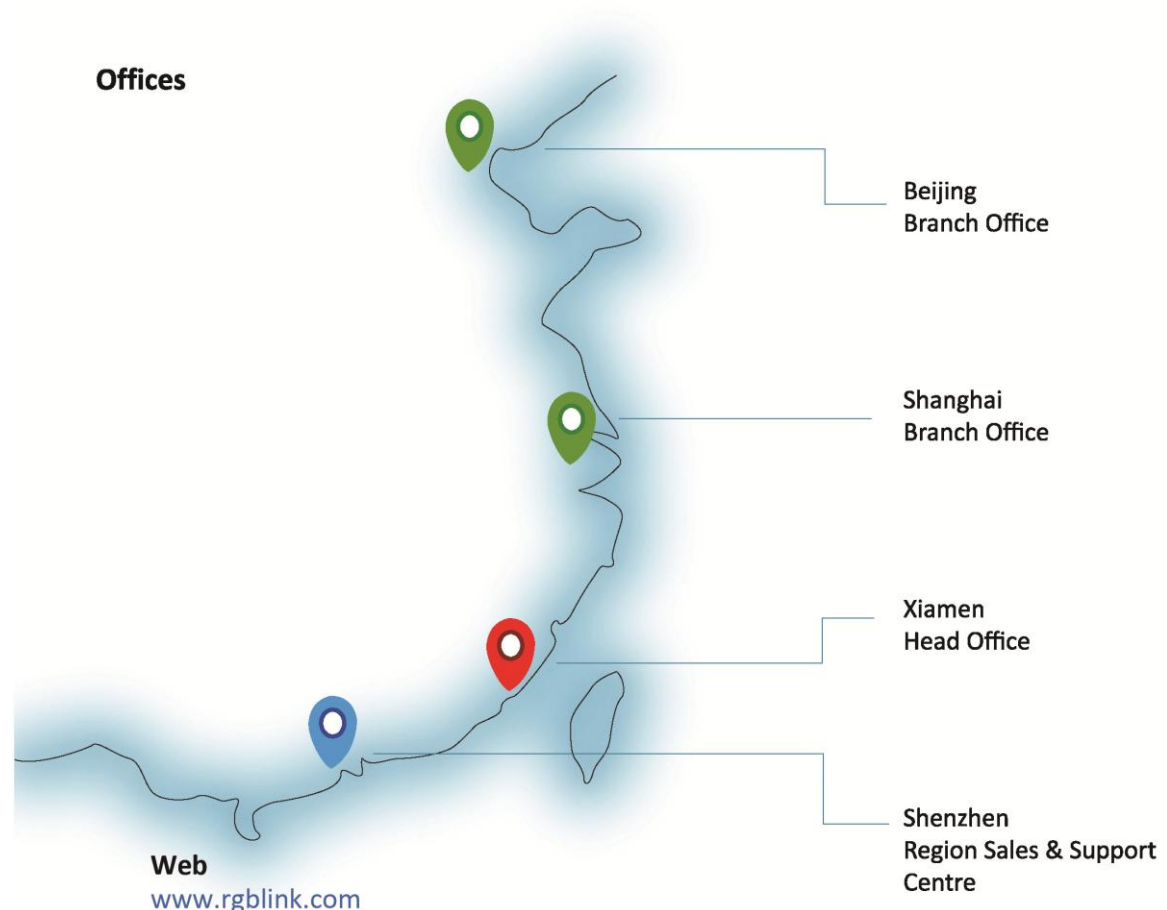
190-0002-22-1	HDMI Output Module 4 × HDMI
190-0002-24-0	3G-SDI Output Module 4 × SDI
190-0002-50-1	2 × H.264 & 1×HDMI Preview Output Module 2 × H.264 + 1 × HDMI

4.2.3 WIFI, Comm and Power Module

190-0001-12-0	Wi-Fi Module
190-0002-51-1	Comm. Module (X2)
950-0001-00-0	Hot Swap PSU 200W

Chapter 5 Support

5.1 Contact Us



Phone
+86-592-577-1197

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

Social Media



@RGLINK



/rgblink



+rgblink



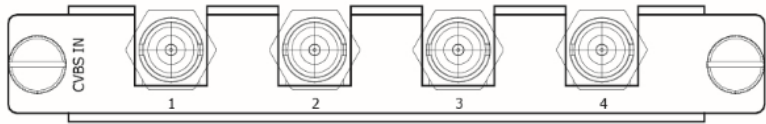
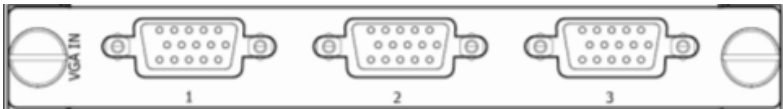
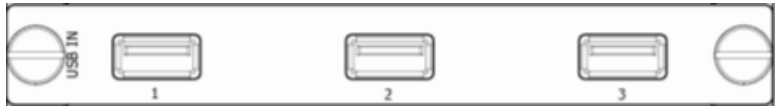
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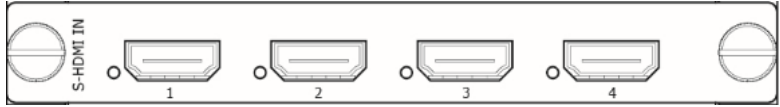
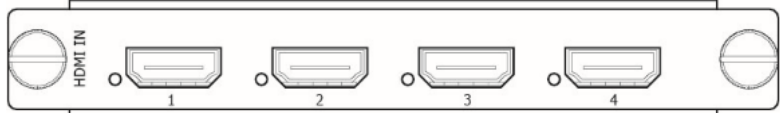
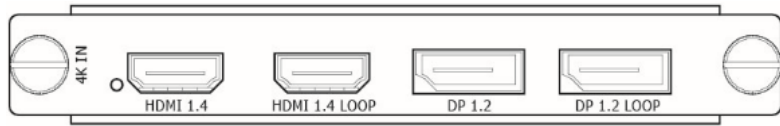



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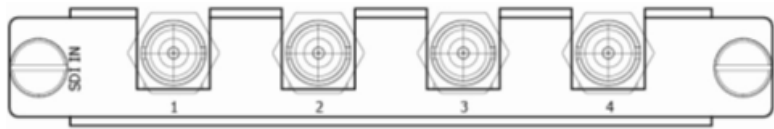
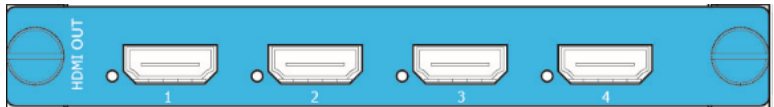
Chapter 6 Appendix

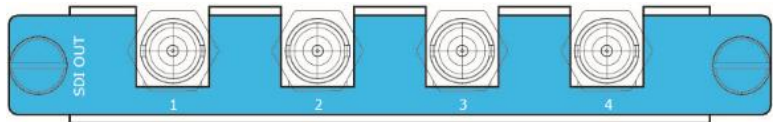
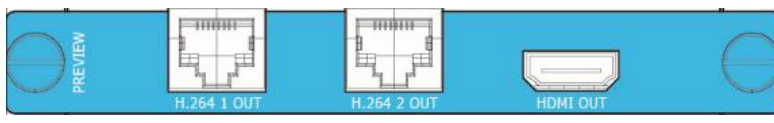
6.1 Specification

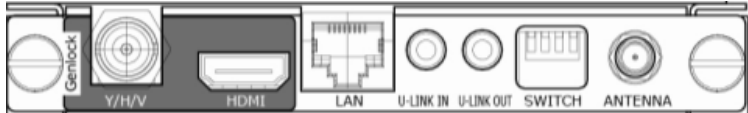
CVBS Input Module	
Interface Appearance	
Board Size	131.6(L)×20(W) (mm)
Number of Inputs	4
Connector	BNC
Supported Standards	PAL/NTSC/SECAM
Signal Level	1Vpp±3db (0.7V Video+0.3v Sync) 75 ohm
Multiplex	480i 576i
VGA Input Module	
Interface Appearance	
Board Size	131.6(L)×20(W) (mm)
Number of Inputs	3
Connector	DB15
Supported Standards	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 1920×1080@60)
USB Input Module	
Interface Appearance	
Board Size	131.6(L)×20(W) (mm)
Number of Inputs	4
Connector	USB-A
Max Supported Resolution	1920×1080@30
Supported Standard	Support general Image and video formats
S-HDMI Input Module	

Interface Appearance	
Board Size	131.6(L)×20(W) (mm)
Number of Inputs	4
Connector	HDMI-A
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 two inputs
Format Standard	HDMI 1.3
HDMI Input Module	
Interface Appearance	
Board Size	131.6(L)×20(W) (mm)
Number of Inputs	4
Connector	HDMI-A
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 two inputs
Format Standard	HDMI 1.3
4K Input Module	
Interface Appearance	
Board Size	131.6(L)×20(W) (mm)
HDMI Input	
Number of Inputs	1
Connector	HDMI-A
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
Signal Level	TMDS pwl, single pixel input, 165MHz bandwidth
Supported Standards	HDMI 1.4

HDMI Loop	
Number of Inputs	1
Connector	HDMI-A
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
Signal Level	TMDS pwl, single pixel input, 165MHz bandwidth
Supported Standards	HDMI 1.4
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
Supported Standards	DP 1.2
DP Loop	
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
Supported Standards	DP 1.2
H.264 Input Module	
Interface Appearance	
Board Size	131.6(L)×20(W) (mm)
Number of Inputs	4
Connector	RJ45
Supported Resolution	176x144 240x180 320x180 320x240 320x256 352x228 352x480 400x224 400x320 480x270 480x272 480x320 480x360 480x384 480x480 544x480 608x448 640x360 640x480 704x576 720x404 720x480 720x540 720x576 850x480 1024x576 1280x720 1680x1056 1920x1080
Refresh Rates	25~60Hz
Supported Standards	H.264/MPEG-4 AVC
Decoding Protocols	H.264 baseline/main/high profile L5.0

	MPEG4 SP L0–3/ASP L0–5 MJPEG/JPEG baseline
3G-SDI Input Module	
Interface Appearance	
Board Size	131.6(L)×20(W) (mm)
Number of Inputs	4
Connector	BNC
Data Rate	2.97Gb/s, 2.97/1.001Gb/s, 1.485Gb/s, 1.485/1.001Gb/s and 270Mb/s
Supported Standards	SMPTE 425M - 3G Level A
Supported Resolution	SMPTE 425M (3G Level A) 4:2:2: 1920×1080/60 (1:1) 1920×1080/50 (1:1). SMPTE 274M (HD): 1920×1080i/60 (2:1) or 1920×1080/30 (PsF) 1920×1080i/50 (2:1) or 1920×1080/25 (PsF) 1920×1080/30 (1:1) 1920×1080/25 (1:1) 1920×1080/24 (1:1) 1920×1080/24 (PsF) SMPTE 125M (SD): 1440×487/60 (2:1) SMPTE ITU-R BT.656 (SD) 1440×576/50 (2:1) Or dual link progressive, 625-line generic.
Balance	Belden 1694A cable: 150m at 2.97Gb/s 250m at 1.485Gb/s 480m at 270Mb/s
HDMI Program Output Module	
Interface Appearance	
Board Size	131.6(L)×20(W) (mm)
Number of Outputs	4
Connector	HDMI-A
Supported Resolution	SMPTE: 625/25 PAL, 525/29.97 NTSC, 625/50p PAL, 525/59.94p NTSC, 720p50/59.94/60 1080i50/59.94/60 1080P50/59.94/60 VESA: 800×600@60 1024×768@60 1280×768@60 1280×1024@60 1600×1200@60 1920×1080@60 1920×1080@50
Supported Standards	HDMI 1.3
SDI Program Output Module	

Interface Appearance	
Board Size	131.6(L)×20(W) (mm)
Number of Outputs	4
Connector	BNC
Supported Standards	SMPTE 425M - 3G Level A
Supported Resolution	SMPTE: 480i 576i, 720p/50/59.94/60 1080i/50/59.94/60 1080p/50/59.94/60
Equalization	Belden 1694A 100m HD 1.485G, 300m SD 270Mbps
H.264 Preview Output Module	
Interface Appearance	
Board Size	131.6(L)×20(W) (mm)
H.264 Output	
Number of Outputs	2
Connector	RJ45
Supported Resolution	176x144 240x180 320x180 320x240 320x256 352x228 352x480 400x224 400x320 480x270 480x272 480x320 480x360 480x384 480x480 544x480 608x448 640x360 640x480 704x576 720x404 720x480 720x540 720x576 850x480 1024x576 1280x720 1680x1056 1920x1080
Refresh Rates	25~60Hz
Supported Standards	H.264/MPEG-4 AVC
Decoding Protocols	H.264 baseline/main/high profile L4.2 MJPEG/JPEG baseline
HDMI Output	
Number of Outputs	1
Connector	HDMI-A
Supported Resolution	SMPTE: 480i60 576i50 720P50/59.94/60 1080i50/59.94/60 1080P25/29.97/30/50/59.94/60 VESA: 1024x768x60/75/85 1280x800x60 1280x1024x60/75/85 1360x768x60 1366x768x60 1400x1050x60 1440x900x60 1600x1200x60 1680x1050x60 1920x1080x60
Supported Standards	HDMI 1.3
WIFI Hotspot Module	
Certification	FCC/CE
Wireless Standard	802.11 b/g/n
Frequency range	2.412GHz-2.484GHz
Transmit Power	802.11b: +20dBm (Max.)
	802.11g: +18dBm (Max.)

	802.11n: +15dBm (Max.)
	Configurable
Receiver Sensitivity	802.11b: -89dBm
	802.11g: -81dBm
	802.11n: -71dBm
Antenna Option	External: I-PEX Connector
Genlock Interface	
Interface Appearance	
Board Size	131.6(L)×20(W) (mm)
Genlock Input	
Number of Inputs	1
Connector	BNC
Signal Level	NTSC/PAL, TRI SYNC/Blackmagic signal
Supported Resolution	480i 576i 1080i50/59.94/60 720p50/59.94/60 1080P50/59.94/60
Genlock Input	
Number of Inputs	1
Connector	HDMI standard type A interface
Max Supported Resolution	1920×1200@60Hz
Signal Level	HDMI to TTL timing signal
Function	
Switch	Support any two inputs fade in fade out
Extras	
Communication	Windows control program, TCP/IP
Power Supply	100-240V IEC-3
Working Environment	0°C~45°C
Stored Environment	10% to 90%
Product Warranty	3 years parts and labor warranty

6.2 Software Upgrade

Upgrade the software by the USB interface in the front panel of VENUS X2, the upgrade steps are as follows:

1. Copy the "*.pkg" file to the USB disk, and modify the file name to "_update.pkg".
2. Plug into the power cord and make sure the VENUS X2 is in normal operation.
3. Plug the USB disk into the USB interface in the front panel of VENUS X2, the device will upgrade automatically. The buzzer sounds beeps during upgrade, the beeps will stop and the USB disk will delete the upgrade file automatically after complete upgrade.

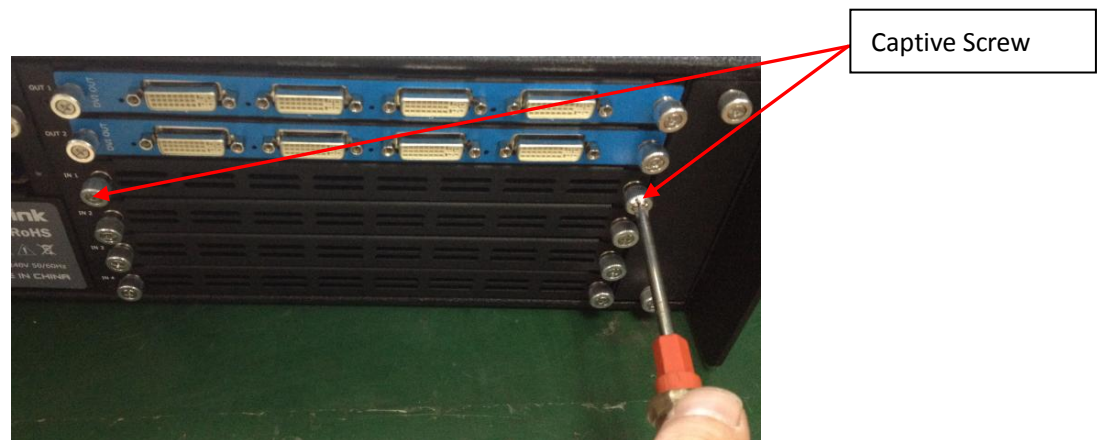
6.3 Installing Options

6.3.1 Installing Input Module

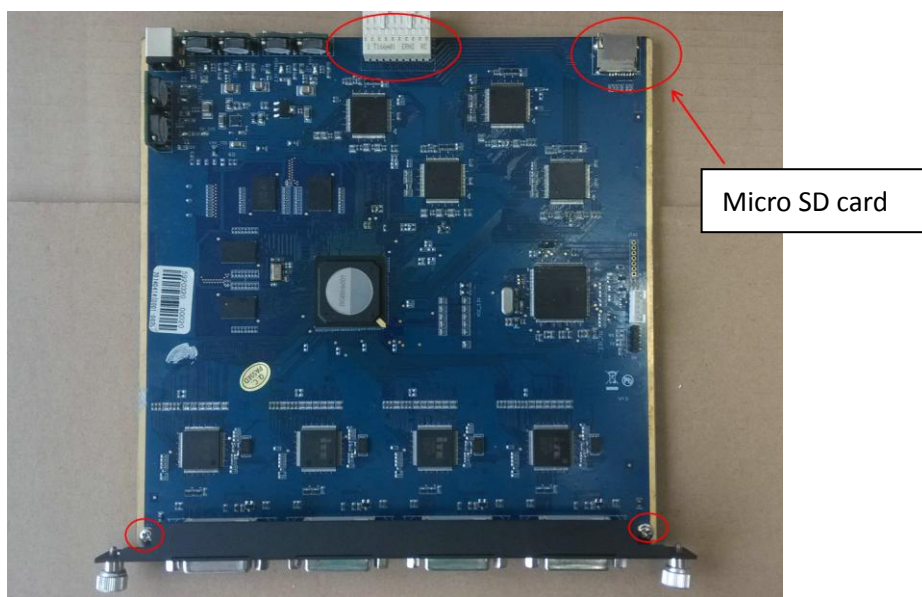
VENUS X2 and VENUS X3 support replaceable input and output optional modules, user can install or replace the optional module according to actual need. The installation steps of VENUS X2 and VENUS X3 are the same. Here we take VENUS X3 for example, specific steps are as follows:

Install the Optional Module

1. Unscrew the 2 captive screws in input modules block, and pull out the input module block, as shown in figure:



2. Install the input module:
 - (1) For the whole PCB input module with DVI or HDMI interface, fix the input module on the plate with 2 M3*4 flat screws, also need to install the 2G Micro SD card.



DVI input module:



- (2) For the joined PCB input module with CVBS, HDMI, VGA, USB or SDI interface, fix the input module on the plate with 2 M3*4 flat screws and 2 M3*4 round head screws.



HDMI input module:



VGA input module:



CVBS input module:



USB input module:



3. Fix the input module block with fixed screws, as shown in figure:



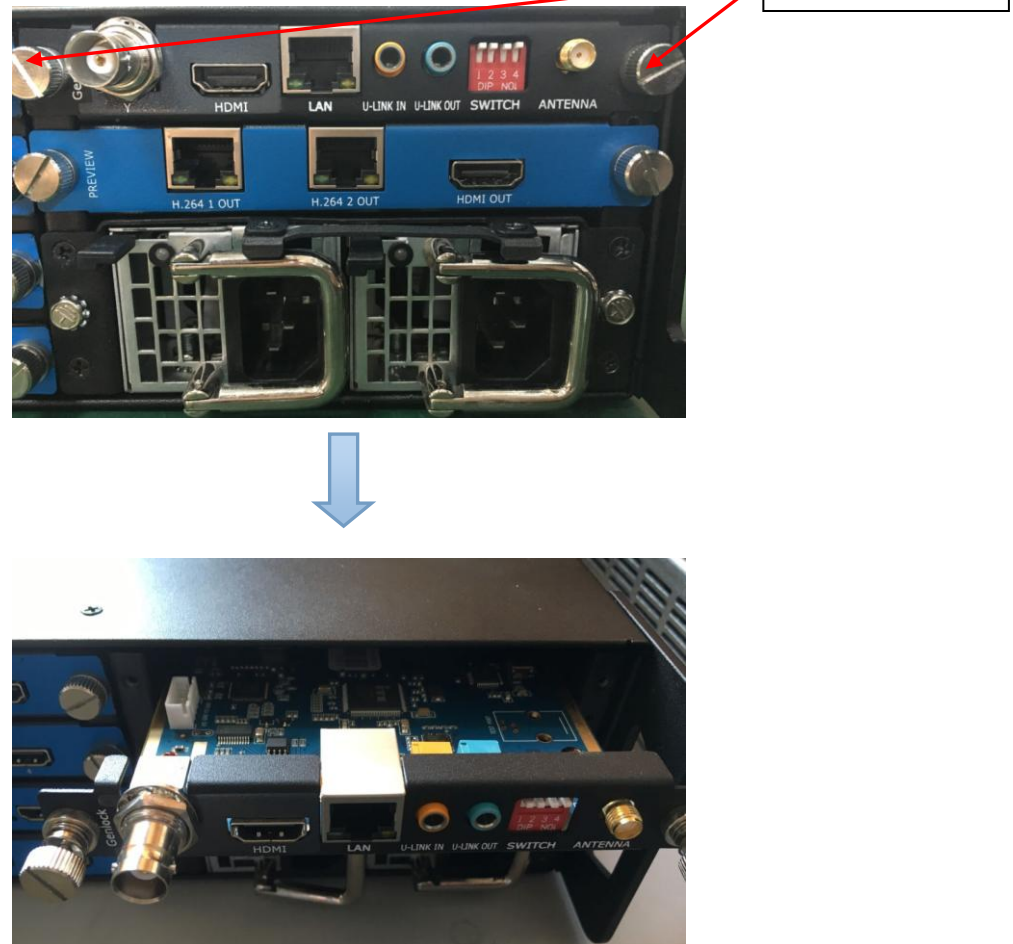
4. Push the input modules into the device along the slide rail, and screw the captive screws, as shown in figure:



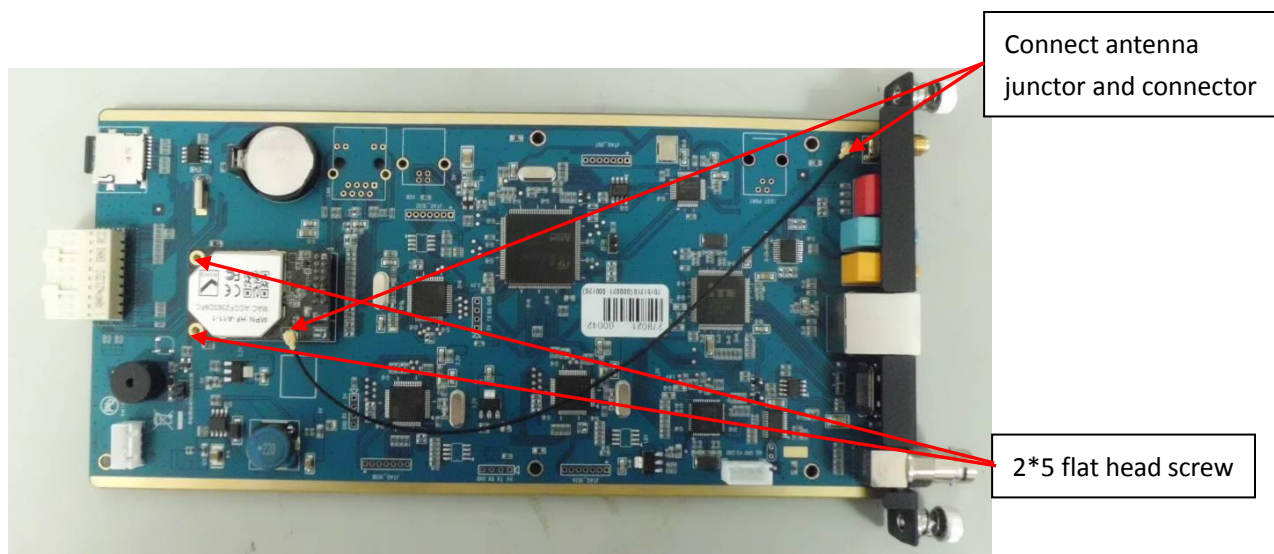
Note: The install steps of output module installation and input/output module replacement are the same as above.

6.3.2 Installing WIFI Module

1. Unscrew the 2 captive screws in Comm modules block, and pull out the Comm module block, as shown in figure:



2. Install the WIFI module as shown in the figure below: lock the WIFI module with 2 pieces of 2*5 flat head screws, then connect the antenna junctor and the connector with the WIFI antenna cable.



3. Push the Comm modules into the device along the slide rail, and screw the captive screws, as shown in figure:



4. Install the external WIFI antenna, as shown in the figure below:



6.3.3 Installing Power Module

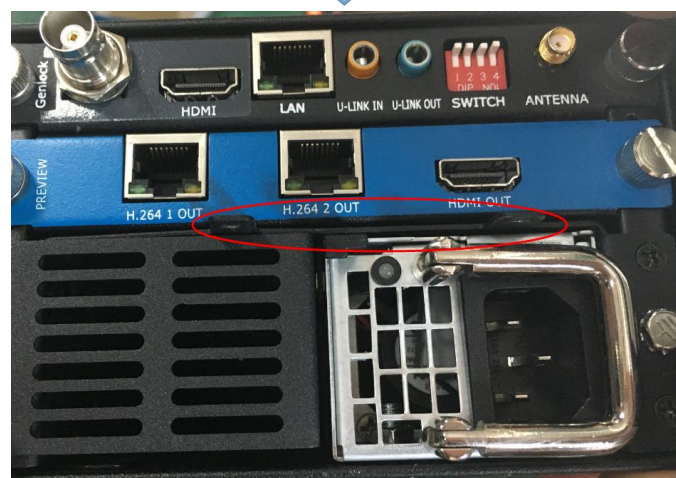
One power module as standard for VENUS X2, as shown in figure 1:



(Figure 1)

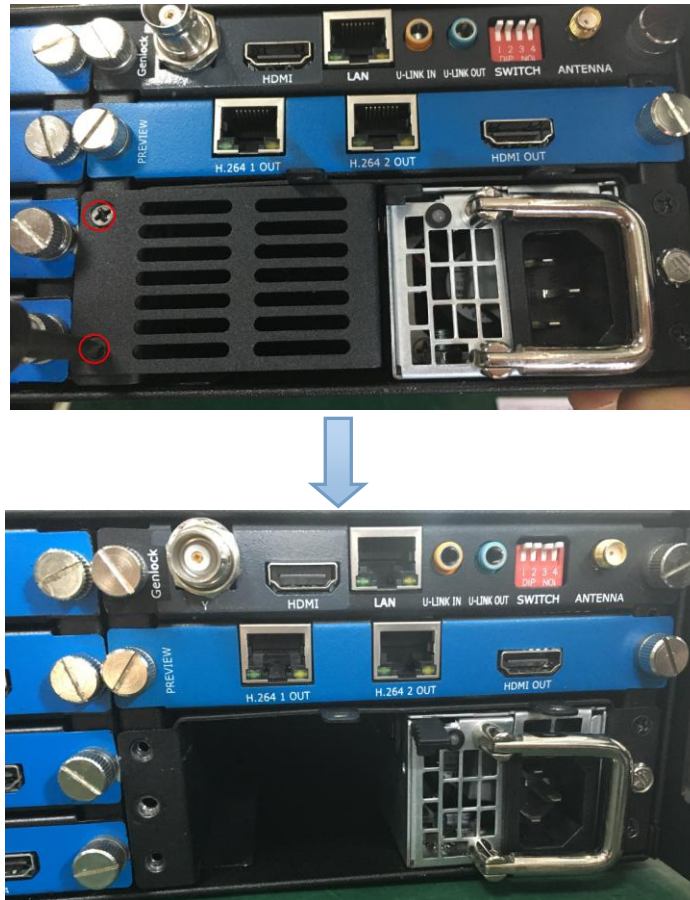
If necessary, two power modules can be installed, the specific steps are as follows:

1. Unscrew the two M4 ground screws between the power module and power box with a screwdriver, and take out the power module fixed holder, as shown in figure 2:



(Figure 2)

2. Unscrew the two M3*8 flat head screws on the left side of the power module holder, and take out the power module holder, as shown in figure 3:



(Figure 3)

3. Push the power module into the slot, as shown in figure 4:



(Figure 4)

4. Fix the two power modules with two M4 ground screws and a power module fixed holder, as shown in figure 5:



(Figure 5)

5. Fix the power box with two M3*8 flat head screws, and the installation is finished, as shown in figure 6:



(Figure 6)

6.4 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 exist including progressive 1280x720 and interlaced 1920x1080 resolution. Up to 32 audio signals are carried in the ancillary data.
 - **“JPEG” (Joint photographic Experts Group)**: Commonly used method of lossy compression for photographic images using a discrete 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 Expert 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.

6.5 Revision History

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

Format	Time	ECO#	Description	Principal
V1.0	2015-06-11	0000#	Release	Vira
V1.1	2015-07-16	0001#	Add "Optional Module Installation and Replacement Instruction"	Vira
V1.2	2015-11-12	0002#	1. Update the product picture. 2. Update the back panel. 3. Update the dimensions drawing. 4. Update the menu tree. 5. Update the windows control program.	Vira
V1.3	2016-03-07	0003#	1. Update the back panel. 2. Update the logo. 3. Update the fax number.	Vira
V1.4	2016-05-05	0004#	1. Update the windows control program.	Vira
V1.5	2016-07-20	0005#	1. Update the style and structure of the user manual. 2. Update the back panel. 3. Add "Ordering Codes". 4. Add 4K, H.264 and WIFI specification, etc. 5. Add "Installing WIFI Module". 6. Add "Installing Power Module".	Vira