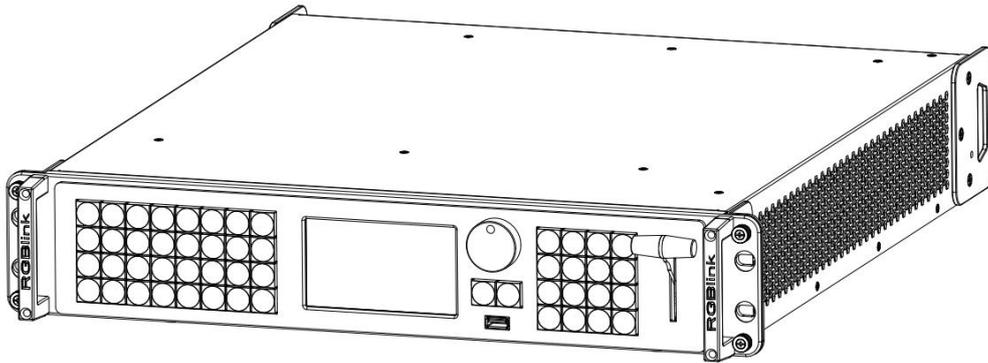


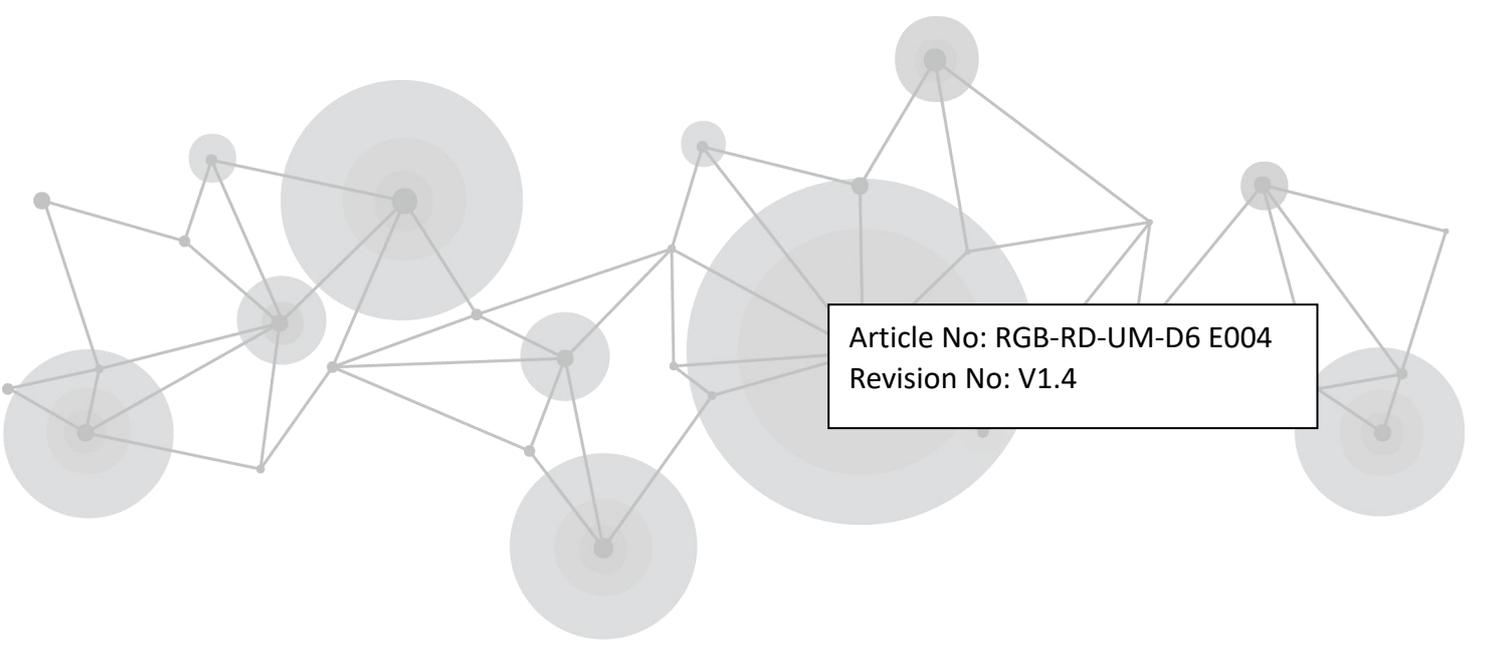
---

# D6



## USER MANUAL

**RGBlink<sup>®</sup>**

A decorative background graphic consisting of a network diagram with several nodes (circles) of varying sizes connected by lines, set against a light gray background.

Article No: RGB-RD-UM-D6 E004  
Revision No: V1.4

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# CONTENTS

CONTENTS.....	1
<i>Declarations</i> .....	3
FCC/Warranty.....	3
Operators Safety Summary.....	4
Installation Safety Summary.....	4
<i>Chapter 1 Your Product</i> .....	6
1.1 In the Box.....	6
1.2 Product Overview.....	7
1.2.1 Front Panel.....	8
1.2.2 Back Panel.....	11
1.2.3 Dimension.....	12
<i>Chapter 2 Install Your Product</i> .....	13
2.1 Plug in Signals.....	13
2.2 Plugin Main Power.....	13
2.3 Turn on Your D6.....	13
<i>Chapter 3 Use Your Product</i> .....	14
3.1 Front Panel Operation.....	14
3.1.1 Language.....	14
3.1.2 System.....	14
3.1.3 Input.....	17
3.1.4 Output.....	19
3.1.5 PVW.....	22
3.1.6 PGM.....	22
3.1.7 PST.....	24
3.1.8 Transition.....	24
3.1.9 DSK.....	25
3.1.10 Logo.....	26
3.1.11 Background.....	26
3.1.12 Blending.....	27
3.1.13 Test Pattern.....	28
3.1.14 Save and Load.....	28
3.1.15 Tech Sport.....	29
3.1.16 Factory Reset.....	30
3.2 XPOSE Operation.....	31
3.2.1 Install XPOSE.....	31
3.2 XPOSE Controls D6.....	36
3.2.2 Login in XPOSE.....	36
3.2.3 Connect with the D6.....	37
3.2.4 Output Settings.....	40
3.2.5 Operation Mode.....	43
3.2.6 Admin.....	62
3.2.7 System Settings.....	64

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3.2.8 Slave Unit.....	67
3.2.9 Log Out.....	67
<i>Chapter 4 Order Codes.....</i>	<i>68</i>
4.1 Product.....	68
4.2 Options.....	68
4.2.1 Input Options.....	68
4.2.2 Output Options.....	68
<i>Chapter 5 Support.....</i>	<i>69</i>
5.1 Contact Us.....	69
<i>Chapter 6 Appendix.....</i>	<i>70</i>
6.1 Specification.....	70
6.2 D6 Upgrade.....	73
6.3 Install Options.....	75
6.4 Care and Preventive Maintenance.....	76
6.4.1 Clean Cooling Fan.....	76
6.5 Terms & Definitions.....	77
6.6 Revision History.....	82

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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 complains.

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 D6 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 D6 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 D6 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.  
Upgrade tool package and user manual are store in U disk please keep.

## 1.2 Product Overview

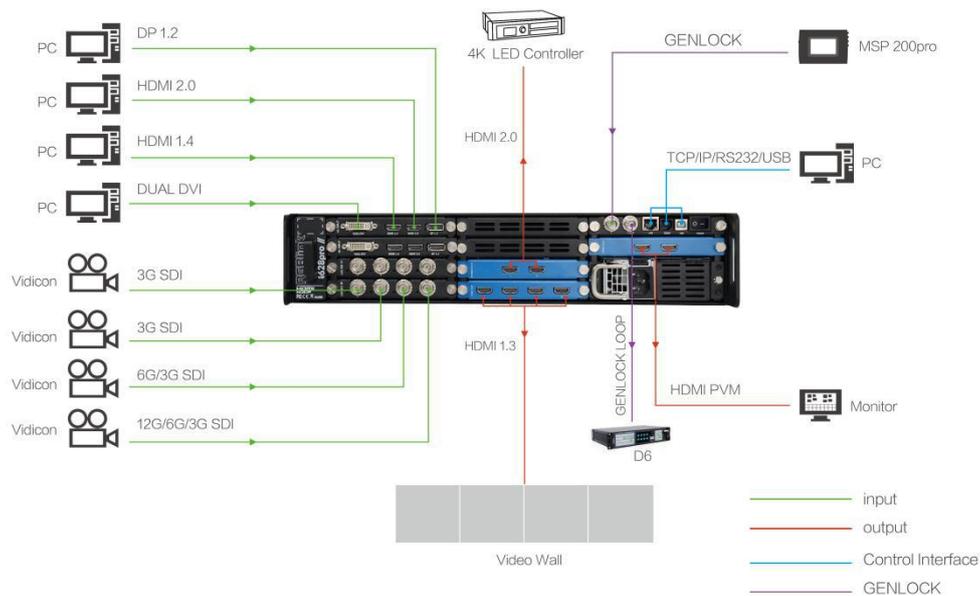
D6 is a 4K2K@60Hz scaler & presentation switcher, supports any format 4K2K signal input and output switching; D6 is based on fully optional input/output modules structure, with different optional modules to build the different range application.

D6 can be set up with the local front panel or by remote controller with its remote control interfaces, including Ethernet, USB and RS 232.

D6 local front panel is not only a dedicated normal local panel, but a removable remote control panel. Operator can control the D6 by setting up this remote control panel with a Cat5 cable only. The remote control panel is used to preview the input sources and PST by its LCD display directly.

For the, remote controller, it is including the XPOSE runs on the desktop windows and MAC OS, and the T1 or the 3<sup>rd</sup> party CMS, such as crestron and AMS.

With the set up and operation, D6 can be set to meet different application, by its different working mode, including 4k Preview Switcher mode, Split mode and different presentation mode.



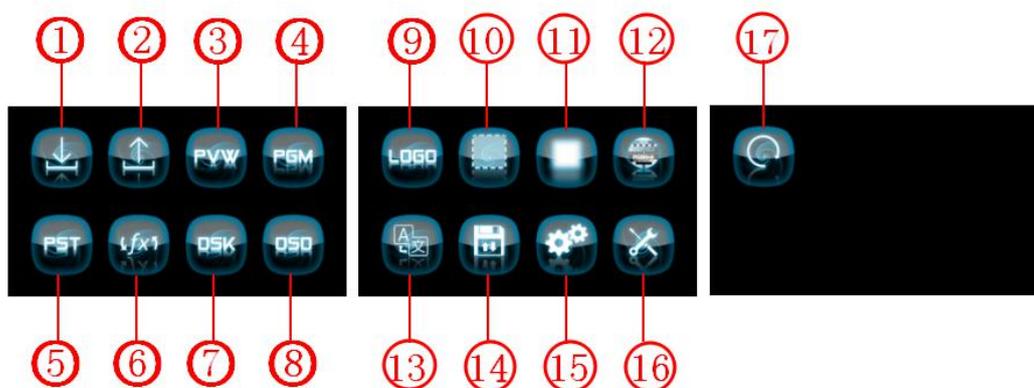
D6 System Connection Diagram

## 1.2.1 Front Panel



Button Instruction			
1~16	Input signal source button and Number button use for scale, crop, zoom and custom setting	TP	Test pattern button
AUX1~AUX4	Auxiliary Output button (HDMI 1.3 Port 1~Port4)	SCALE	Scale button
IN1~4	Input Module	POS	Adjust
L1~L8	Layer Area	FS	Full Screen
BK1&BK2	Background button	DIMMER	Dimmer button
LOGO1 & LOGO2	Logo button	FORMAT	Choose Resolution or custom Setting
LCD Panel	Show operation menu items	PGM	Program button
Knob	Confirm and adjust OLED menu	PST	PST button
MENU	Menu and back button	PVW	Source Monitoring
ENTER	Confirmation button	BLACK	Black out button
USB Connector	USB Connector	TRANS	Transition Button
LOAD	Save the set up as the preset.	CUT	Direct switch from PST to PGM without any transition effects
SAVE	Loading the user preset	TAKE	Switch from PST to PGM with transition effect
DSK	Down streaming key	T-Bar	Switch from PST to PGM with transition effects at any position

## Menu Structure



Menu Instruction			
1	Input menu	10	Background
2	Output Menu	11	Blending
3	PVW Menu	12	Test Pattern
4	Program Menu	13	Language
5	PST Menu	14	View, including Save & Load Menu
6	Layer Mask	15	System
7	DSK Menu	16	Tech Support
8	OSD	17	Factory Reset
9	LOGO		

Input
Info
Adjustment

Output
2K/FHD
4K/UHD

PVW
CH.1
Format
CH.2
Format
CH.3
Format
CH.4
Format
CH.5
Format
CH.6
Format
CH.7
Format
CH.8
Format

PGM
Layer 1 In
Format
Scale
Layer 2 In
Format
Scale
Layer 3 In
Format
Scale
Layer 4 In
Format
Scale
Layer 5 In
Format
Scale
Layer 6 In
Format
Scale
Layer 7 In
Format
Scale
Layer 8 In
Format
Scale

PST
Layer 1 In
Format
Scale
Layer 2 In
Format
Scale
Layer 3 In
Format
Scale
Layer 4 In
Format
Scale
Layer 5 In
Format
Scale
Layer 6 In
Format
Scale
Layer 7 In
Format
Scale
Layer 8 In
Format
Scale

FX
Effects
Time
Auto Take

DSK
Preset
Mode
Alpha
Red Min
Red Max
Green Min
Green Max
Blue Min
Blue Max
Text Overlay

LOGO
LOGO
LOGO Source
On/Off
H POS
V POS
Delet Logo
Still
Still Source
On/Off
H POS
V POS
Delete Still

Background
BG Layer 1
BG Layer 2
BG Layer 3
BG Layer 4

Blending
Blending
Blending Width
On/Off

Test Pattern
Type
Red
Green
Blue

Language
Language/语言

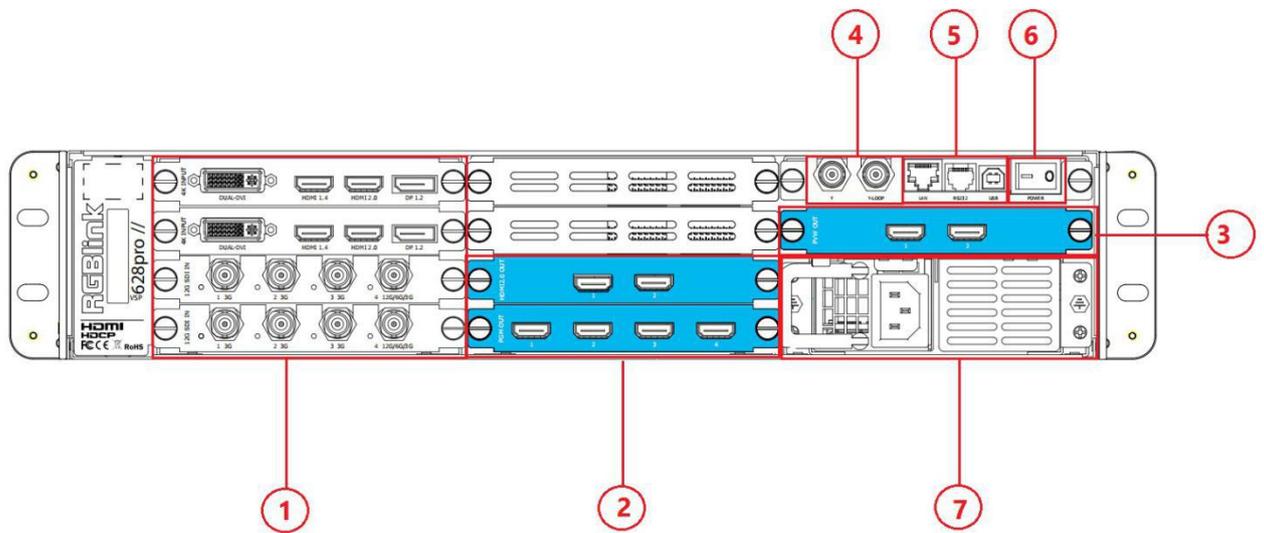
Preset
Load
Save

System
System Mode
Ethernet
Lock Front Panel
Button Color
T-Bar Calibration
Fan Speed
Key Board Test
PVW Lock

Tech Support
Version
Series Number
Email
Website
Whatsapp
Skype

Factory
Yes <ENTER>, No<MENU>

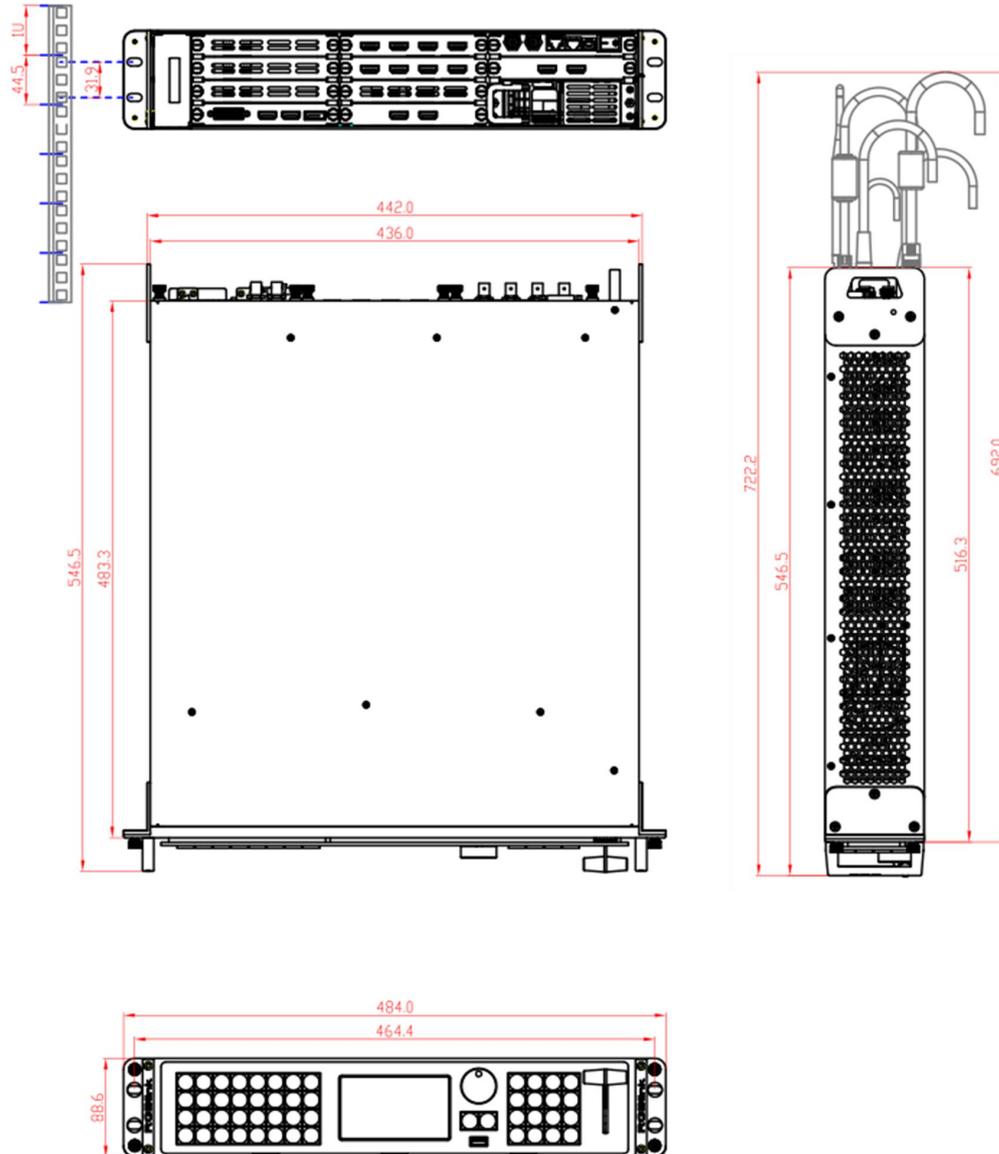
## 1.2.2 Back Panel



Chassis Module Structure	
1	4 input module slots, support SDI & 4K Input modules
2	2 output module slots, support HDMI and SDI optional modules
3	Dedicated slot for PVW module consisting of 2 HDMI outputs
4	Genlock Y In /Loop
5	Communication connectors including:1 LAN port, 1 RS232 and 1 USB-B
6	Power switch
7	Power module

## 1.2.3 Dimension

Following is the dimension of D6 for your reference:



---

## Chapter 2 Install Your Product

---

### 2.1 Plug in Signals

Connect signals to the product (ensure all devices are powered off first). Tighten connector screws/locks where provided. Connect to the computer which XPOSE software runs on by CAT5 cable or USB A-B cable. RGBlink provides a USB A-B cable as a standard accessory for this connection. Please check in the package for this cable.

### 2.2 Plugin Main Power

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

### 2.3 Turn on Your D6

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 1920x1080@60.



---

# Chapter 3 Use Your Product

---

## 3.1 Front Panel Operation

### 3.1.1 Language



Choose this icon and push ENTER to enter the Language menu.

Language	
Language/语言	English

### 3.1.2 System



Choose this icon and push ENTER to enter menu.

System	
System Mode	>>
Ethernet	>>
Button Lock	>>
Button Color	>>
T-Bar Calibration	>>
Fan Speed	>>
Button Test	>>
PVW Lock	Off

System Mode: 4K2K Presentation, 4K2K (PST&PGM)

System Mode	
System Mode	4K2K

---

Ehernet

Ethernet	
DHCP	Off
IP	>>
Subnet Mask	>>
Gateway	>>
State	>>

State show above current ethernet state

State	
DHCP	On
IP	192.168.0.58
Subnet Mask	255.255.255.0
Gateway	192.168.0.253

Button Lock: On/Off, press the MENU 3S to unlock.

Button Color: Custom the button color.

Button Color	
Button Color	Green
Red	0
Green	0
Blue	255
Button Brightness	50%

---

## T-Bar Calibration

### T-Bar Calibration steps

T-Bar Calibration	
Step1: :PushT-Bar to top	
Step 2: Choose On	On
Step 3: Push T-Bar to bottom	0
Step 4: Choose On	On

Fan Speed:adjust fan speed.

Fan Speed	
Auto	On
Fan Speed	80%

### Keyboard Test

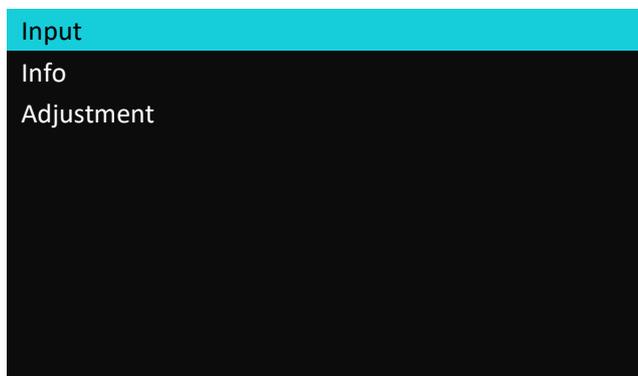
Keyboard Test	
T-Bar Value	0
Button Value	0

PVW Lock: On/Off

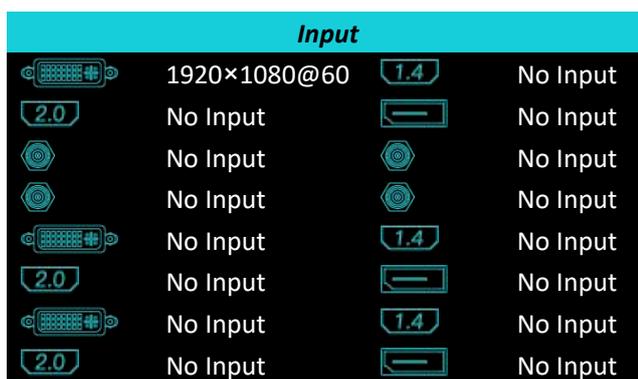
### 3.1.3 Input



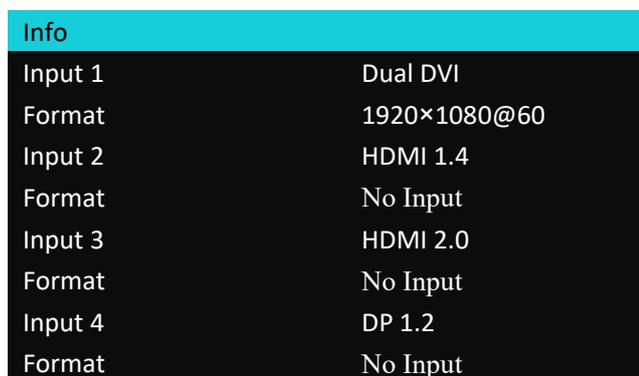
Choose icon  and push ENTER to enter Input menu



The LCD screen on front panel shows the current input state as well.



The Input menu as follow:



Adjustment is offered to adjust input source and input EDID.

Adjustment	
Input Module 1	>>
Input Module 2	>>
Input Module 3	>>
Input Module 4	>>

1Eg. Enter the Input Module 1

4K Module	
Set Mode	4K2K Mode
Input Source 1	DUAL DVI
Input Source 2	N/A
Set	No
Effects	>>
Input EDID	>>

Under 4K Module

Set Mode: 4K2K,4K1K, 2K1K,PIP. Any input mode is selected, the input source from this input board will be displayed in the set mode.

2K1K is not valid when the input source is 4Kx2K.

Input source: choose input source port from 4K module such as DUAL DVI, HDMI 1.4, HDMI 2.0 or DP1.2. When input set mode is 4K2K mode, only input source 1 can be set, when input set mode is 4K1K or PIP, input source 1 and input source 2 can be selected from current active input on the 4K board.

Set: Yes/No

Effects: to open up Effects menu

Effects	
Brightness:0-100	50
Contrast:0-100	50
Color Temperature Red /Green/Blue:0-100	USER
Color Temperature Red	50
Color Temperature Green	50
Color Temperature Blue	50
Reset	

Input EDID: to set EDID of each input source.

Input EDID	
DUAL DVI	>>
HDMI 1.4	>>
HDMI 2.0	>>
DP 1.2	>>

E.g. enter sub-menu of any input port

DUAL DVI	
EDID Info	>>
Custom Formats	>>
Factory Reset EDID	NO

EDID Info:show current EDID

Custom Formats: Use the illuminated green button and ENTER button to set the value.

### 3.1.4 Output



Choose icon and push ENTER to enter the Output menu.

Output	
2K/FHD AUX	>>
4K/UHD PGM	>>

FORMAT Button to quick open output menu.

1. AUX are output from the 2K module with 4 independent HDMI ports.

2K/FHD AUX	
PGM Output Format	>>
Custom Format	>>
De_interlacing	>>
ColorSpace/Sample/Bit	>>
Noise Reduction	>>
Genlock	Genlock Y

PGM Output Format: use to knob to select output resolution for AUX, from 1024×768@60 to 2048×1152@60

Custom Format: Use the illuminated green button and ENTER button to set the value.

De\_interlacing: to custom de\_interlacing when the input source is in I format

De-Interlacing	
On/Off	N/A
Delay Time	N/A
2: 2PD	N/A
2: 2PD Time	N/A
2: 3PD	N/A
2: 3PD Time	N/A
Motion Detection	N/A
Diagonal Correction	N/A

Color Space/Sample/Bit: showpo port type color space , and bit depth of each port.

ColorSpace/Sample/Bit	
HDMI 1	>>
HDMI 2	>>
HDMI 3	>>
HDMI 4	>>

Noise Reduction:

Noise Reduction	
Horizontal NR	N/A
Vertical NR	N/A
Temporal NR	N/A
Block NR	N/A
Mosquito NR	N/A
Combining NR	N/A

Genlock: Genlock Y or Freerun.

2. 4K UHD PGM is the output of HDMI 2.0 module with 2 duplicated port.

4K UHD PGM	
HDMI 2.0 Output 3Format	>>
Genlock	Freerun

HDMI 2.0 Output Format: choose output resolution from 480x640@60 to 4096x2160@60

Genlock: HDMI 2.0 Sync Out or Freerun

The output port types of this device also are displayed on the LCD screen.

Output	
 Layer Module	
 Layer Module	
 3840x2160@60	
 1920x1080@60	 1920x1080@60
 1920x1080@60	 1920x1080@60

### 3.1.5 PVW

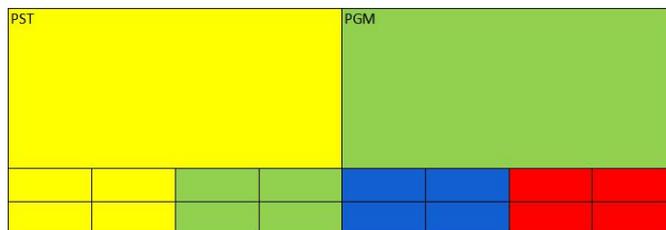


Choose icon and push ENTER to enter the PVW menu.

Preview	
Ch.1	In1 Dual DVI
Format	1920×1080@60
Ch.2	In1 Dual DVI
Format	1920×1080@60
Ch.3	In1 Dual DVI
Format	1920×1080@60
Ch.4	In1 Dual DVI
Format	1920×1080@60

PVW menu is for users to check the format of each current input.

PVW button is designed to open the preview picture on the LCD display. PVW can preview 16× 2K1K input source or 4 ×4K2K input source.



### 3.1.6 PGM



Choose this icon and push ENTER to enter the PGM menu.

Program	
Layer 1 In	In1 Dual DVI
Format	1920×1080@60
Scale	>>
Layer 2 In	In1 Dual DVI
Format	1920×1080@60
Scale	>>
Layer 3 In	In1 Dual DVI
Format	1920×1080@60

PGM button is shortcut button to open PGM menu. Under 4K2K presentation mode, PGM menu is for adjusting the layers on the PGM by Scale.

Scale

Scale	
H Pos	0
V Pos	0
H Size	0
V Size	0

Scale button to open scale and crop menu.

Scale	
Layer Select	Layer 1
H Pos	0
V Pos	0
H Size	1920
V Size	1080
Crop H Pos	0
Crop V Pos	0
Crop H Size	1920
Crop V Size	1080
Reset	>>

One layer need to been opened before Scaling it.

Push the Layer button L1~L8 to open the layer menu.

Scale	
Layer Select	Layer 1
On/Off	On

---

### 3.1.7 PST



Choose this icon and push ENTER to enter the PST menu.

Preset	
Layer 1 In	In1 Dual DVI
Format	1920×1080@60
Scale	>>
Layer 2 In	In1 Dual DVI
Format	1920×1080@60
Scale	>>
Layer 3 In	In1 Dual DVI
Format	1920×1080@60

PST button quick access to PST menu.

Under 4K2K mode (PST&PGM mode), PST menu and PST button is for users to adjust the layers position and size on PST display by Scale. To switch PST display to PGM display, CUT, TAKE button or T-Bar shall be used.

### 3.1.8 Transition



Choose this icon and push ENTER to enter the Transition menu.

Transition	
Effect	Cut
Time	0.0 S
AutoTAKE	Off

Under 4K2K Presentation mode, only Cut valid, T-bar doesn't work. Take works without transition effect.

---

Transition Button is the shortcut key to open up transition setting menu.

Under 4K2K (PST&PVW) mode, there are 14 transition effects available and the effect is realized by TAKE button or T-Bar.

Transition	
Effect	2<-[]->
Time	1.0 S
AutoTAKE	off

### 3.1.9 DSK



Choose this icon and push ENTER to enter the DSK menu.

DSK	
DSK	Off
Preset	Black BG
Mode	Key In
Alpha	0
Red Min	0
Red Max	16
Green Min	0
Green Max	0

DSK button is the short cut key to get access to DSK menu.

### 3.1.10 Logo



Choose this icon and push ENTER to enter the logo menu.

Logo/Still	
Logo	
Logo Source	No Logo
On/Off	Off
H POS	1664
V POS	952
Delete Logo	No Logo
Still	
Still Source	No Still

### 3.1.11 Background



Choose this icon and push ENTER to enter the Background menu.

Background	
BG Layer 1	In Port 1
BG Layer 2	In Port 2
BG Layer 3	In Port 3
BG Layer 4	In Port 4

Layer 1~4:choose input source from Input 1~16

BK1&BK2 quick access to Background setting and open menu below:

Background	
BG 1 Layer 1	In Port 1
BG 1Layer 2	In Port 2
BG 1 Layer 3	In Port 3
BG 1 Layer 4	In Port 4

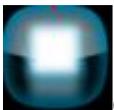
Background	
BG 2 Layer 1	In Port 1
BG 2 Layer 2	In Port 2
BG 2 Layer 3	In Port 3
BG 2 Layer 4	In Port 4

The pushed BK button and chosen layer (1~8) will flash to indicate the present operation.

If the background is a 4K input from one of the 4 input boards, to make sure the background is a complete 4K picture, Layer 1~4 must be set accordingly to In port 1~4 on the adopted input board.

*For example: if the background is a HDMI 2.0 input from board 3, Layer 1~4, shall be set accordingly with In port 9~12.*

### 3.1.12 Blending



Choose this icon and push ENTER to enter the logo menu.

Blending	
Blending	Layer 4
Blending Width	2
On/Off	Off

Under 4K2K presentation mode, Blending operation is invalid.

---

### 3.1.13 Test Pattern



Choose this icon and push ENTER to enter the logo menu or push TP button directly to enter the menu.

Test Pattern	
Type	100% Color Bar
Red	0
Green	0
Blue	0

Type:100% Color Bar, Pure Color, Off

### 3.1.14 Save and Load



Choose this icon and push ENTER to enter menu.

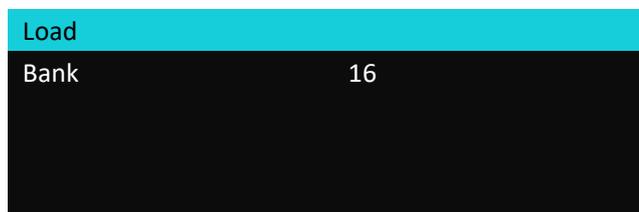
Preset	
Load	>>
Save	>>

Choose **Save** or push SAVE button : Save the current setting to BANK.  
Use knob or buttons, 16 BANKS can be saved.

Save	
Bank	16

---

Choose **Load**, numeral buttons 1~16 with saved BANKS will illuminate green, push the number button and BANK is loaded.



Push LOAD button, users can preview the BANKS pictures by the LCD display on front panel. To switch selected BANK to PGM, CUT or TAKE shall be used.

### 3.1.15 Tech Sport



Choose this icon and push ENTER to enter menu. Version, serial number of this device can be looked up here and contact method with RGBlink is offered here.

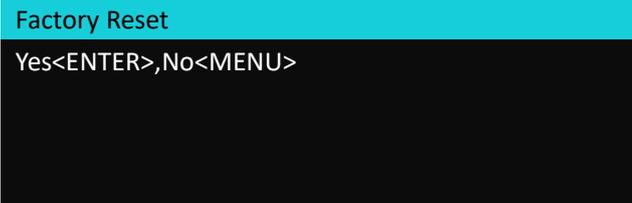


---

### 3.1.16 Factory Reset



Choose this icon and push ENTER to enter menu.



---

## 3.2 XPOSE Operation

### 3.2.1 Install XPOSE

#### Environment Requirements:

Processor: 1 GHz or above 32 bit or 64 bit processor

Memory: 2 GB or more

Graphics: Support DirectX 9 128M or above (open AERO effect)

Hard disk space: Above 16G (primary partitions, NTFS format)

Monitor: Resolution must be 1280 x720 pixel or above (it can not display normally if the resolution is lower than 1280 x720)

Operating system: Windows 7 or above (full version, not Ghost version or compact version)



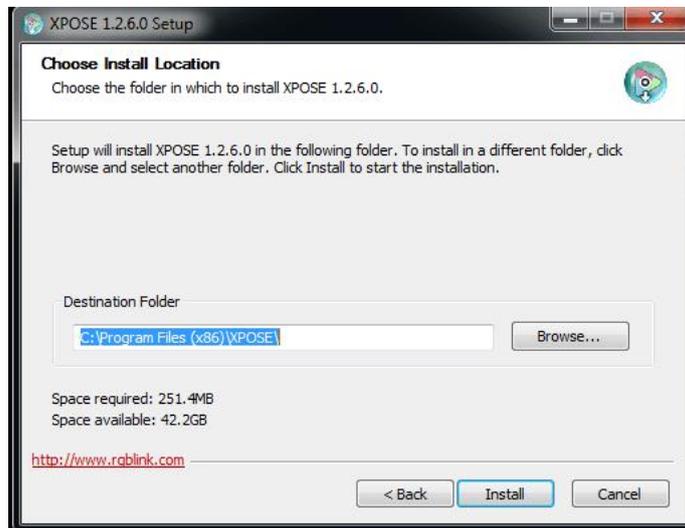
Double click  icon, it will pop-up the installer language box, select the language, for example, select “English”, and click “OK” to confirm.



Click “Next” to install:



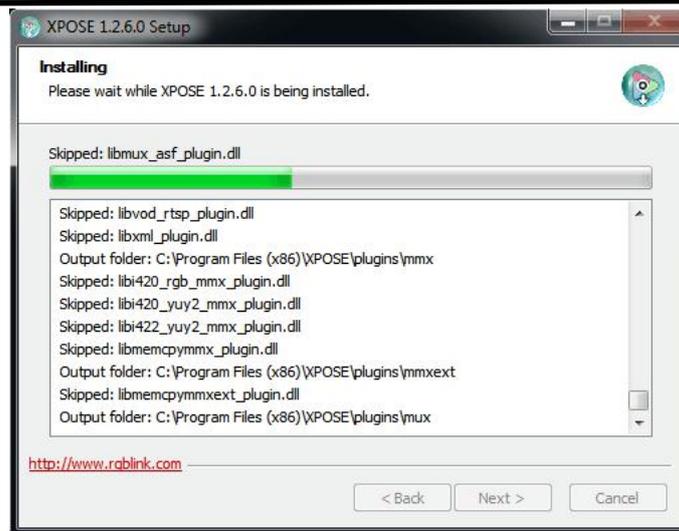
Select "Browse..." to select the XPOSE software install location:



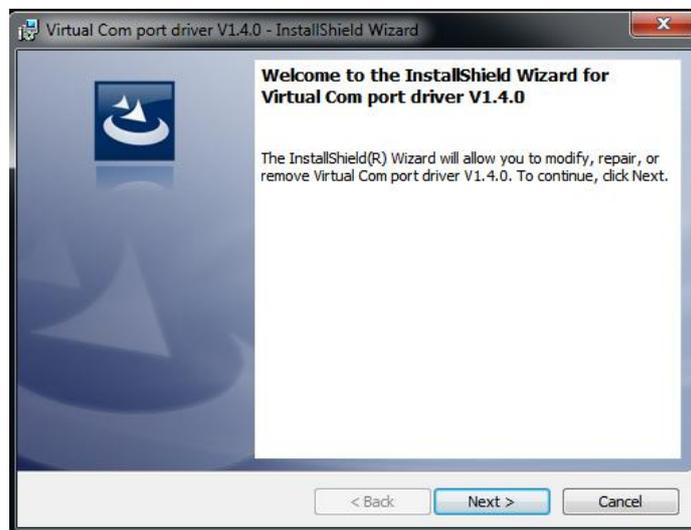
**Note:**

User should get the rights in "Roles Management" when install the software to disk C if the system is Windows 7 or above.

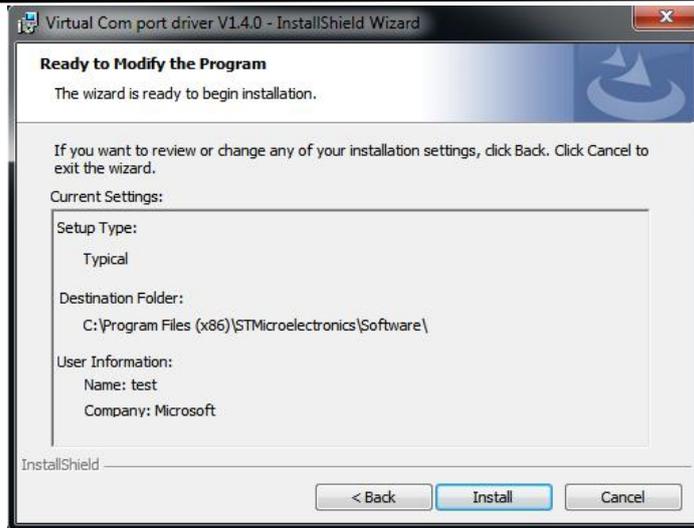
Click "Install":



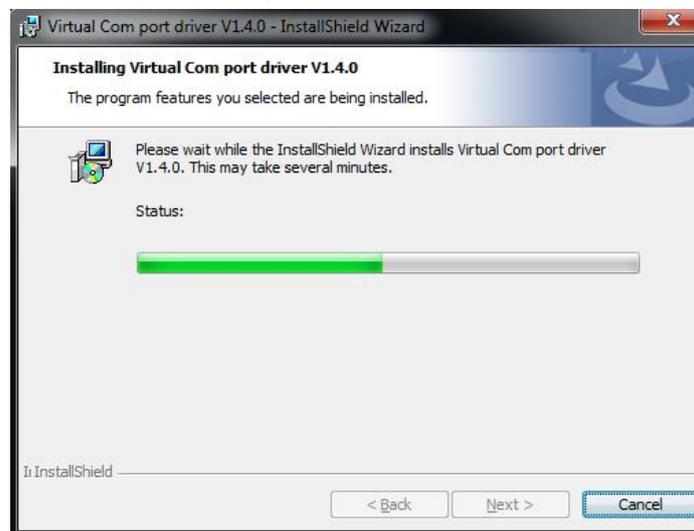
During installation, it will pop up the window of Install Shield Wizard for Virtual Com port:



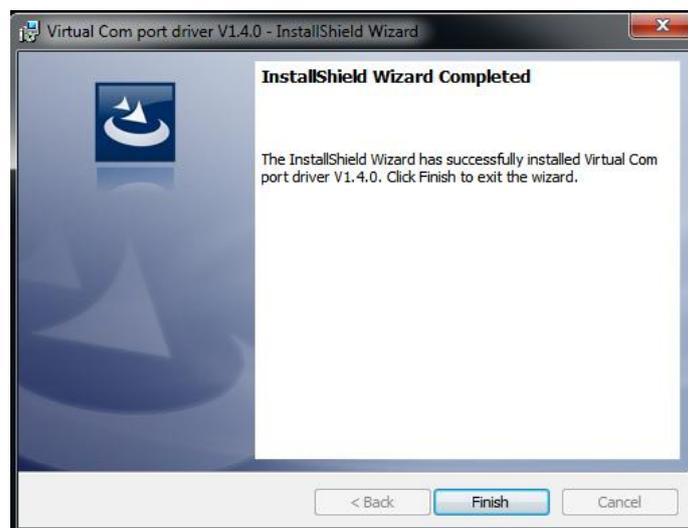
If user install the XPOSE software for the first time, click "Next"



Then click "Install", as shown in the figure below:



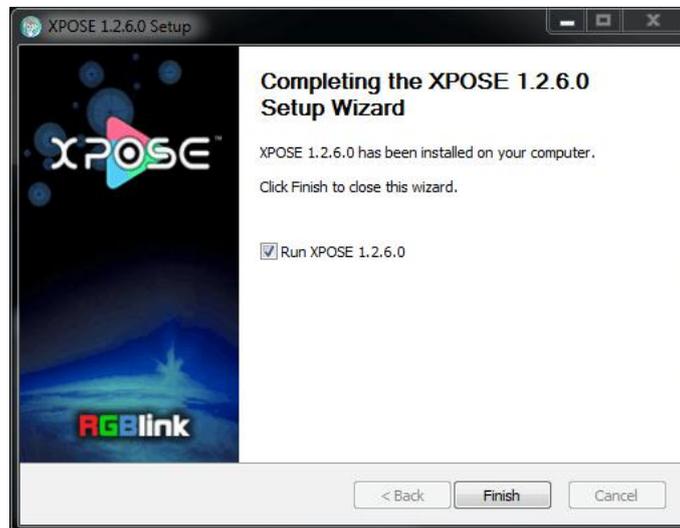
Click "Finish" and complete the installation, as shown in the figure below:



Select "Finish" and the device driver is completed installed, :



Click "Finish" and is ready to run the XPOSE :



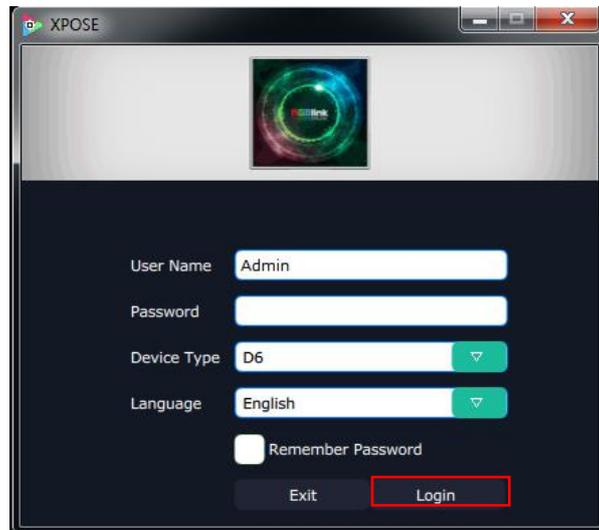
---

## 3.2 XPOSE Controls D6

### 3.2.2 Login in XPOSE



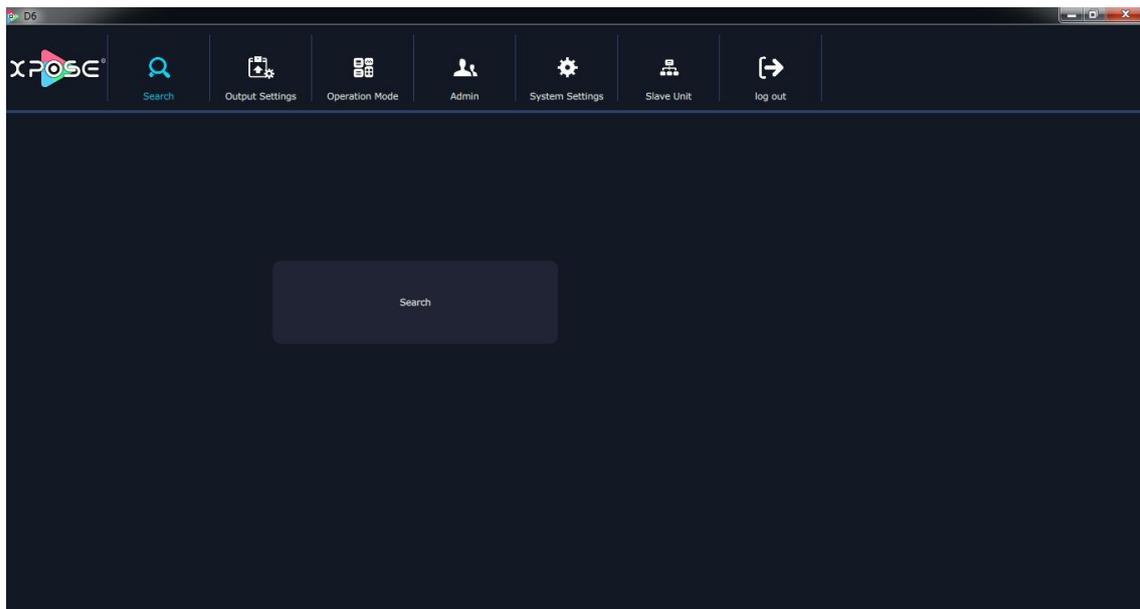
Double click the icon  on the desktop. Login interface will pop up, the user name is Admin, and there is no password, select “D6”, and enter the XPOSE by clicking “Login”.



If user want to change the language to Chinese, click the drop down arrow after “Language” and select “Chinese”, as shown in the figure below, then click “Login” to enter into the XPOSE.



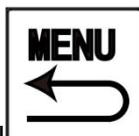
XPOSE management software interface is shown as follows:



XPOSE management software contains the functions including: Web Links, Search, Output Settings, Operation Mode, Input Settings, Access Control, System Settings, Slave Unit and Logout. In the following parts, we will introduce these in detail.

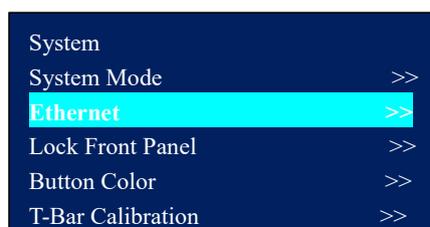
### 3.2.3 Connect with the D6

Firstly, set up the D6 IP, and make sure the IP of the computer and the D6 are on the same network range. Here is the way of how to check the device IP.



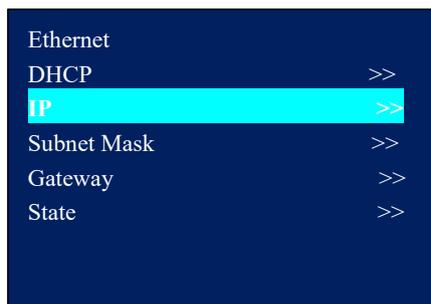
Press MENU and rotate knob to select System, then enter the sub-menu as follows:

D6



---

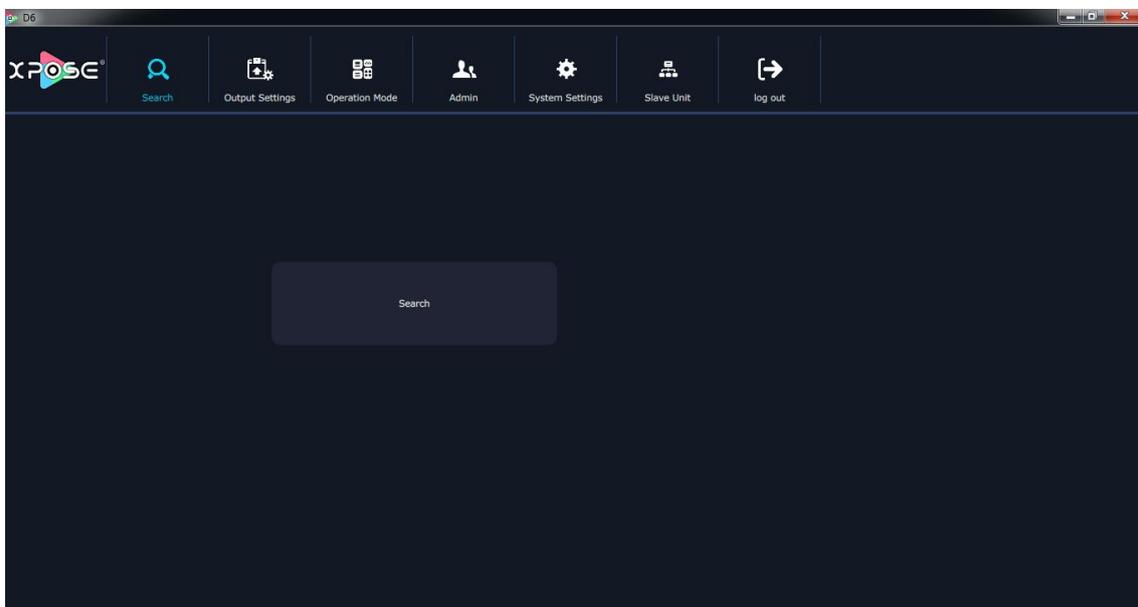
Select Ethernet and enter its sub-menu, then select **IP**



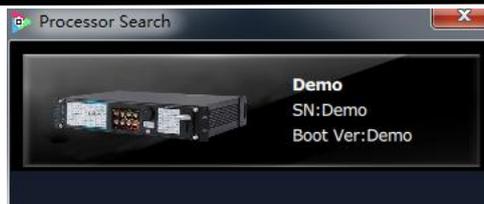
and IP of the device will be found.

Connect the PC which XPOSE software runs on the PC with the CAT5 cable or above to the D6. Power on D6 and ready to make the remote set up and configuration.

Then, click the shortcut “Search” on the operation interface.



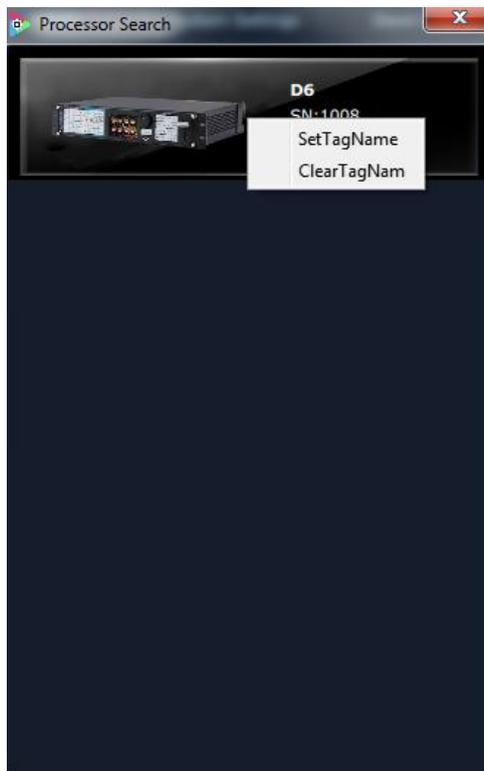
Then it will search the device, and show the device name, device number and IP after search, as shown in the figure below:



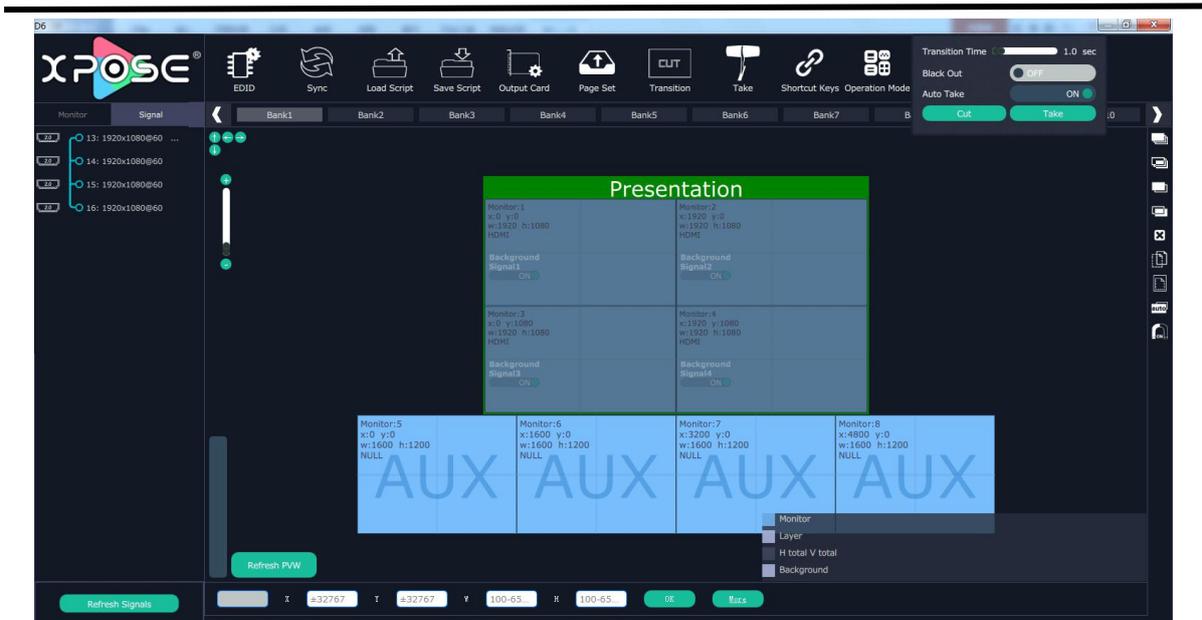
Finally, click the device to connect, as shown in the figure below:



**Note:** Right click the device, user can set tag name. The tag will be added behind D6. It can help users to differentiate the devices when more than one D6 are searched. If select "Clean Tag Name", the modified tag name will be cleared.

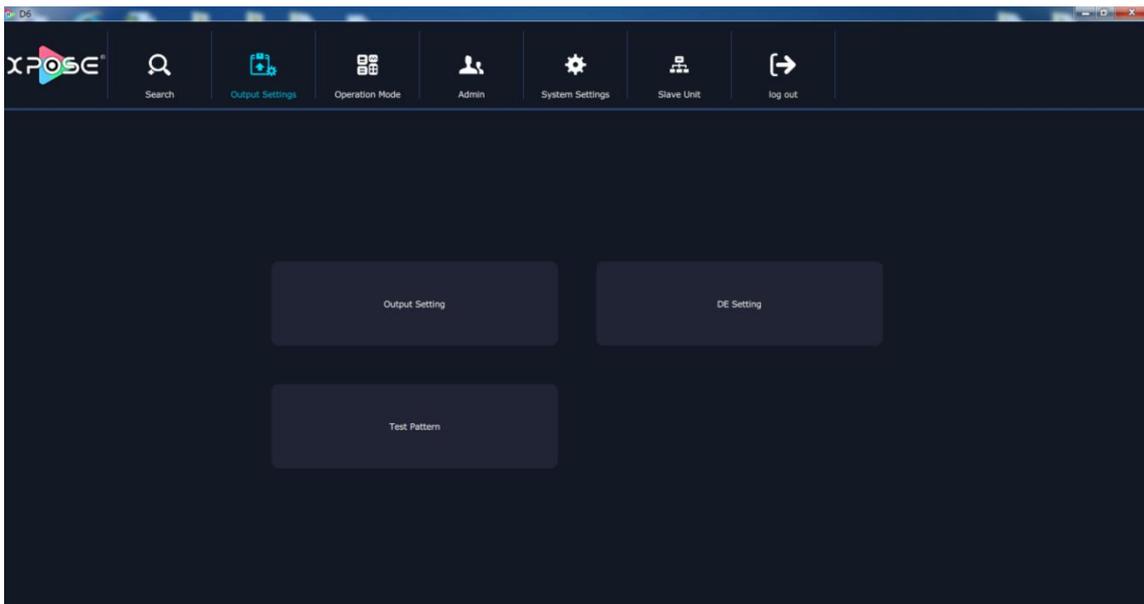


The XPOSE will automatically synchronize after connection, as shown in the figure below:



### 3.2.4 Output Settings

Click the “Output Settings”, and enter the interface as follows:

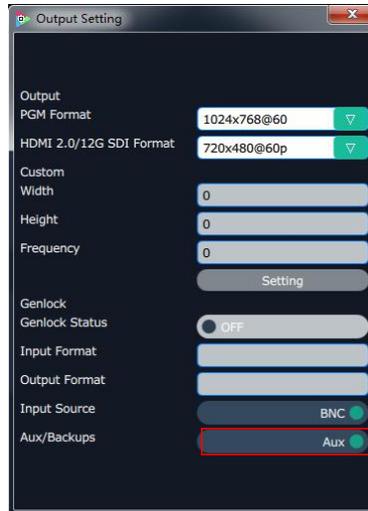


**Output Setting, DE Setting, Test Pattern** are included in output settings, specific as follows:

---

## Output Setting

Click the “Output Setting”, and pop-up window as follows:



**Output:** Click the drop down arrows after the formats, and select the output resolution in the pull-down menus according to actual needs.

**Custom:** The width, height and frequency can be set if select “**Custom**” in “PGM Format”. Click “**Setting**” to confirm.

**Genlock:** Enable or disable the genlock function by sliding the genlock switch. If select “ON”, the output resolution will be same with the resolution that selected. HDMI or BNC can be selected in “Input Source” by sliding the switch.

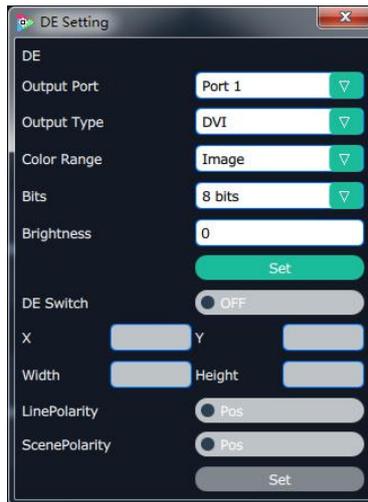
**Aux/Backups:** Enable or disable the Aux/Backups function by sliding the Aux/Backups switch. If users select “Aux”, with four AUX outputs enable to show four individual layers; enable the splitting in horizontal with four AUX outputs, also show a whole image; and enable the splitting in horizontal with 2 AUX outputs, and show PIP.

### Note

Content on AUX is set only need once,all operation modes are the same AUX setting.

## DE Setting

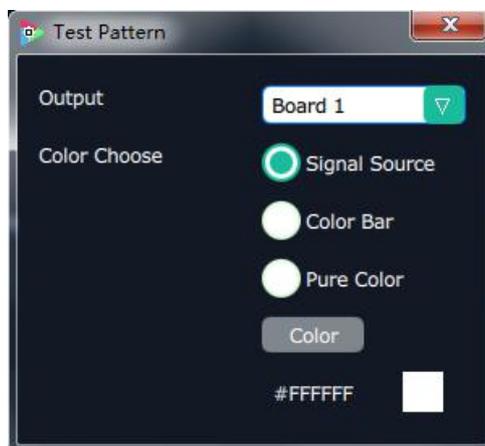
Click the “DE Setting”, and pop-up window as follows:



- (1) Output Port: Select the out put port as requirement.
- (2) Output Type: Select HDMI or DVI as needed.
- (3) Color Range: Select Image or Video.
- (4) Bits: 8 Bites as requirement.
- (5) Brightness: The brightness adjustment range is between 0~128. Click “**Set**” to confirm.
- (6) De Swith: Select on or off.
- (7) X, Y, Width, Height: Select the as requirement.
- (8) LinePolarity: Select the Pos or Neg as requirement.
- (9) ScenePolarity: Select the Pos or Neg as requirement and click ”Set” to confirm.

## Test Pattern

Click the “Test Pattern”, and pop-up window as follows:



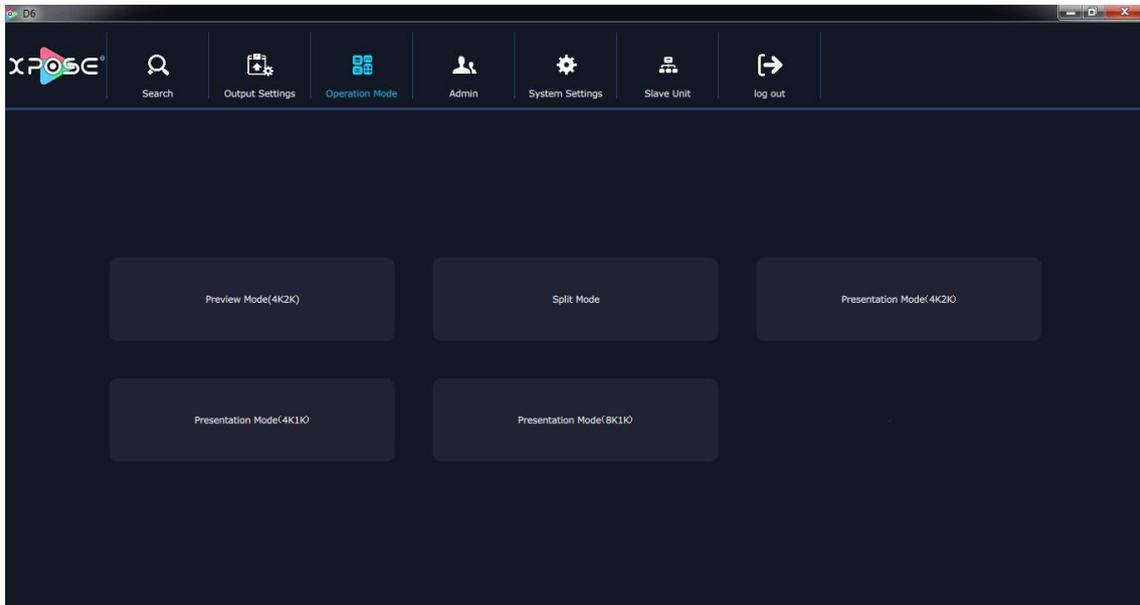
**Output:** User can select any board among the four boards.

**Color Choose:** Signal Source, Colour Bar and Pure Colour can be selected.

**Color:** If select “Pure Colour”, red, green and blue can be adjusted, the adjustment range is between 0~255.

### 3.2.5 Operation Mode

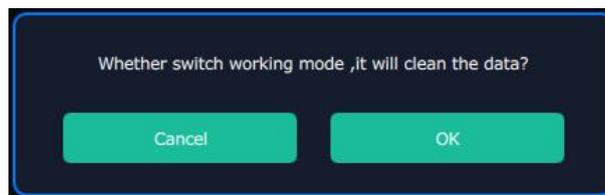
Click the “Operation Mode”, and enter the interface as follows:



Preview Mode (4K2K), Split Mode, Presentation Mode(4K2K), Presentation Mode(4K1K) and Presentation Mode (8K1K) are included in operation mode, specific as follows:

#### 3.2.5.1 Preview Mode(4K2K)

Click the “Preview Mode(4K2K)”, system will pop up a window “Whether switch working mode, it will clean the data?” as follows:



Click “OK”, and enter the interface as follows:

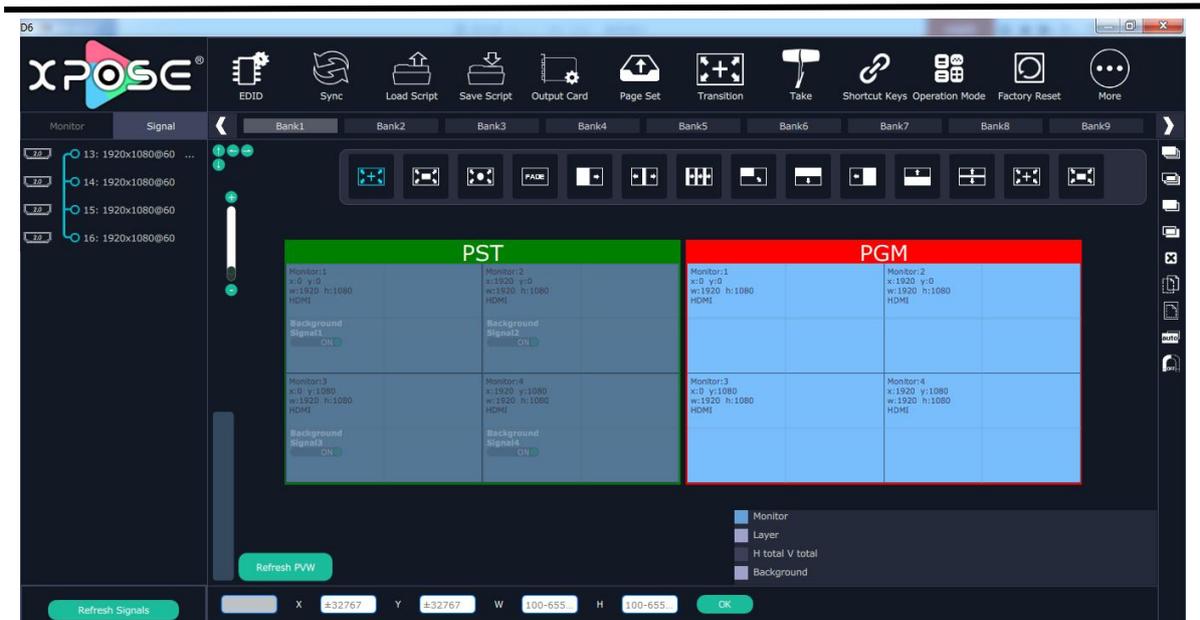


## Switch on Backups

In the Output Setting: sliding the switch to the left is Backups , and pop-up window as follows:



Click the “Operation Mode”, and enter to the interface as follows:



## Switch on Aux

In the Output Setting: sliding the switch to the right is Aux, and pop-up window as follows:



Click the "Operation Mode", and enter to the interface as follows:

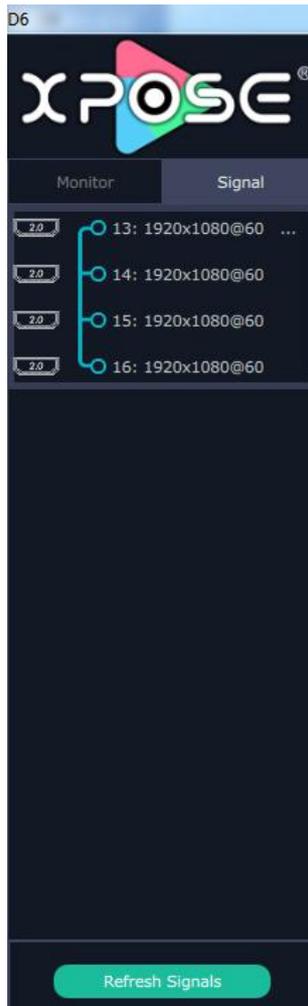


## Note

Content on AUX is set only need once, all operation modes are the same AUX setting.

## Signal List

The signal list is shown as follows:



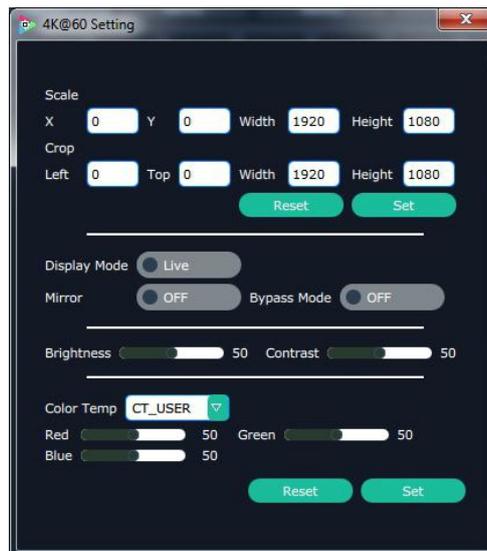
It displays the input module type, the quantity of inputs and input format. Right click the input for the following settings:



**Change Name:** Select “New Name”, input the new name, and click “OK” after setting.



**Set Input Property:** Right click the input and select “Input Property”, and it will enter the interface as follows:



**Scale:** Including X, Y, Width and Height. X means horizontal position , Y means vertical position. Users can select the corresponding parameter as requirement.

**Crop:** Crop the left, top, width and height.

**Display Mode:** Select “Live” or “Freeze”. Live means the image is active, Freeze means the image is frozen.

**Mirror:** Enable or disable the mirror function, default “OFF”.

**Bypass Mode:** Enable or disable the bypass mode. When select “ON”, the output format will be the same with the input format.

**Alpha:** Set the alpha, the adjustment range is 0~128.

**Sharpness:** Set the sharpness, the adjustment range is 0~100.

**Brightness:** Set the brightness, the adjustment range is 0~100.

**Contrast:** Set the contrast, the adjustment range is 0~100.

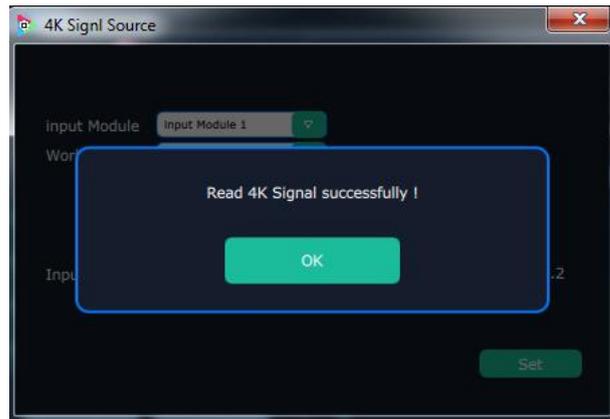
**Saturation:** Set the saturation, the adjustment range is 0~100.

**Color Term:** Set the color temp (red, green and blue), the adjustment range is 0~100.

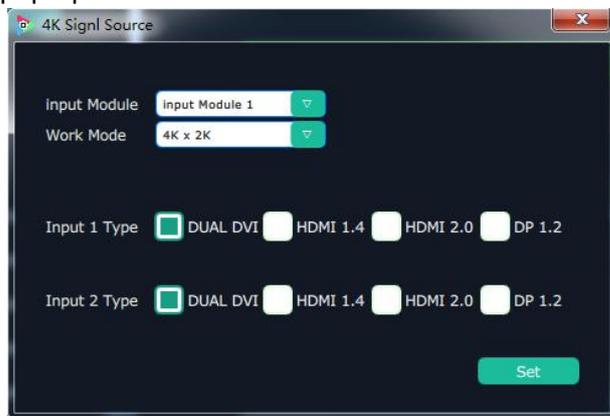
**Reset:** Select “Reset”, the input property will be recover to factory setting.

**Layer split/merge:** Right click the input, select layer split/ layer merge.

**Set 4K signal source:** Right click the input, select “4K”, and pop-up window as follows:



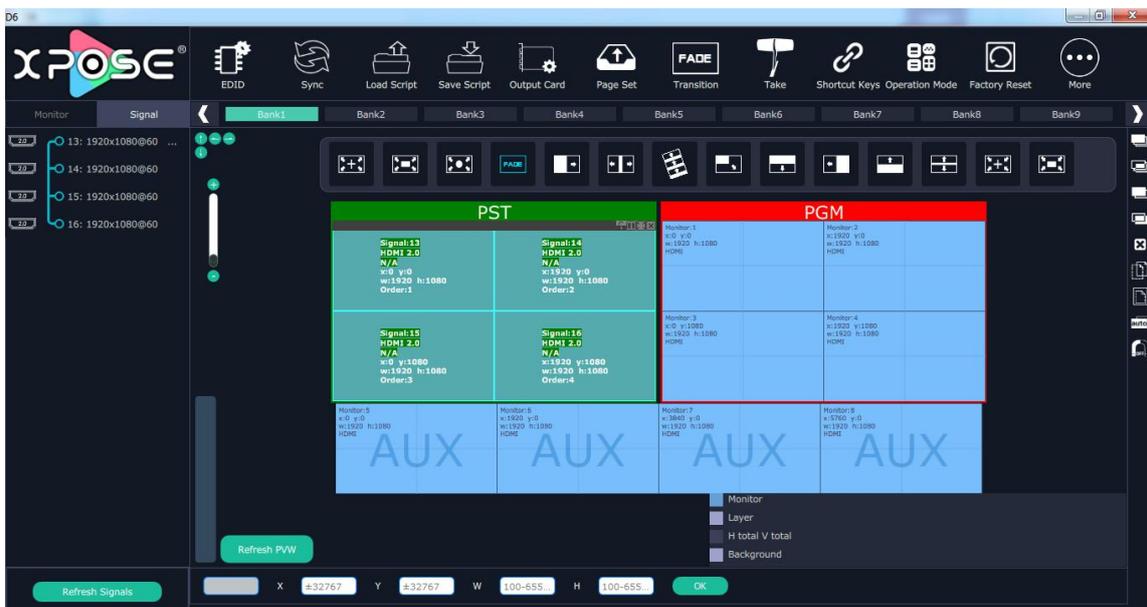
Click the “OK”, and pop-up window as follows:



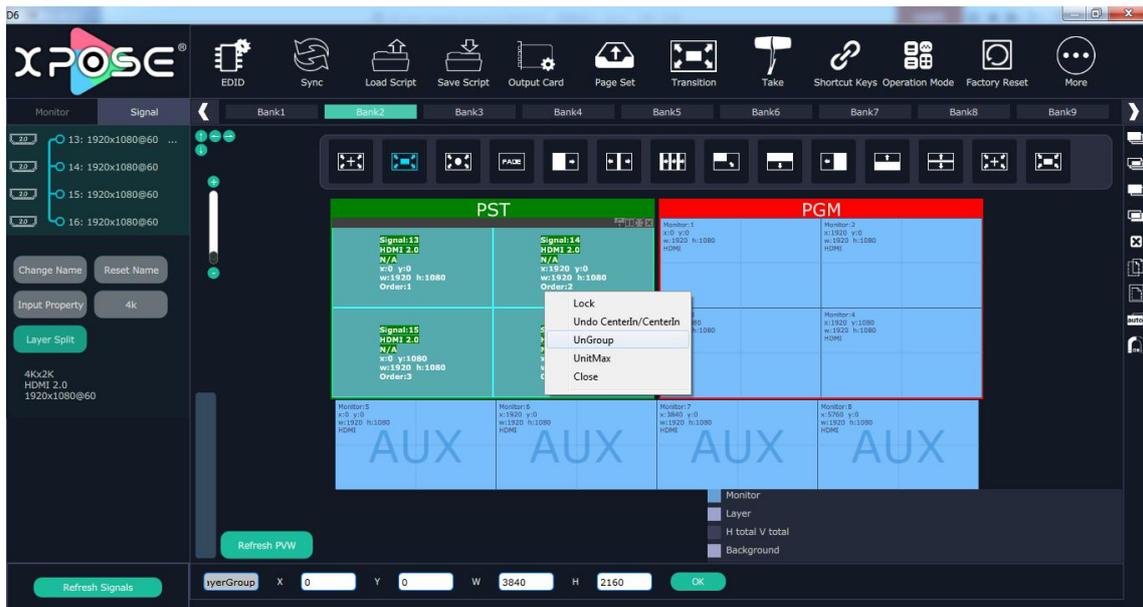
Choose “Input Module” and “Work Mode” and Input 1 Type, then click “Set”

**Layer Split:** Click “Layer Split”, choose Layer Split or Layer Merge.

**Layer Merge:** Select the signal to the PST, Layer Merge as follows:

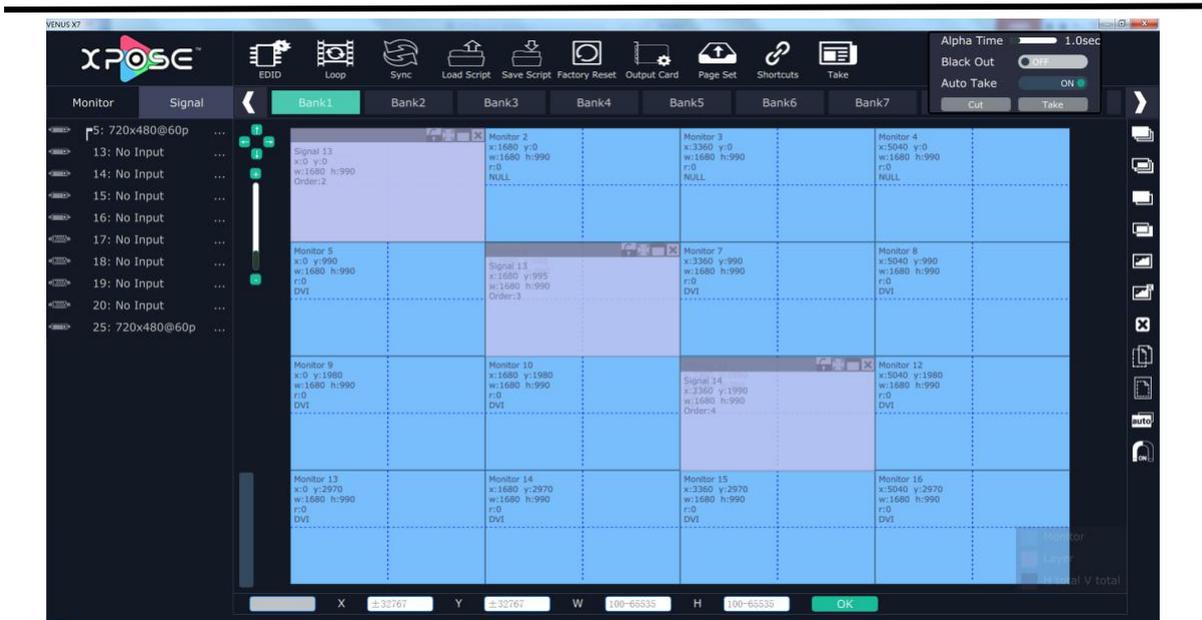


Layer Split: Select the signal to the PST, Layer Split as follows:



## Layer Setting

**New Layer:** In output screen zone of controlling software, press the left mouse key and drag on the intended output screen to cover the whole current screen. And the below interface will be displayed. A layer can also be opened by double clicking the left signal source to be shown on the window.



**Adjust Layer:** Two ways can change the size and location of the opened layer:

- a. Drag the opened layer by mouse. The details are: move the mouse to the brink of the opened layer, when the mouse shows “<—>”, press the left key of the mouse and drag the window to a suitable size and then release the mouse. Or move the mouse to the lower right of the opened layer, press the left key of the mouse and drag the window to a suitable size and then release the mouse. Move the mouse to the opened layer and press the left key of the mouse and move the mouse, then the layer will be moved, release the mouse when moved to the suitable location. But this method can only adjust the size and location roughly, if an accurate adjustment is needed, the second method can be used.
- b. Select the layer to be adjusted, and set the X, Y, width and height in the bottom of the interface.



**Hierarchical relations between layers:** After creating the layers, the hierarchical relations can

be changed by the following: click the shortcut key bring layer to top “”, bring layer to bottom “”, layer forward “” or layer backward “”. The layer can be set as background by click “” and click “” to remove the layer background.

**Close one layer or all layers:** Click the icon  on the top right corner of the layer to close

one layer, or click the shortcut key “” to close all layers.

**Lock the layer:** Click the icon  on the top right corner of the layer to lock the layer, the layer can’t be moved or adjusted if be locked.

**Layers Group:** If user need to move two or more layers at the same time, long press the button

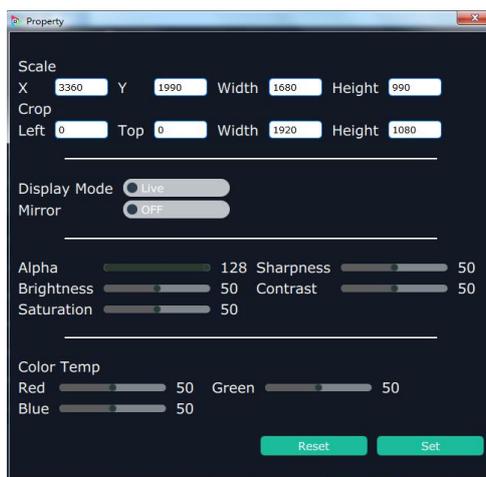
G, and click the layers that to operate, then release the button G, the selected layers will be grouped, which can be moved or scaled easily.

**Full the layer:** Click the icon  on the top right corner of the layer to full cell, and click the icon  to full screen.

**Copy and paste bank:** Select the bank that to copy, and click the copy bank shortcut "", on the right side of the interface, then select the bank that to paste, and click the paste bank shortcut "". The selected layer will pasted to the bank.

**Adaptive:** If scale the output area to a large area, click the adaptive shortcut "" on the right side of the interface, the output area will be return to the best position.

**Layer Property Setting:** Select the layer to be adjusted, click the More shortcut "" in the bottom of the interface, and enter the interface as follows:



**Scale:** Set the X, Y, width and height.

**Crop:** Crop the left, top, width and height.

**Display Mode:** Select "Live" or "Freeze".

**Mirror:** Enable or disable the mirror function, default "OFF".

**Alpha:** Set the alpha, the adjustment range is 0~128.

**Sharpness:** Set the sharpness, the adjustment range is 0~100.

**Brightness:** Set the brightness, the adjustment range is 0~100.

**Contrast:** Set the contrast, the adjustment range is 0~100.

**Saturation:** Set the saturation, the adjustment range is 0~100.

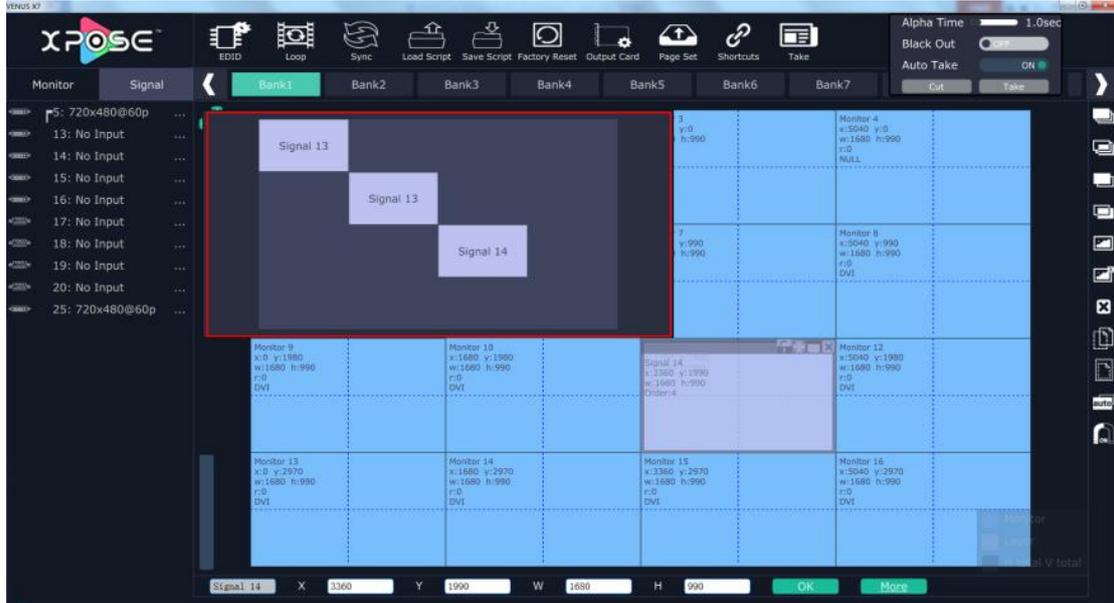
**Color Term:** Set the color temp (red, green and blue), the adjustment range is 0~100.

**Reset:** Select "Reset", the input property will be recover to factory setting.

### Scene Preview

Except the Matrix Mode, stay the mouse on the scene in Videowall Mode, Preview Mode or

3D-Mode, it will pop up the preview window for the layer layout, as shown in the figure below:



User can preview the layer layout more directly, and switch it to the program output.

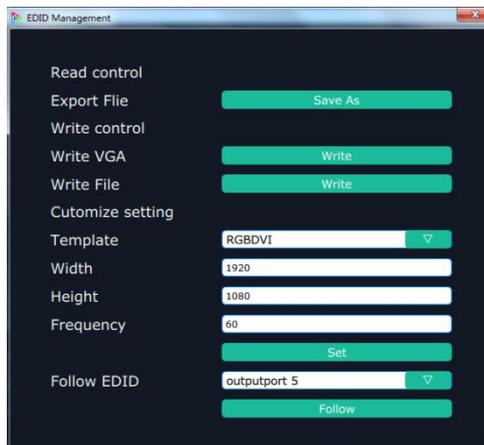
## EDID



Click the EDID shortcut “”, and pop-up window as follows:



The special display project or LED display application would like to require special resolution settings to meet the requirement. Select the input or output board to read and write the EDID. As shown in the figure below:



If select the 4K input card, as shown in the figure below:



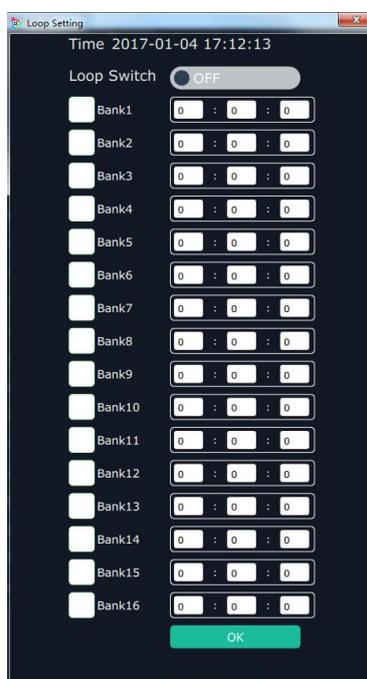
Click the input port, and set the width, height and frequency. Click “Set” after setting. Select “Reset”, all the setting will be recover to factory setting.



## Loop



Click the loop shortcut “Loop”, and pop-up window as follows:



Slide the loop switch to enable or disable the loop function for the bank. If select “ON”, the bank play time can be set.

## Sync



Click the sync shortcut “Sync” to synchronize the current data.

---

## Load Script



Click the load script shortcut “Load Script”, user can load the data from the computer.

## Save Script



Click the save script shortcut “Save Script”, user can save the data to the computer.

## Factory Reset



Click the factory reset shortcut “Factory Reset” to reset to factory settings.

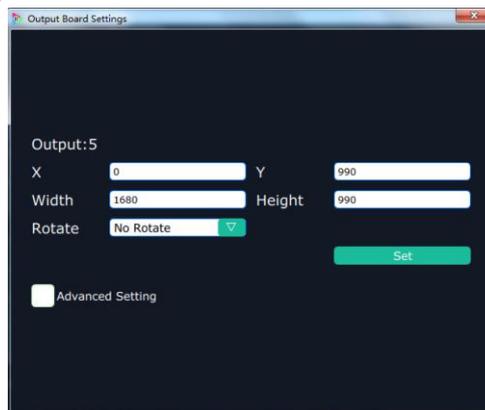
## Out Card Set



Click the out card set shortcut “OutCard Set”, and pop-up window as follows:

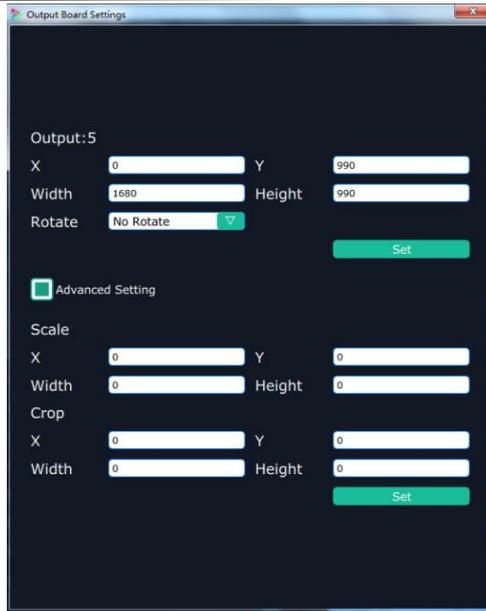


Click any output, and pop-up window as follows:



X, Y, width, height, rotate can be set.

Click “Advanced Setting”, pop-up window as follow:

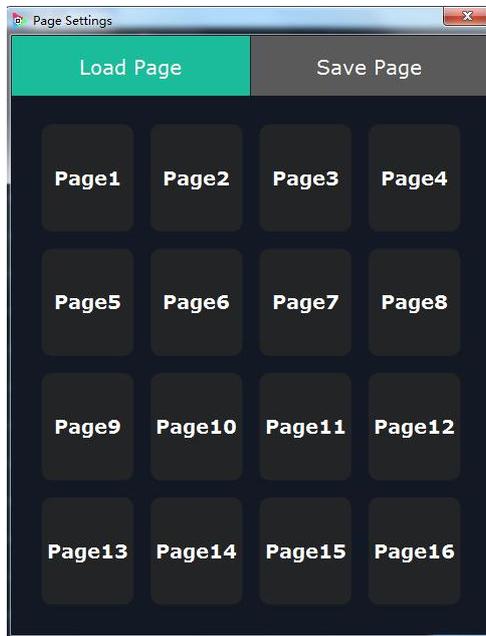


If user need to connect to the LED display, or there is deviation in splitting, enter to the advanced setting, and scale or crop the image.

### Page Set



Click the shortcut “ **Page Set** ”, and pop-up window as follows:



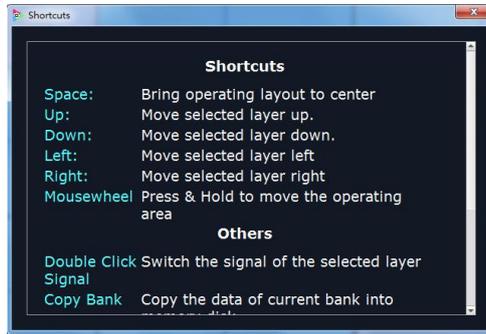
Save Page: Click any one of page 1~page 16. The button light will be on and then turn to gray if save the scene successfully.

Load Page: The button light on is the saved scene, and can be loaded.

### Short Key



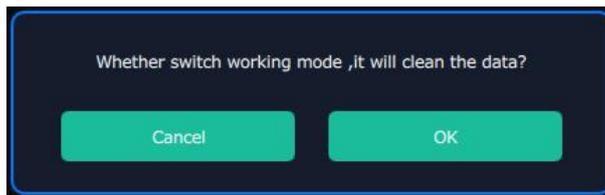
Click the shortcut “ShortKey”, and pop-up window as follows:



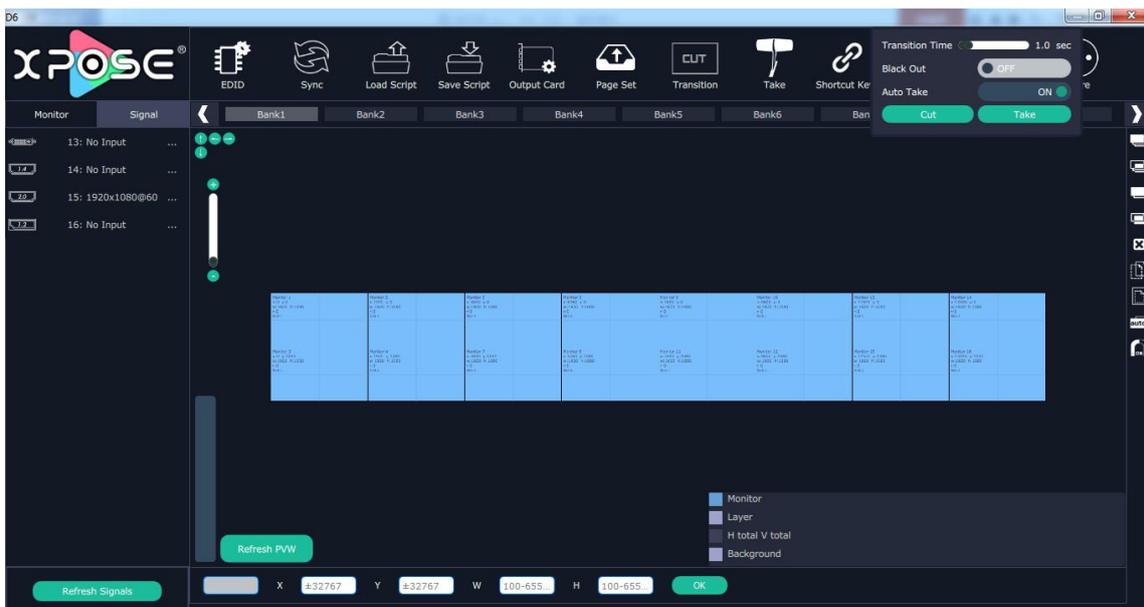
Use shortcut key to operate fast and easily.

### 3.5.2.2 Split Mode

Click “Operation Mode” and Choose “Split Mode”, system will pop up a window “Whether switch working mode, it will clean the data?” as follows:

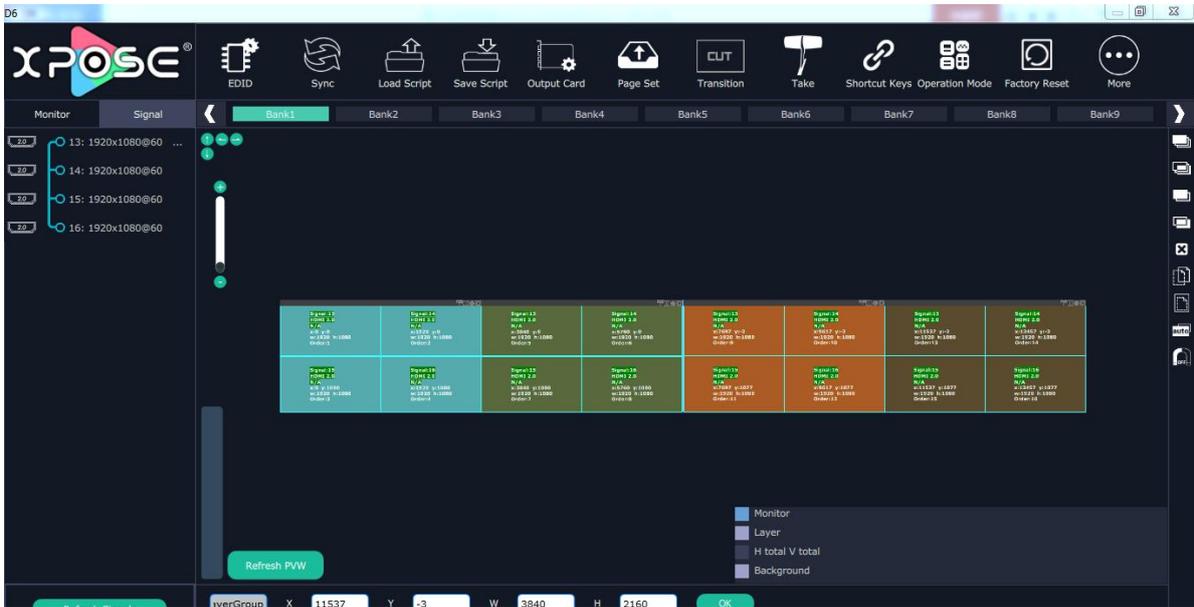


Click “OK”, and enter the interface as follows:

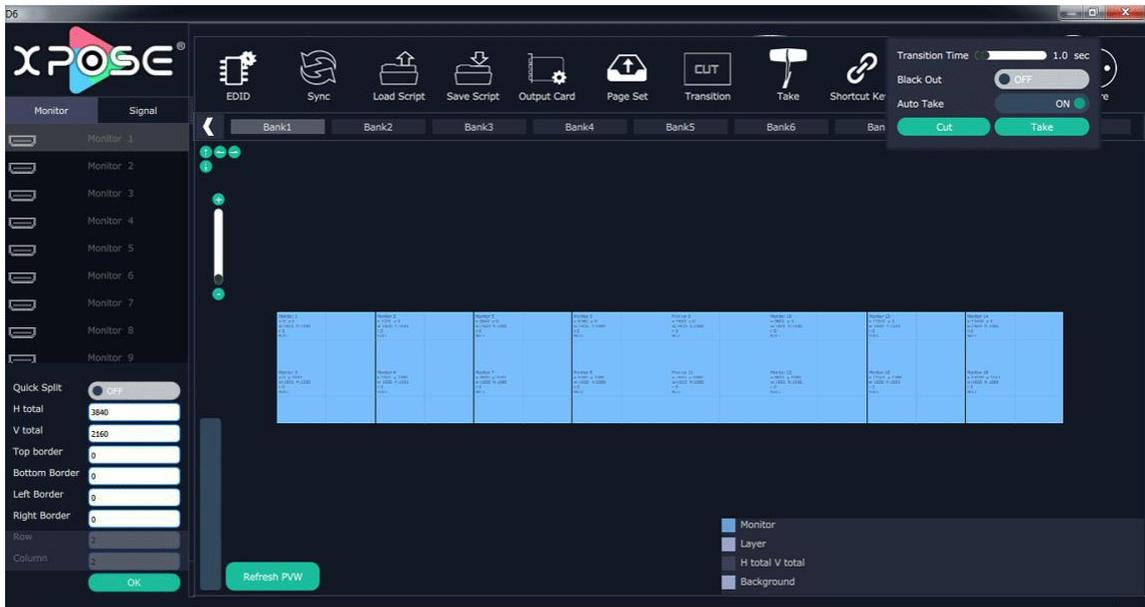


Under split mode, all output with the mouse to move the location of each outlet in output operations area, which adjust the output of the signal source location.

The input signal respectively to output the output of operating area, also can be tensile is full of need to display the output signal source, the main screen will display the output effect.



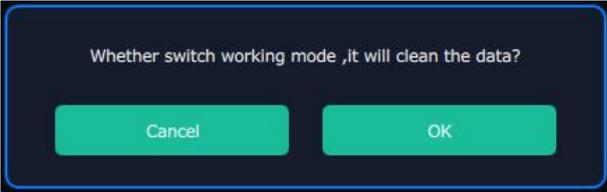
Click "Monitor" shortcut , it will enter the interface as follows:



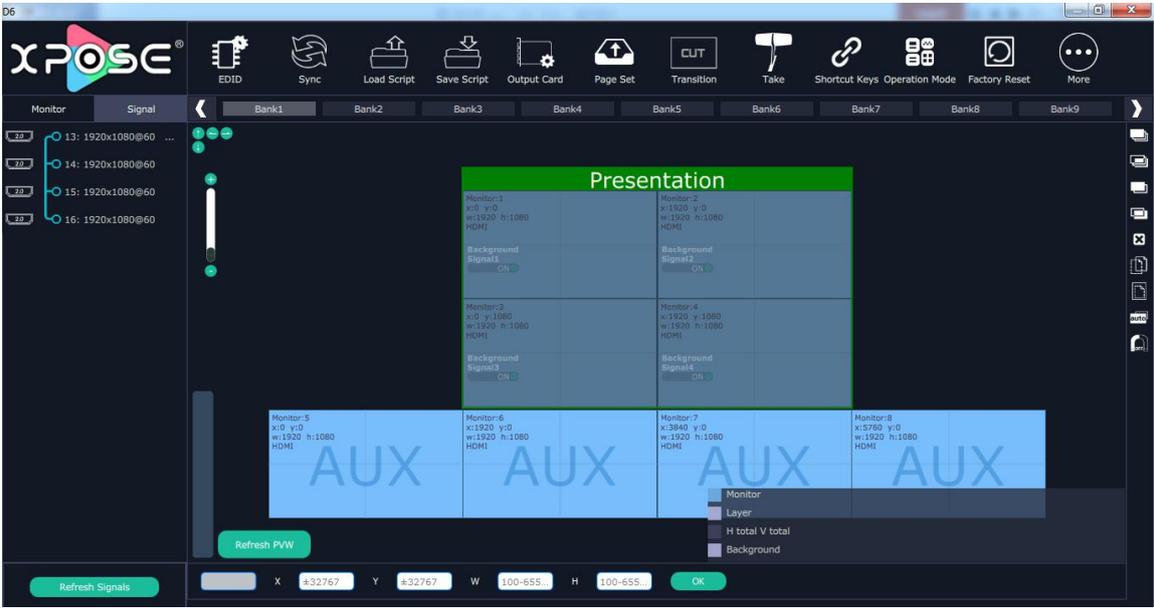
Quick split: Enable or disable the quick split mode by sliding the quick split switch and set H total, V total, Top Border, Bottom Border, Left Border, Right Border, Row and Column.

### 3.5.2.3 Presentation Mode (4K2K)

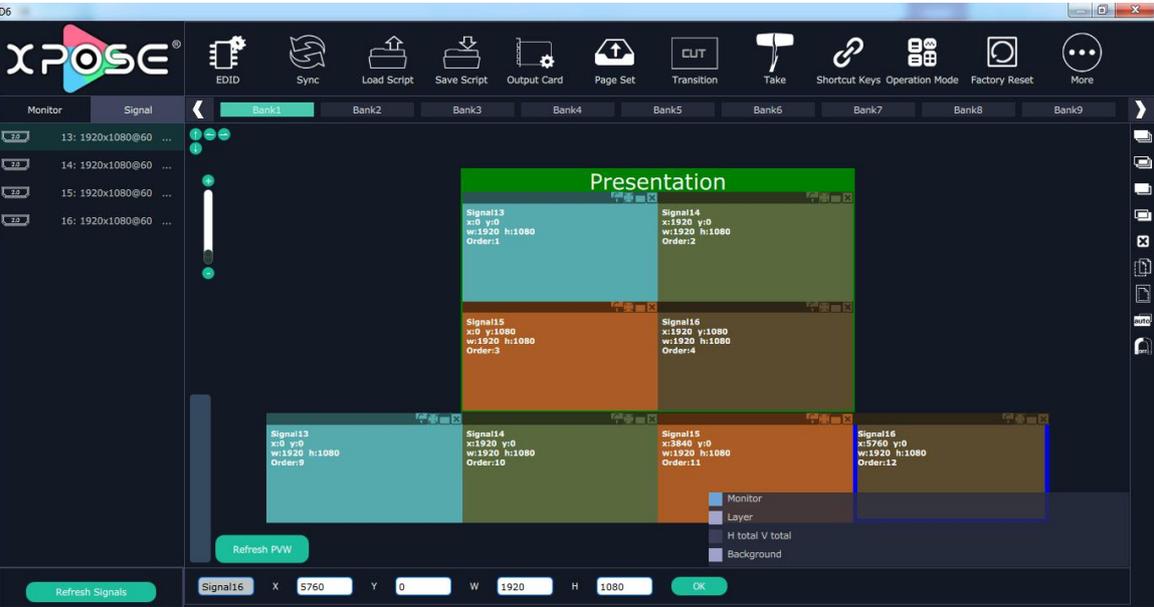
Click "Operation Mode" and Choose "Presentation Mode (4K2K)", system will pop up a window "Whether switch working mode, it will clean the data?" and follows:



Click "OK", and enter the interface as follows:

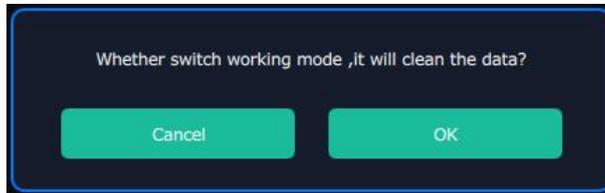


The input signal respectively to output the output of operating area, also can be tensile is full of need to display the output signal source, click on "TAKE" button at top right corner, and the main screen will display the output result.

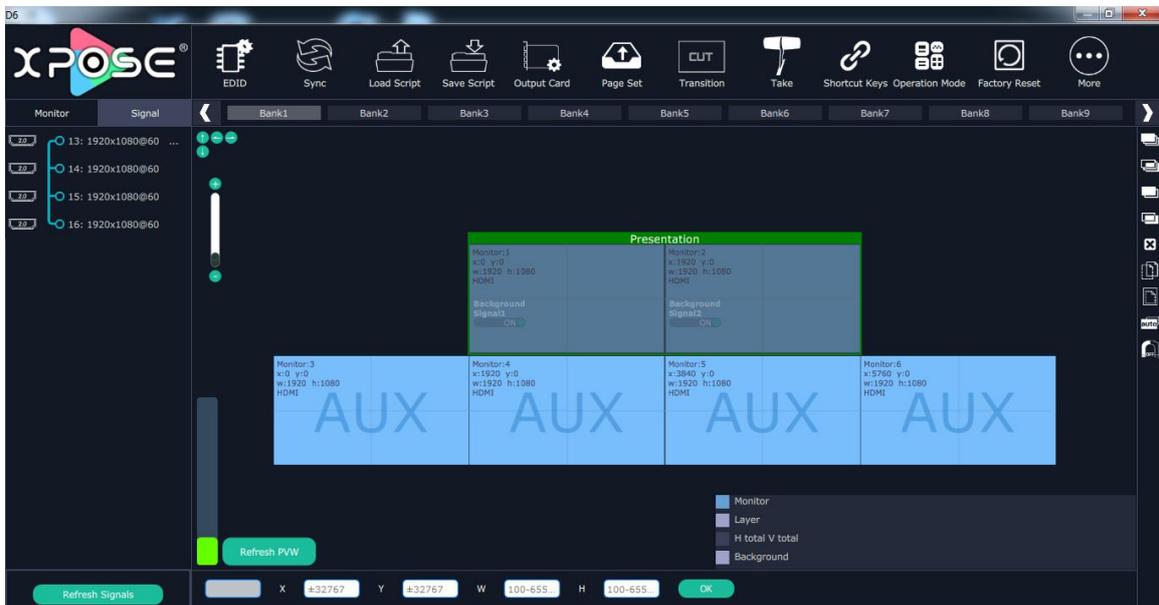


### 3.5.2.4 Presentation Mode(4K1K)

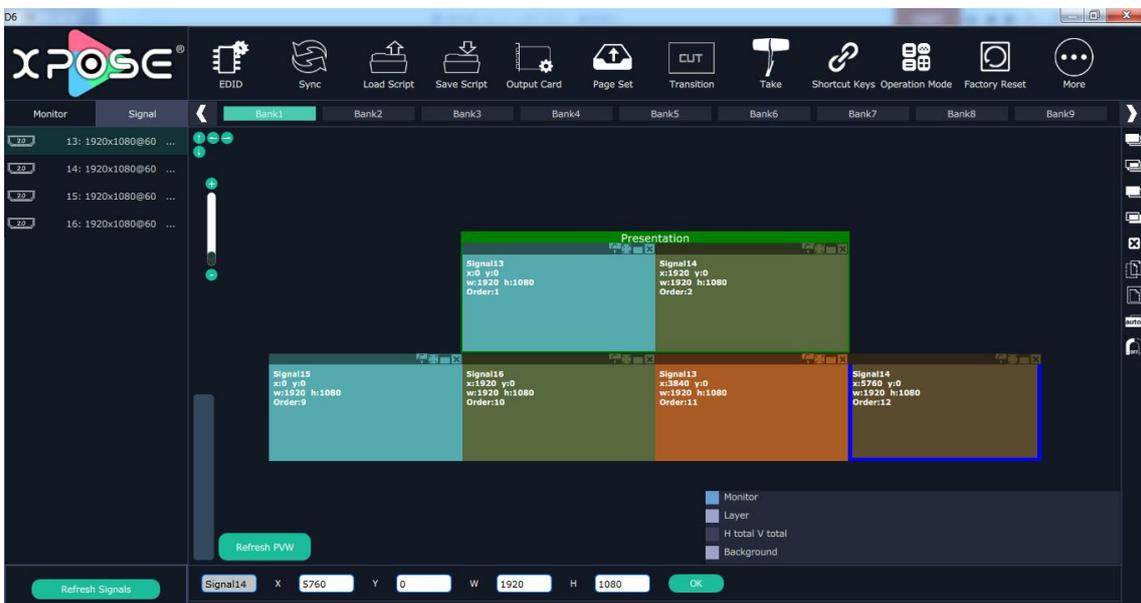
Click "Operation Mode" and Choose "Presentation Mode (4K1K)" system will pop up a window "Whether switch working mode ,it will clean the data?" as follows:



Click "OK", and enter the interface as follows:

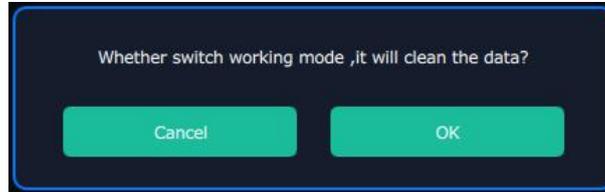


The input signal respectively to output the output of operating area, also can be tensile is full of need to display the output signal source, click on "TAKE" button at top right corner, and the main screen will display the output result.

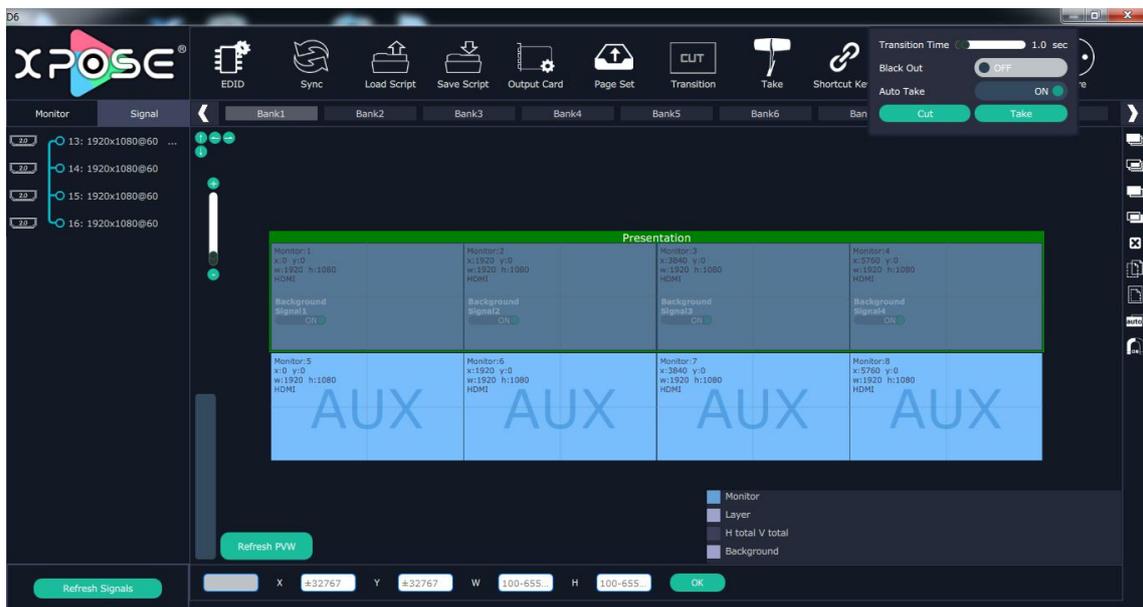


### 3.2.5.5 Presentation Mode (8K1K)

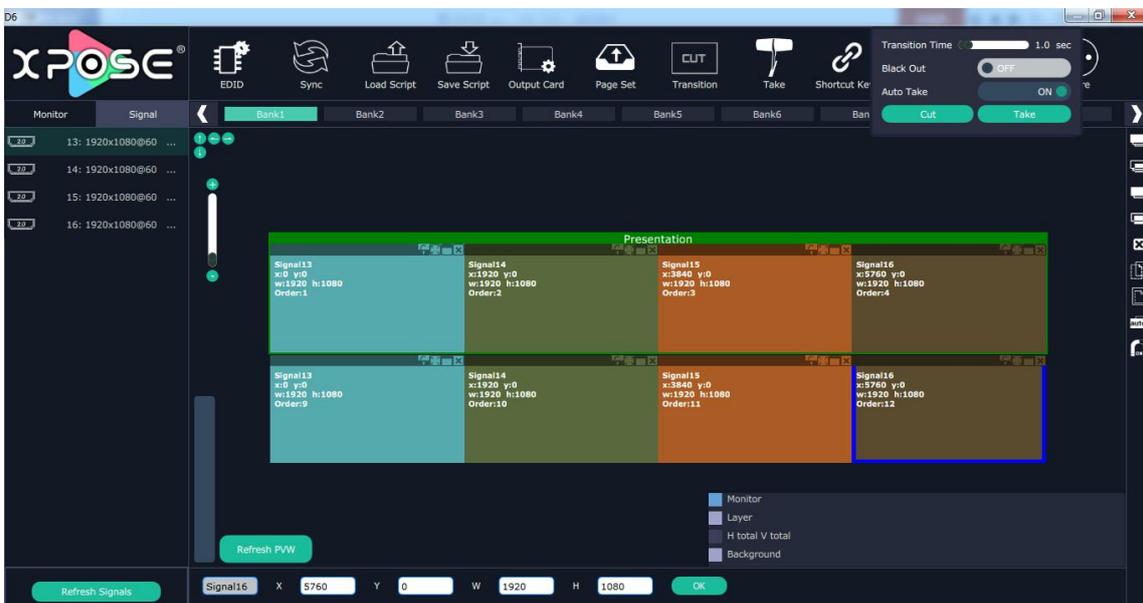
Click "Operation Mode" and Choose "Presentation Mode (8K1K)" system will pop up a window "Whether switch working mode, it will clean the data?" as follows:



Click "OK", and enter the interface as follows:

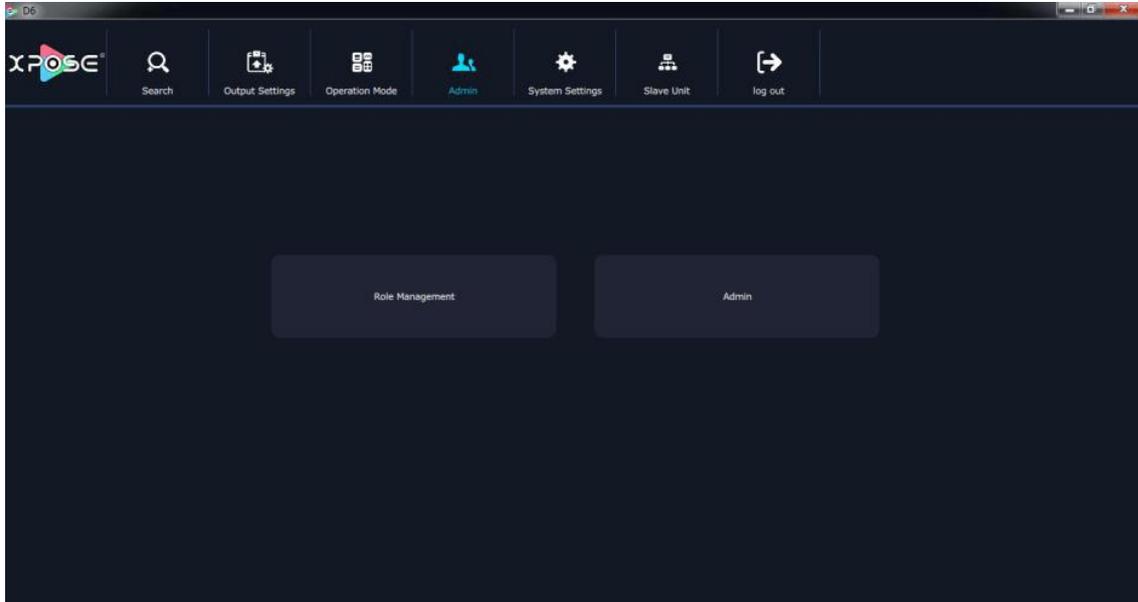


The input signal respectively to output the output of operating area, also can be tensile is full of need to display the output signal source, click on "TAKE" button at top right corner, and the main screen will display the output result.



## 3.2.6 Admin

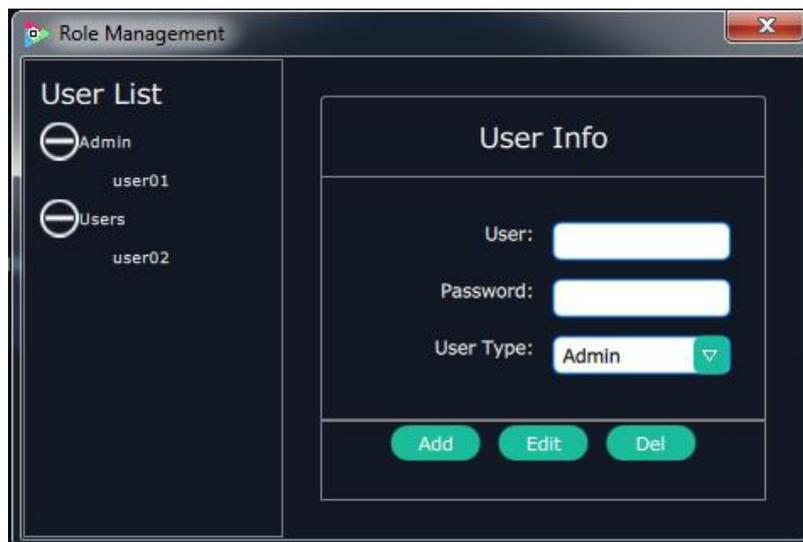
Click the “Admin”, and enter the interface as follows:



Role management and rights management are included in access control, specific as follows:

### Role Management

Click the “Role Management”, and pop-up window as follows:



**Add:** Input the user name and password, and select the user type as “Admin’ or “Users”, click “Add” after setting.

**Edit:** Select the admin or users in user’s list, then edit the password or user type, click “Edit” after setting.

**Del:** Select the admin or users in user’s list, then click “Del”, the selected user will be deleted.

---

## Rights Management

Click the “Rights Management”, and pop-up window as follows:



Select the admin or users in user’s list, then click the rights in “Managements Detail”. Click “**OK**” after setting. User can operate the rights that selected.

**User Info:** Display all the Admin or Users list, double click it will unfold or fold the list.

### **Management Details:**

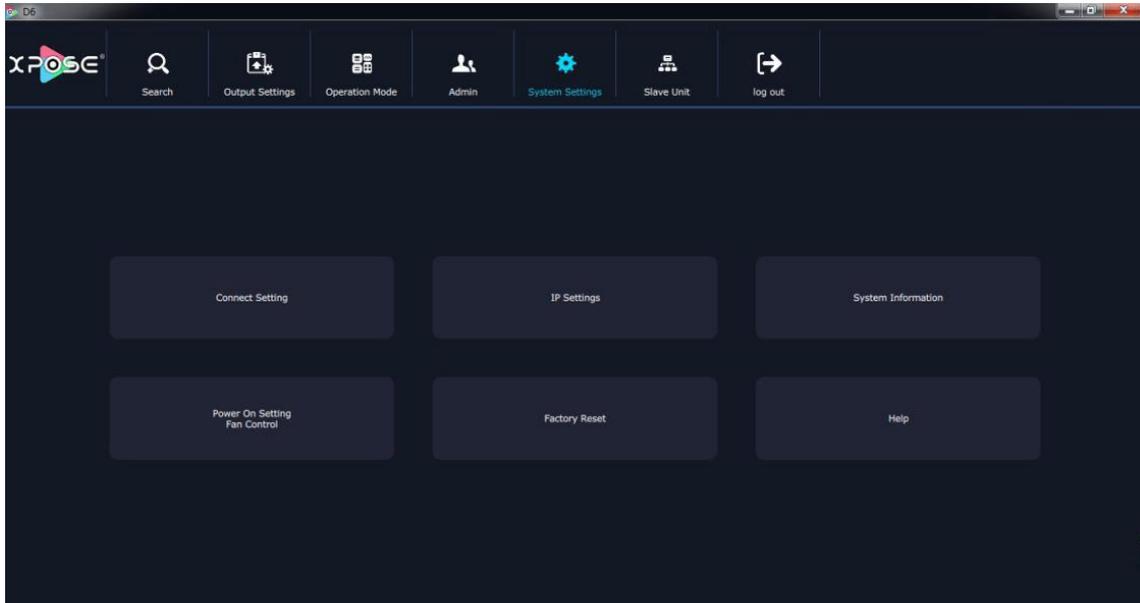
The administrator account can edit management details for all Admin Users and Users .

When the Admin user logs in, the administrative details cannot be edited for other Admin Users, but can be edited for all Users.

When a Users log in, no detail items are managed for all Users.

## 3.2.7 System Settings

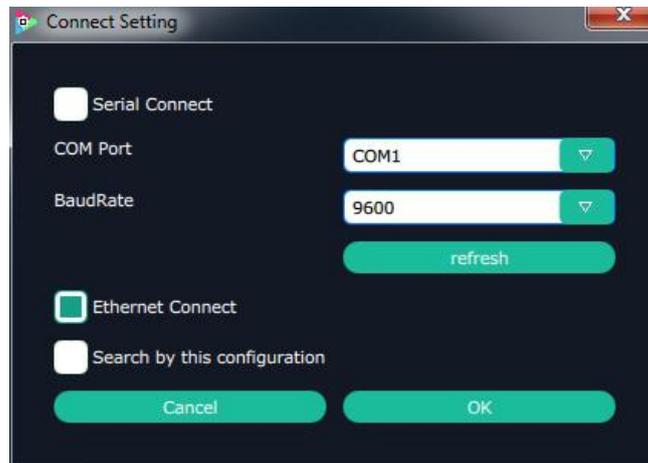
Click the “System Settings”, and enter the interface as follows:



Connect Setting, IP Settings, System information, Power On Setting/ Fan control, Factory Reset, and help are included in System Settings, specific as follows:

### Connect Settings

Click the “Connect Setting”, and pop-up window as follows:



Setting the Device with XPOSE connecting ways: Serial Connect, Net Connect and Search by this configuration.

---

## IP Settings

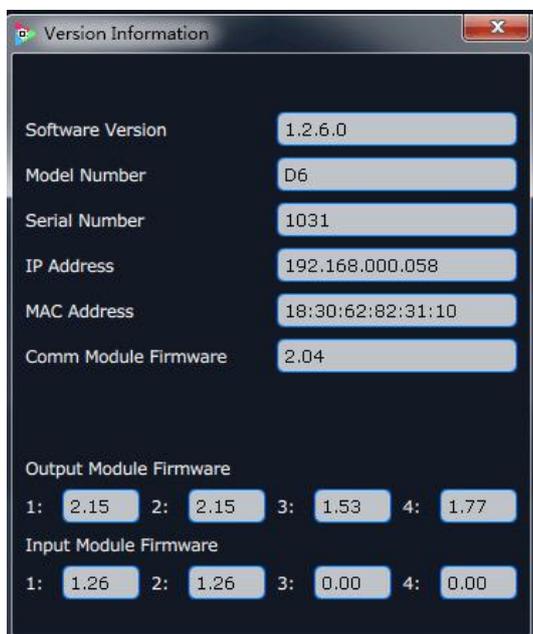
Click the “IP Settings”, and pop-up window as follows:



Default “Auto get ip address”. Users can also set IP address, mask and gateway manually. This is usually used if one computer control some devices or remote control. It takes effect after reboot the XPOSE if change IP through network.

## System Information

Click the “System Information”, and pop-up window as follows:



Display the device version information. Including Model Number, Serial Number, IP Address, firmware version, etc.

---

## Power on setting Fan Control

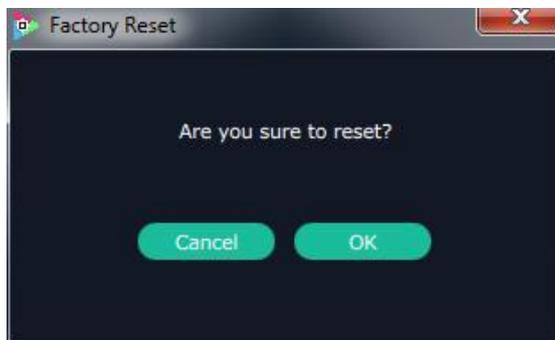
Click the “Power On Setting Fan Control”, and pop-up window as follows:



Set the time-lapse recall time, Enable or disable the Auto Fan Control, set Fan Speed and click "Set", that will load.

## Factory Reset

Click the “Factory Reset”, and pop-up window as follows:



Click "OK", return to factory resetting.



Click "OK", and Restart.

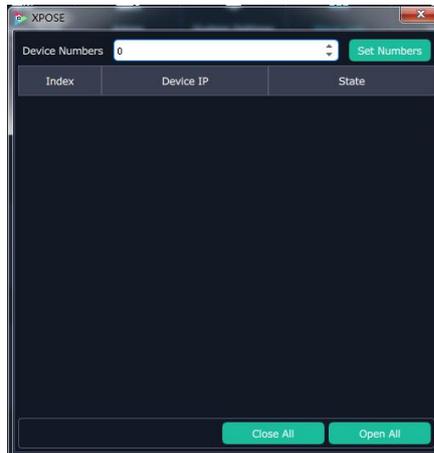


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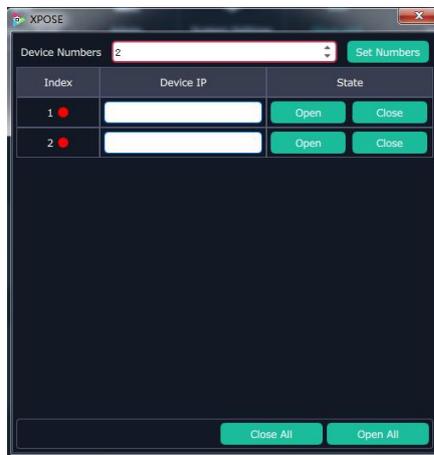
### 3.2.8 Slave Unit

It can control multiple devices of the same type at the same time, and the operation of each device is the same. It can realize a XPOSE to control multiple devices of the same type and operate at the same time.

Click the “**Slave Unit**”, and pop-up window as follows:

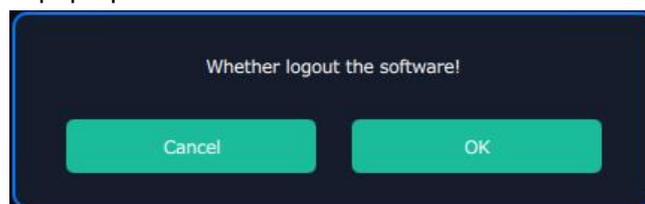


Click “**Device Nmubers**”, the windows can open two index.



### 3.2.9 Log Out

Click the “Log Out”, and pop-up window as follows:



Click “**OK**”, and the software would be enable to log out.

---

# Chapter 4 Order Codes

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## 4.1 Product

110-0628-01-0 D6

## 4.2 Options

### 4.2.1 Input Options

190-1628-06-0 SDI Input Module(Configurable 3G/6G/12G)

190-1628-07-0 4K Input Module (DVI/HDMI/DP)

### 4.2.2 Output Options

190-1628-21-0 HDMI 2.0 4K Output Module

190-1628-23-0 SDI 12G Output Module

190-1628-30-0 Four Layer Output Module

190-1628-31-0 HDMI 2K Output Module (4 HDMI 1.3)

190-1628-50-0 PVW HDMI Output Module

950-0005-00-0 Hot Swap PSU 400W

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# Chapter 5 Support

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## 5.1 Contact Us

### Contact Us

**Web**

[www.rgblink.com](http://www.rgblink.com)

**Phone**

+86-592-577-1197

**Email**

Sales [sales@rgblink.com](mailto:sales@rgblink.com)  
Support [support@rgblink.com](mailto:support@rgblink.com)

**Social Media**

@RGLINK



/rgblink



+rgblink



/rgblink



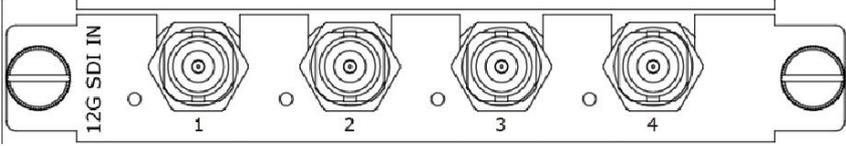
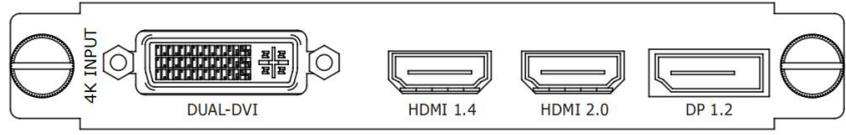
rgblink

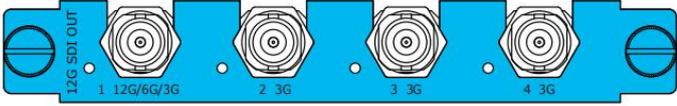
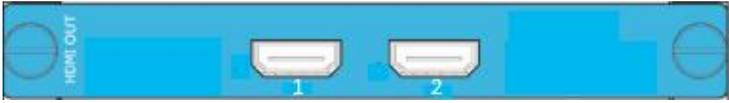


rgblink

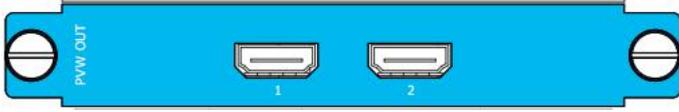
# Chapter 6 Appendix

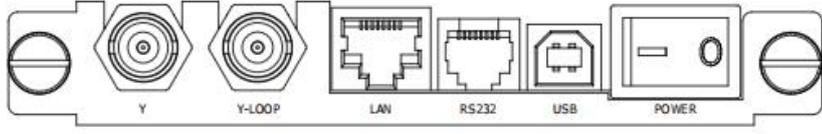
## 6.1 Specification

<b>SDI Input Module</b>	
Interface Appearance	
Number of Inputs	4 (1x12G SDI or 4x3G SDI)
Connector	BNC
Supported Standards	SMPTE ST 2082-1, SMPTE ST 2081-1, SMPTE ST 424, SMPTE ST 292-1, SMPTE ST 259, DVB-ASI, MADI
Input Resolutions	480i   576i   720p@25/30/50/60Hz   1080i@50/59.94/60Hz 1080p@23.98/24/25/29.97/30/50/59.94/60Hz  1080psf@23.98/24/25/29.97/30Hz 2160p@30/50/60Hz
<b>4K@60 Input Module</b>	
Interface Appearance	
Number of Inputs	4
Connector	1xDVI-I   2xHDMI-A   1xDisplayPort
Supported Standards	DVI Dual Link HDMI 2.0   1.4 DP 1.2
Input Resolutions	SMPTE 480i   576i   720p@50/60Hz   1080i@50/60Hz   1080p@50/60Hz   2160p@60Hz   VESA 800x600@50/60Hz   1024x768@50/60Hz   1280x720@50/60Hz   1280x800@50/60Hz   1280x960@50/60Hz   1280x1024@50/60Hz   1400x1050@50/60Hz   1600x1200@50/60Hz   1920x1080@50/60Hz   2048x1152@50/60Hz   2560x1600@50/60Hz   3840x1080@50/60Hz   3840x2160@24/25/30/50/60Hz   4096x2160@50/60Hz

<b>12G SDI Output Module</b>	
Interface Appearance	
Number of Outputs	4 (1x12G SDI or 4x3G SDI)
Connector	BNC
Supported Standards	SMPTE ST 2082-1, SMPTE ST 2081-1, SMPTE ST 424, SMPTE ST 292-1, SMPTE ST 259, DVB-ASI, MADI
Output Resolutions	480i   576i   720p@25/30/50/60Hz   1080i@50/59.94/60Hz 1080p@23.98/24/25/29.97/30/50/59.94/60Hz 1080psf@23.98/24/25/29.97/30Hz   2160p@30/50/60Hz
<b>2K HDMI Output Module</b>	
Interface Appearance	
Number of Outputs	4
Connector	HDMI
Supported Standards	1.3
Output Resolutions	SMPTE 720p@50/60Hz   1080p@50/60Hz VESA 800x600@50/60Hz   1024x768@50/60Hz   1280x720@50/60Hz   1280x800@50/60Hz   1280x960@50/60Hz   1280x1024@50/60Hz   1400x1050@50/60Hz   1600x1200@50/60Hz   1920x1080@50/60Hz
<b>4K HDMI Output Module</b>	
Interface Appearance	
Number of Outputs	2
Connector	HDMI-A
Supported Standards	HDMI 2.0
Output Resolutions	SMPTE 480i   576i   720p@50/60Hz   1080i@50/60Hz   1080p@50/60Hz   2160p@50/60Hz VESA 800x600@50/60Hz   1024x768@50/60Hz   1280x720@50/60Hz   1280x800@50/60Hz   1280x960@50/60Hz   1280x1024@50/60Hz   1400x1050@50/60Hz   1600x1200@50/60Hz   1920x1080@50/60Hz   2048x1152@50/60Hz

	2560x1600@50/60Hz   3840x1080@50/60Hz   3840x2160@24/25/30/50/60Hz   4096x2160@50/60Hz
--	---

<b>PVW Output Module</b>	
Interface Appearance	
Number of Outputs	2
Connector	HDMI-A
Supported Standards	HDMI 1.3
Output Resolutions	SMPTE 720p@50/60Hz   1080p@50/60Hz VESA 800x600@50/60Hz   1024x768@50/60Hz   1280x720@50/60Hz   1280x800@50/60Hz   1280x960@50/60Hz   1280x1024@50/60Hz   1400x1050@50/60Hz   1600x1200@50/60Hz   1920x1080@50/60Hz

<b>Communication Board</b>	
Interface Appearance	
Communication	LAN 1xRJ45 RS232 1xRJ11 USB 1xUSB-B
Genlock	Y In   Y Loop 2xBNC
<b>Extras</b>	
Power Supply	AC: 110~240V , 50/60HZ
Max Power	400W
Working Environment	0°C -40°C
Relativity Humidity	10% –85 % RH
Weight	15.5Kg
Dimensions	483mm x 545mm x 95mm
Product Warranty	3 years parts and labor warranty

## 6.2 D6 Upgrade



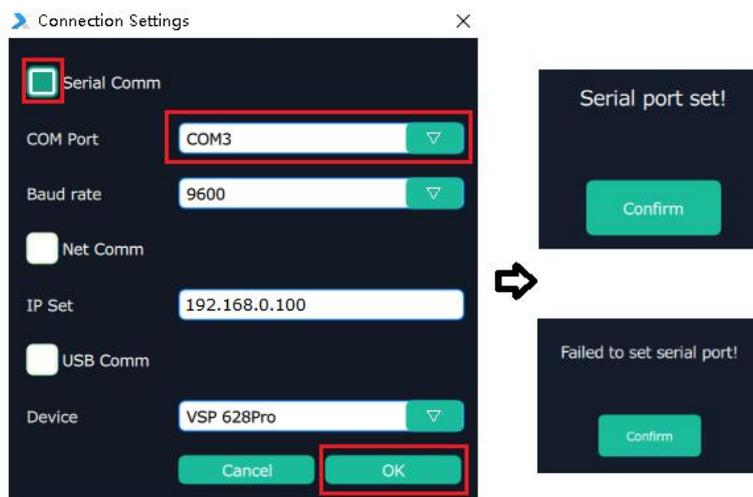
1. Open XTOOL , If the language of the interface is not English,



click the “语言” button to switch language.



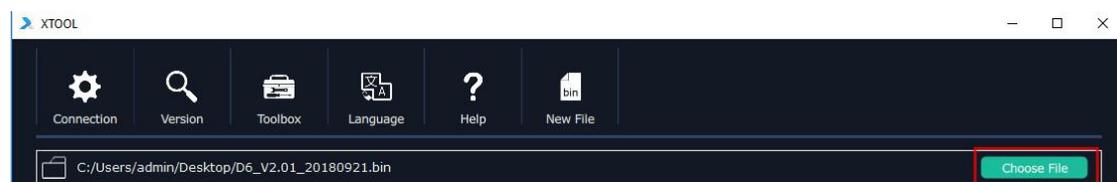
2. Click “Connection” button to open the connection setting box. Select the “Serial Comm”, choose the corresponding port, and then click “OK”. If there is no port in the list, or it say “Failed to set serial port!”. We should check the wiring interface is inserted, whether the wire is effective, and whether the serial port driver is installed.



3. Check the device information when connection is done. When the dot behind “Connection Status” is green, meaning it’s connecting. Contrarily, it’s unconnected when it’s red. We also need to check the serial number is consistent.

Connection Status: ● Device Type: UnknownType SN: 1047

4. Select upgrade file. Click the “Choose File” button, Load the xx.bin file.



5. After file loading, it will list the firmware contents. Click “all”, it will select the items that

has a different version.

All	File Name	Type	ID	New Version	Old Version	Mark
<input type="checkbox"/>	IN4K60_PRO.xsvf	Video	0	1.21	1.21	0.00%
<input type="checkbox"/>	HDCP_fw_BI.xsvf	Video	1	1.00	-	0.00%
<input type="checkbox"/>	FPGA_hdmi_.xsvf	Fpga	84	2.03	2.03	0.00%
<input type="checkbox"/>	layer_2018.xsvf	Fpga	81	1.16	1.16	0.00%

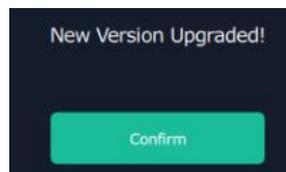
6. Click “Upgrade”. Pop up a confirm box. Click “confirm” to start upgrading. Notice: Don’t turn off the device and keep the wires connecting.



7. While can see the progress from the “Log” list and the progress bar.



8. It will pop up “Update new version done!” after the upgrade finished. We need to restart device to complete the process.



---

## 6.3 Install Options

D6 supports multiple input or output modules, the user can install according to the specific requirements or replace the optional module. Specific steps are as follows:

**Installing optional modules:**

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



2. Pulling out the input module, as shown in figure:



3. Pushing back the input module, as shown in figure:



---

## 6.4 Care and Preventive Maintenance

### 6.4.1 Clean Cooling Fan

The fan is designed to keep the device cool and within temperature range during normal operation. Ensuring that the fan module is clean, dust free is important to maintain product warranty, correct working order and for safety.

Clean fan assembly at least every six months, or more regularly depending on the installed environment.

Step 1: Loosen the screw and pull out the fan module



Step: Clean dust on the front and back of the fan module by brush.



Step 3: Loosen the locking screw to separate the dust screen and fan. Clean the screen and fan by brush.



Step 4: Reverse steps above.

Put the dust screen back to the fan and tighten the screw.

Push the fan module back to the device and tighten the screw.

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## 6.5 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

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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.

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- **“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 Expect 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

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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

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dedicated to facilitating and promoting personal computer graphics through improved standards for the benefit of the end-user. [www.vesa.org](http://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.

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## 6.6 Revision History

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

Format	Time	ECO#	Description	Principal
V1.0	2018-11-13	0000#	Release	Sophie
V1.1	2018-12-19	0001#	Revise	Fanny
V1.2	2019-3-13	0002#	Revise	Fanny
V1.3	2019-8-9	0003#	Add "Clean Cooling Fan"	Fanny
V1.4	2020-02-20	0004#	Add "Front Panel Operation"	Fanny