X14

USER MANUAL

RGBlink®

CONTENTS

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 X14processor 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 X14 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 X14should 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

AC Power Cord	DVI Cable	Network Cable	HDMI to DVI Cable

HDMI Cable	USB Cable
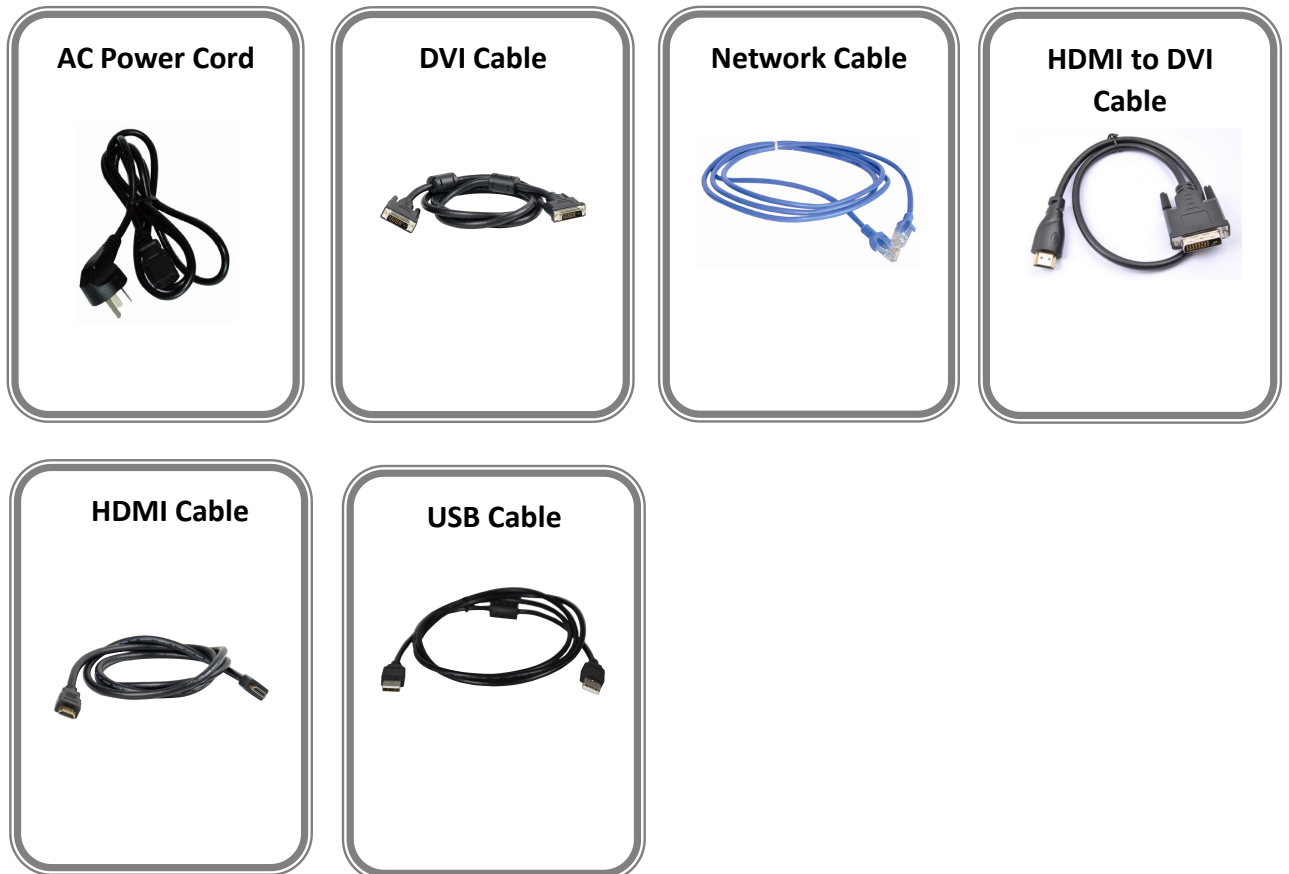
Note:

AC Power Cable supplied as standard according to destination market.

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

1.2 Product Overview

For entire video display systems, X14 brings a new level of efficiency, capability and control. Supporting up to massive 52 inputs and up to 40 outputs, X14 truly brings together large videos systems for system-in-box approaches to video presentation and integration. Modular throughout RGBlink technologies support user fit input and output signals with each slot configurable up to 4K/UHD resolutions at full frame rates. With so many inputs, windowing and layering capabilities have been dramatically enhanced over earlier models and the output canvas is up to 80 Mega pixels. Dedicated preview functionality is available both remotely via XPOSE and on the inbuilt LCD display. XPOSE is embedded directly into X14 too, providing not just monitoring but extensive control capabilities . X14 takes advanced video processing and scaling to a whole new level.
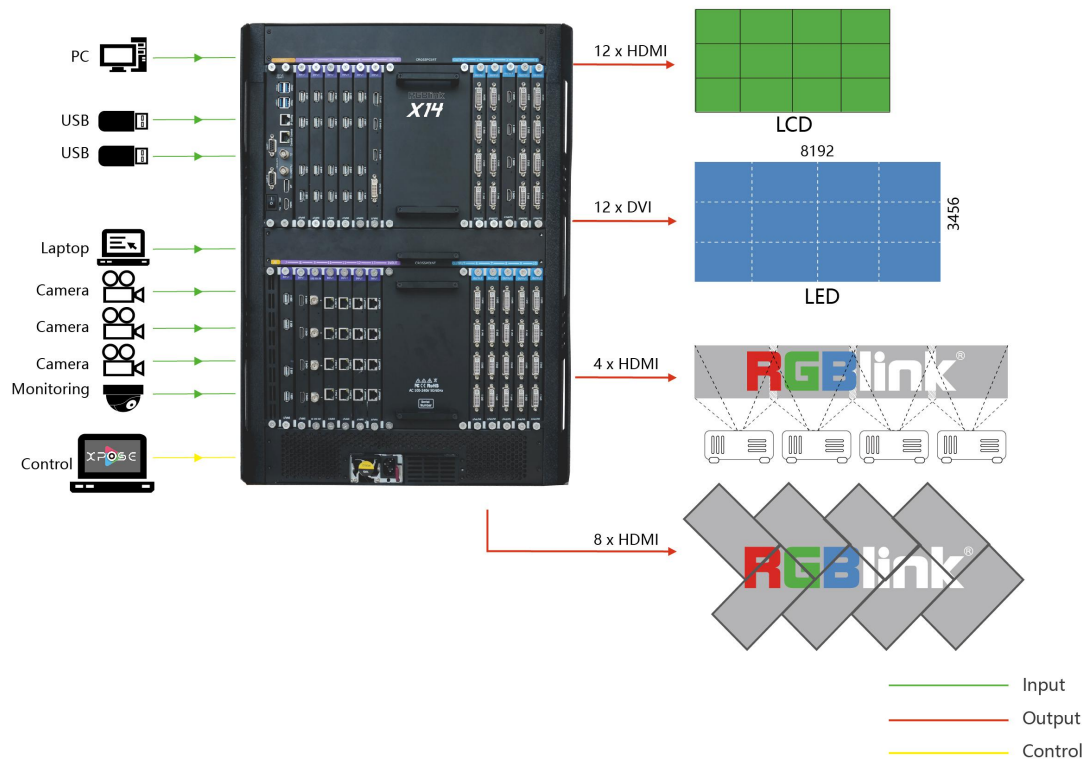
X14 System Connection Diagram

1.2.1 Back Panel
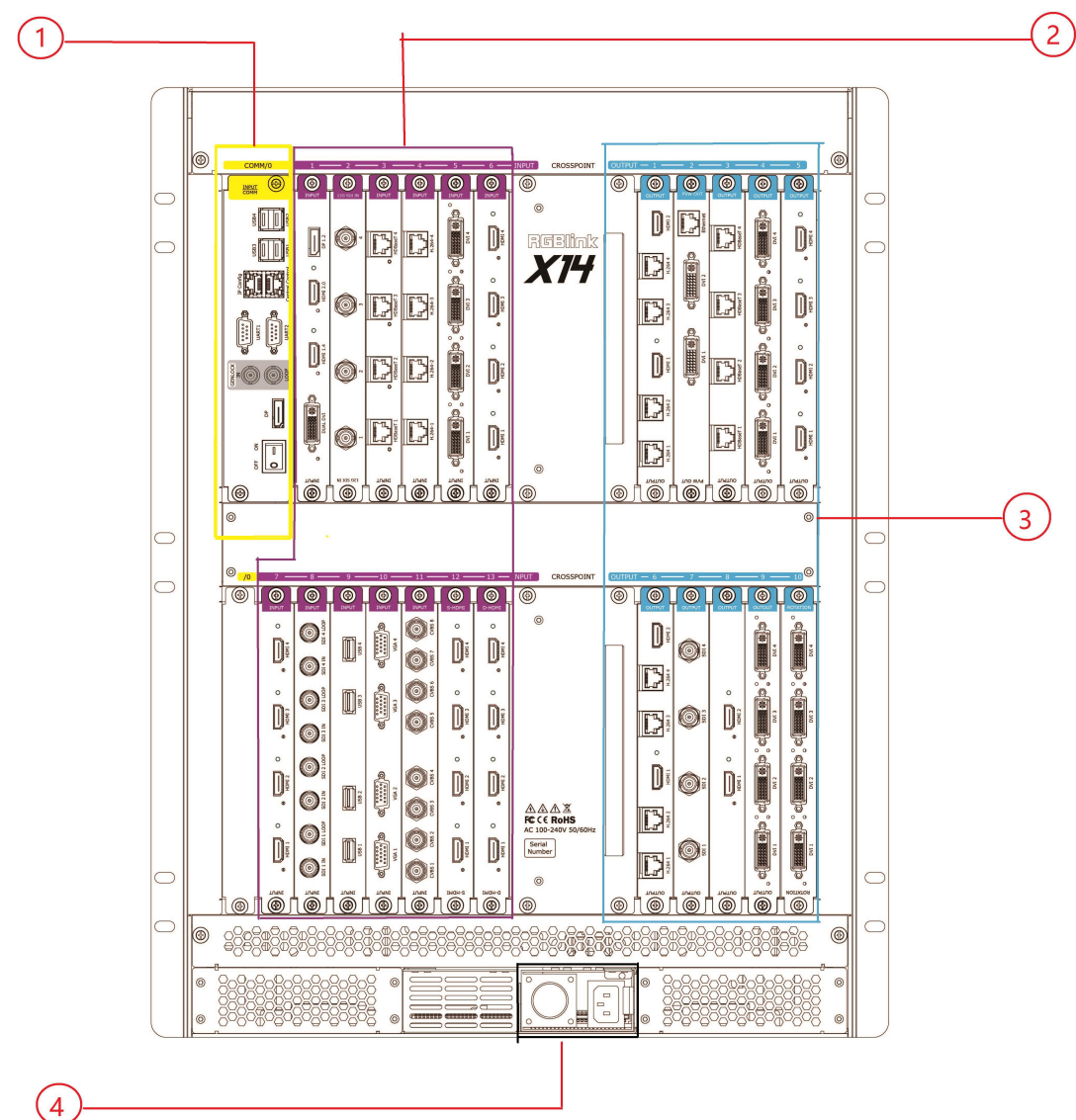
1	Communication board
2	13 slots for input modules
3	10 slots for output modules
4	2 slots for modular power supplies

1.2.2 Front Panel
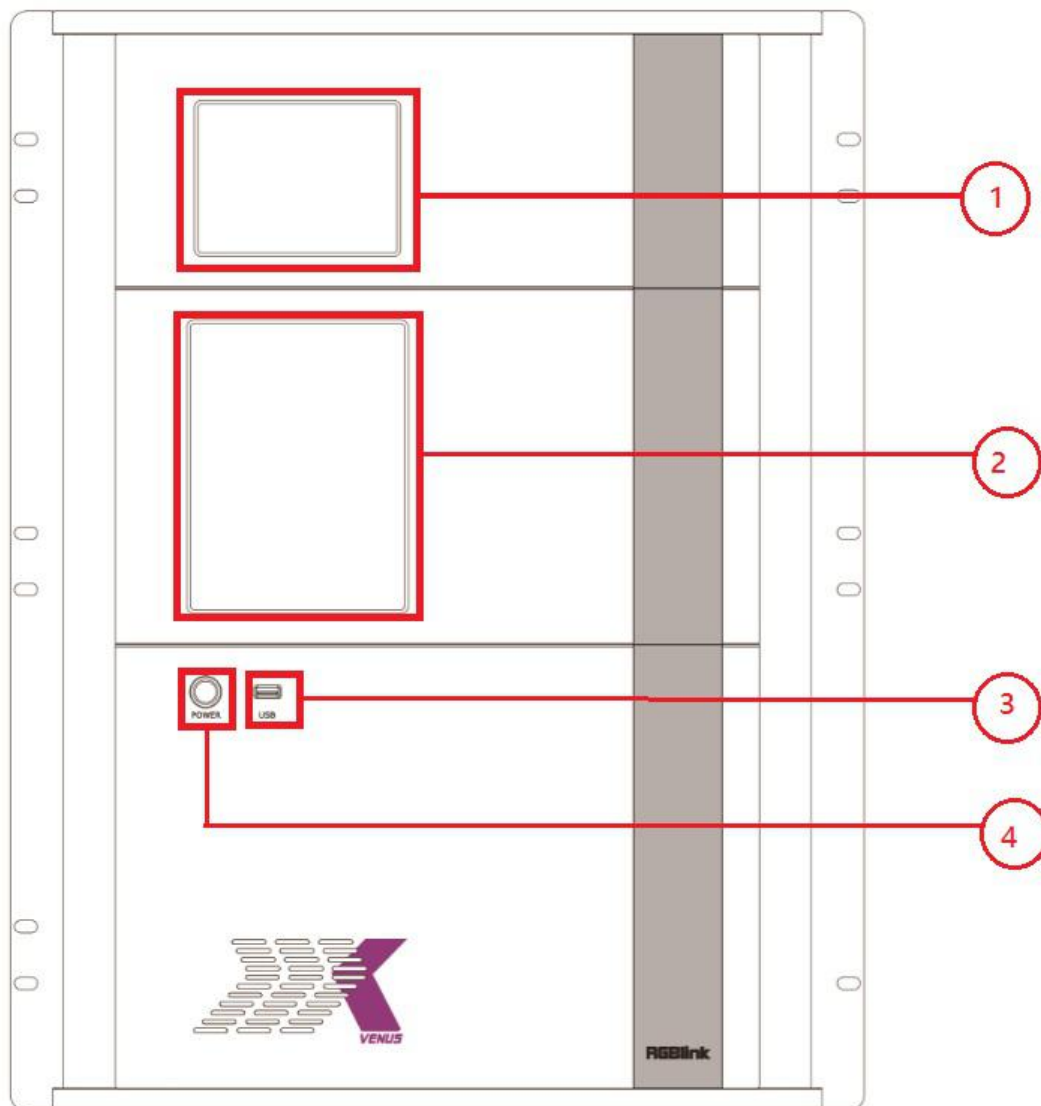
1	**5.6 Inch TFT-LCD Display** OSD Displays the input slot and output slot information, device status, COM. Version, IP address and serial number.	
2	**8 Inch TFT-LCD Display** Monitor screen, to preview the pictures of the selected input	
3	**USB 2.0** Prepared for keyboard or mouse to connect	
4	**Power** Power button, to turn on the device	

1.2.3 Dimension

Following is the dimension of X14 for your reference:
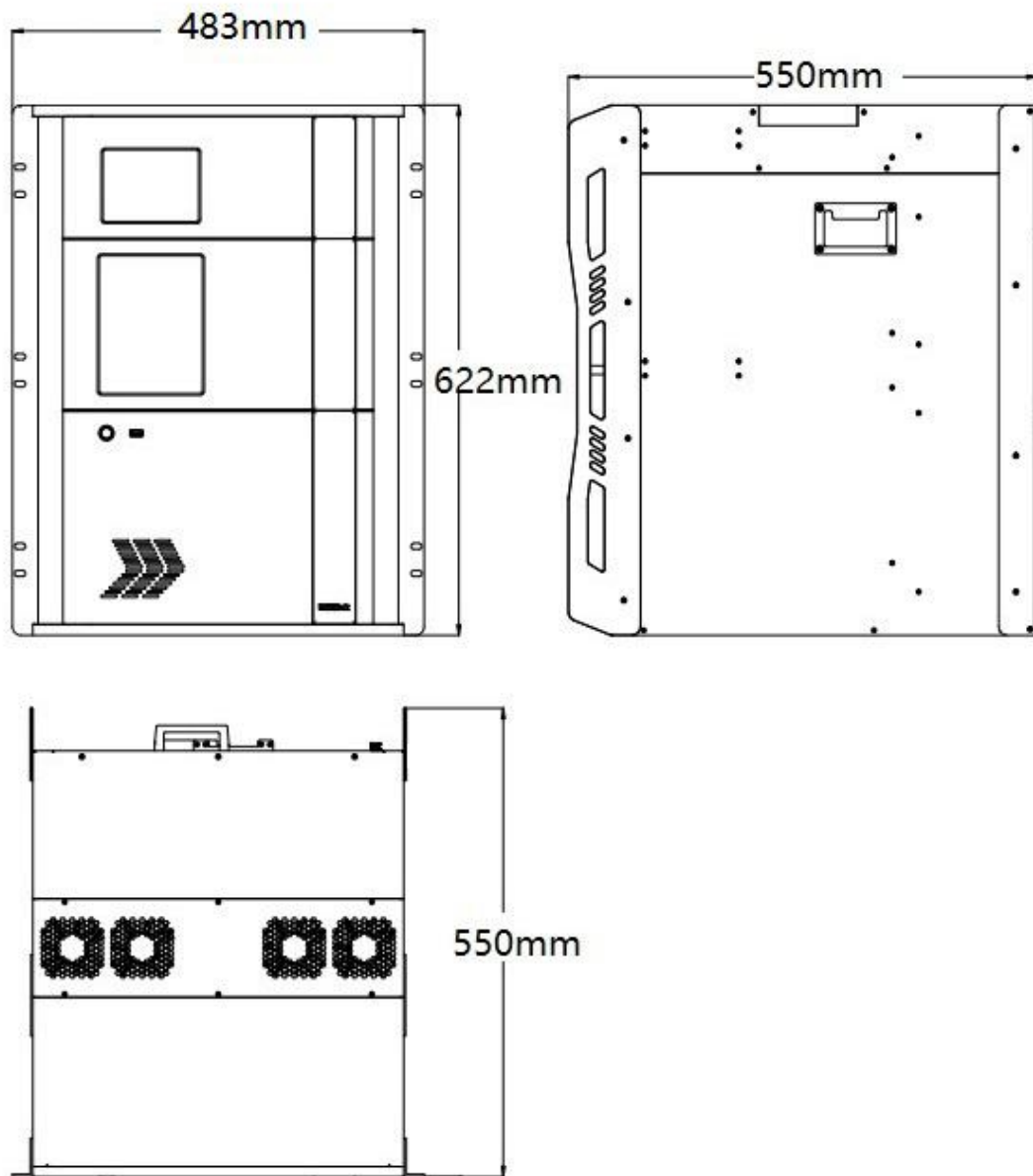
Chapter 2 Installing Your Product

1. Plug in input and connect to display

Connect signals to the product and connect the device to displays.
Tighten connector screws/locks where provided.
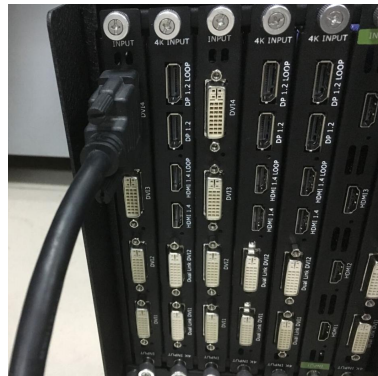
⚠️**Make sure all devices are powered off first**

2. Connect to computer

Use CAT5 or CAT6 to connect Ethernet 1 port on the communication board of X14 and computer,
Or RS232 serial cable connect UART port on the communication board of X14 and computer.

3. Connect to power

Connect IEC cable to X14 and plug into wall socket. Turn on power at wall socket.

Turn the power switch on the rear of the product to the ON position.
TFT-LCD display will show as below:

And displays the input slot and output slot information, device status, COM. version, IP address and serial number after completing initialization

Note：If you need reboot the device, make sure the power light above the power module totally goes out before pressing the power button, otherwise, blur screen may easily happen.

Chapter 3 Use Your Product

3.1 Install XPOSE 2.0 Software

Environment Requirements:

XPOSE： version 2.0.0.0 or above
Window
Processor: 1 GHz or above 32 bit or 64 bit processor
Memory: 4 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 1920x1080 pixel or above (it can not display normally if the resolution is lower than 1920x1080)
Operating system: Windows 7 or above (full version, not Ghost version or compact version)
CPU:i5 and above
Mac
Monitor: Resolution must be 1680x1050 pixel or above (it can not display normally if the resolution is lower than 1680x1050)
CPU:i5 and above

Double click ,it will pop-up the installer language box, select the language, for example, select "English", and click "OK" to confirm.
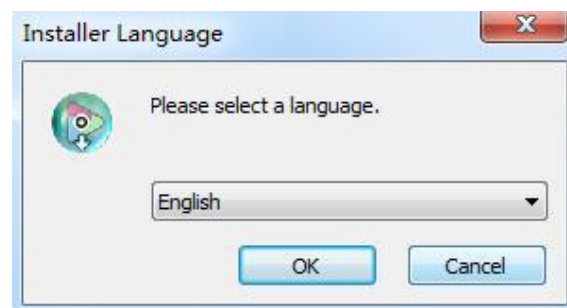
Click "Next" to install:

Click

Click "Browse…" to select the XPOSE software install location:
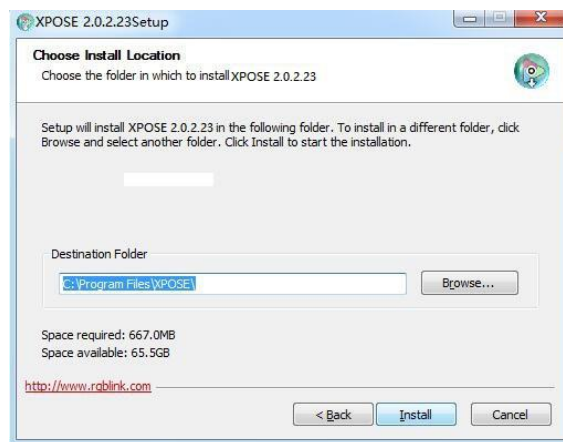
Click "Install":
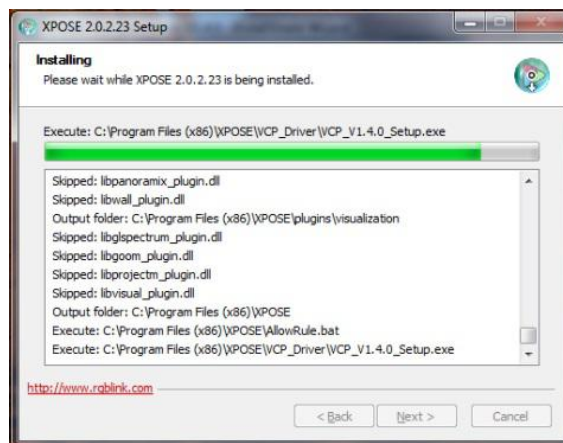
During installation, it will pop up the window of Install Shield Wizard for Virtual Com port:
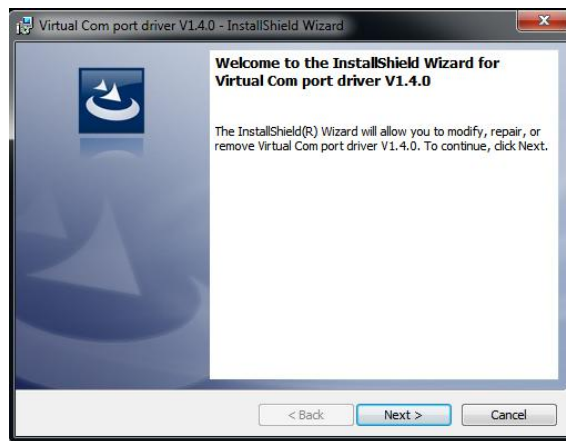
If user install the XPOSE software for the first time, click "Next
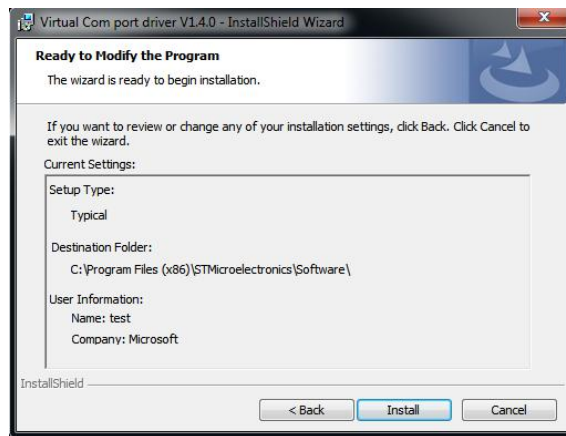
Then click "Install", as shown in the figure below:
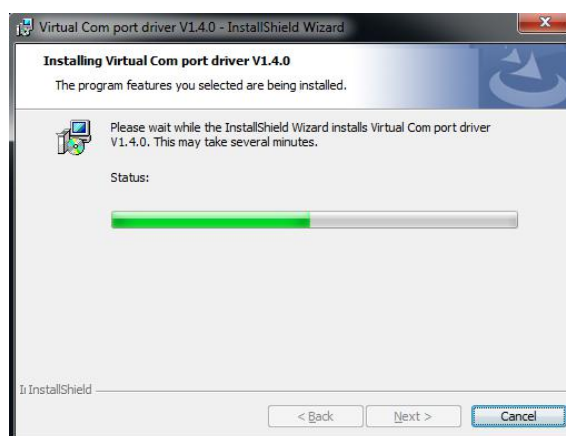
Click "Finish" and complete the installation, as shown in the figure below:
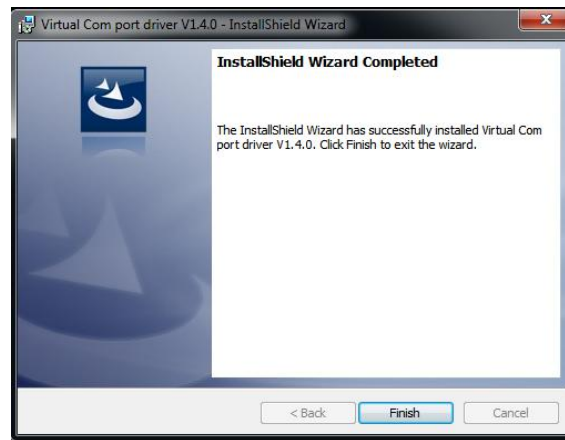
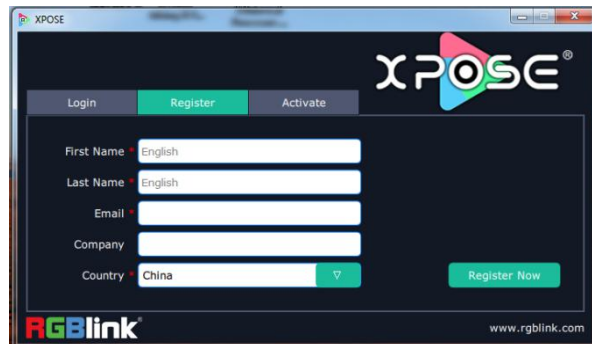
Click "Finish" and is ready to run the XPOSE :
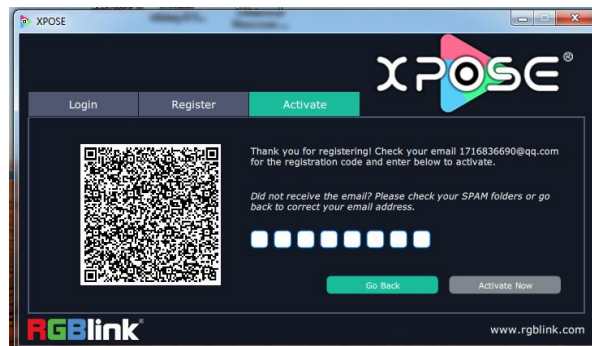
3.2 Control X14 By XPOSE 2.0

3.2.1 Log in XPOSE 2.0

Double click this icon , and enter interface as follow

The initial language of XPOSE 2.0 is self adjusted based on the operation system language of the computer. **Click Register** and fill in the blank with first name, last name, email, company and country and then click **Register Now.**

Please note that the email shall be invalid and complete otherwise Registration&Activation code cannot be received.
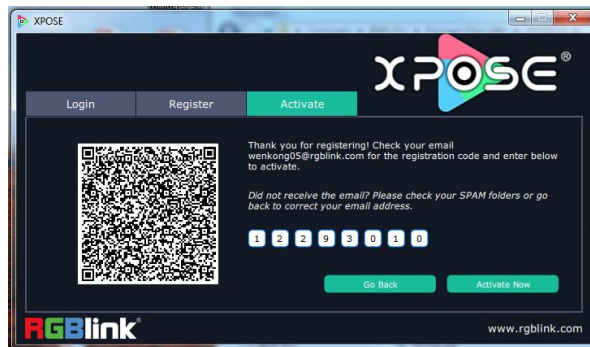

Scan QR code and you will receive email in 5 minutes.

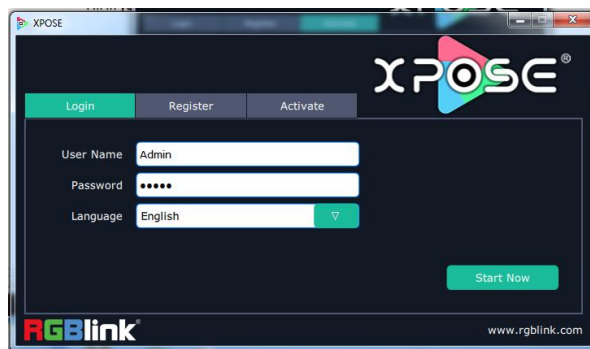Any App that is able to scan QR code can do, such as Wechat, Alipay etc.

An email from **RGBlink Registrations** will be sent to the **Register** email address.

Your XPOSE Registration & Activation Code is
12293010

Type in the code and Activate Now

then enter the login interface.

Keep the user name as "Admin" and password as it already is and then click **Start Now.**

Note: If exact Name and Password are needed, users can set up them in Authorization Setting under System Setting.

After login, users can find the management including:Topology Diagram,Search,Display System, Layer Management, Preset Management, Keyboard Settings, Layer management and Preset Management are not available on Subito-S4.
The details of each hierarchy will be described hereafter.
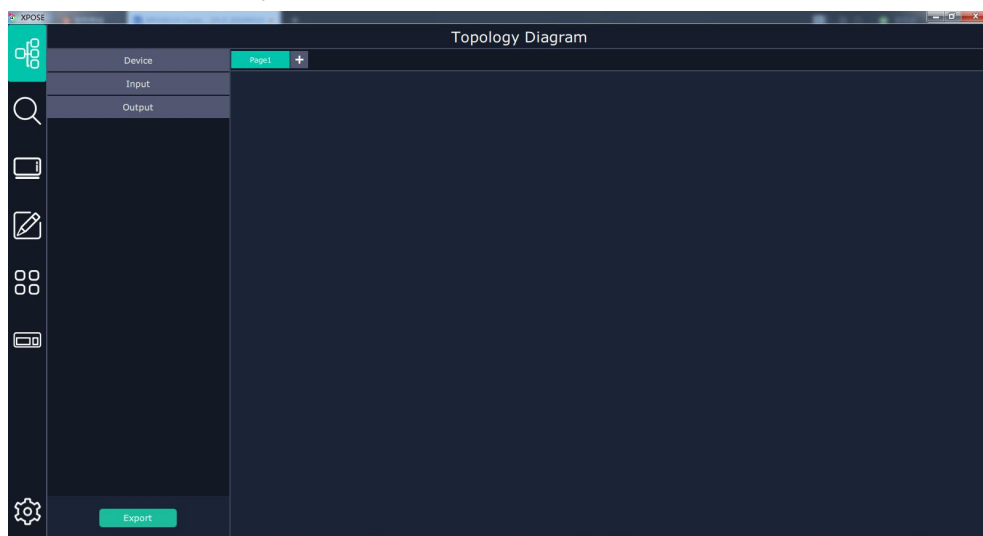
In the following text, we are going to take XPOSE 2.0 control X14 as example to illustrate how to use XPOSE 2.0.

3.2.2 Topology Diagram

XPOSE 2.0 offers the feature of making topology diagram which can assist users to import the actual input and output connection into XPOSE control and it can check the topology users offer with the actual input and output modules installed. It can help users to correct the input and output deployment.

1. Drag device, input source device and output device from the list on the left based on the field application. For example, drag X14 from Device, Laptop from Input and LDC from Output list as follows:
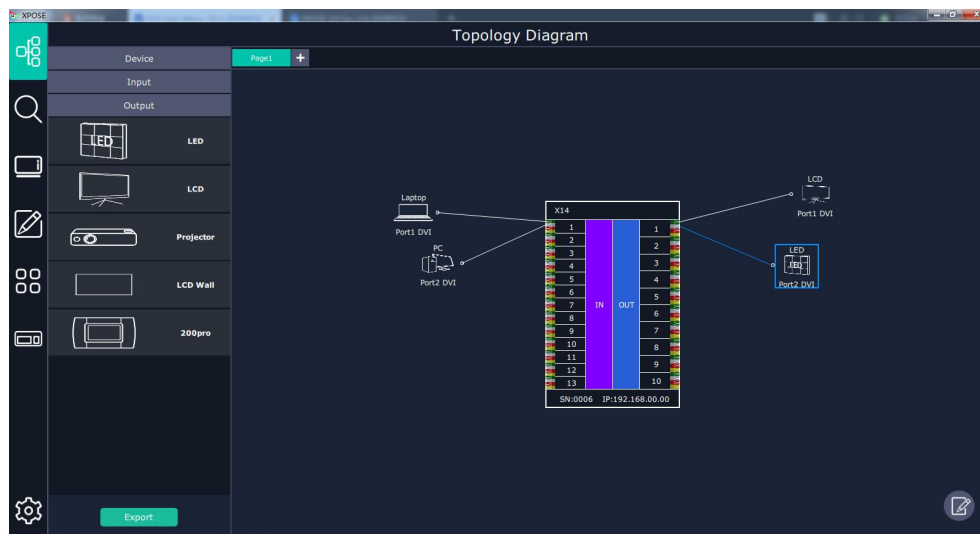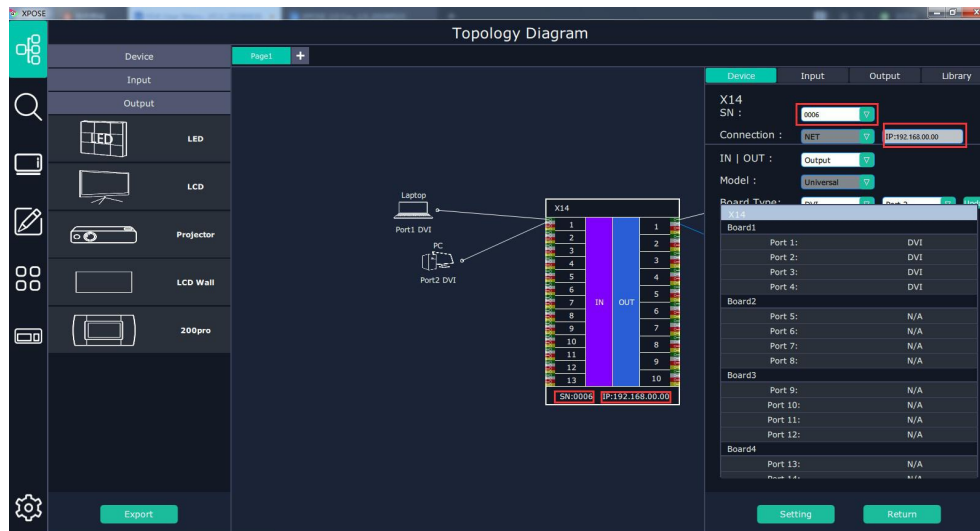

2. Click the icon at the right bottom corner and open the setting interface as following:

3. After X14 is dragged into the topology diagram interface, users can find how many X14 devices currently linked in the same network from the drop-down arrow after SN.

After one of the device is chosen, the device on the topology diagram shows the SN and IP address of the chosen one.

4. Choose board type of In and Out according to the actual input and output modules configuration user want. For example, set the first input board as DVI module as the following

Select IN|OUT: In, Model:Universal, Signal:DVI, Port:any figure from 1 to 4, click ADD Add to finish.


If the input module is formed by different signal input ports, choose the Model as Typical, it will allow users to set port type one by one.

5. After choosing board type, users can check the state in **Input** and **Output** and change the connection port if needed.

6. If there are not enough devices in the device list on the left column, users can select and load more devices to the list from the **Library**.
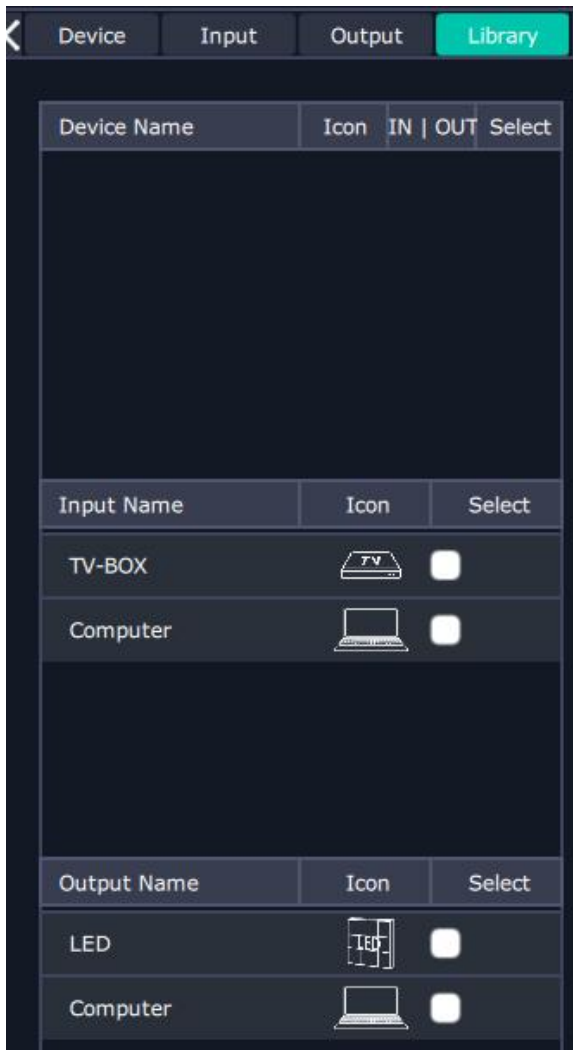
Regarding how to load custom icon of users' device to XPOSE 2.0, please refer to

7. After topology diagram is finished, users can store the script to local hard drive so that there is no need to do topology diagram next time again. Users can upload the previously stored script if the input and output deployment is the same.
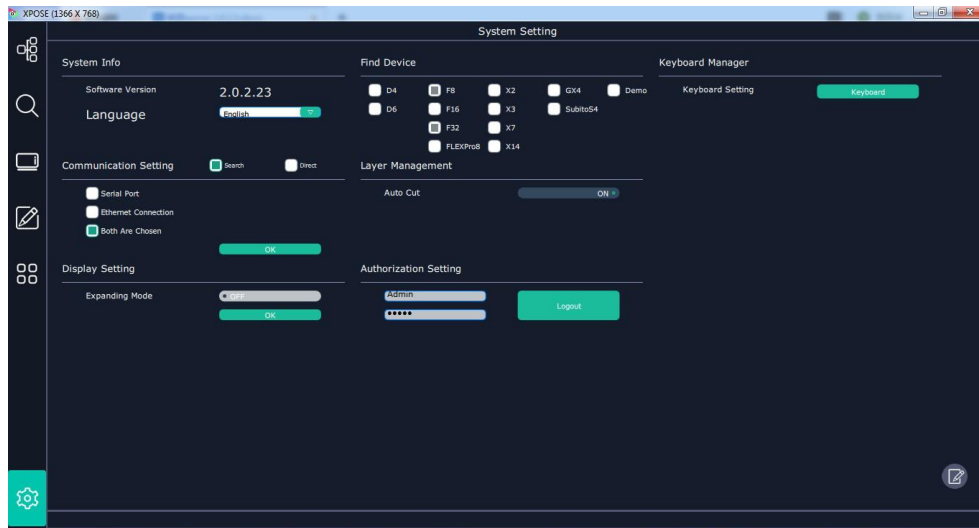
3.2.3 System Setting

Find Device

New version of XPOSE 2.0 is blank default in Find Device. Users are supposed to choose the device needed in System Setting.

Click this icon and enter the interface, choose the device X14.

System Info: show the current software version

Language:Chinese, English and Russian

Communication Setting: Search or Direct, Search default.
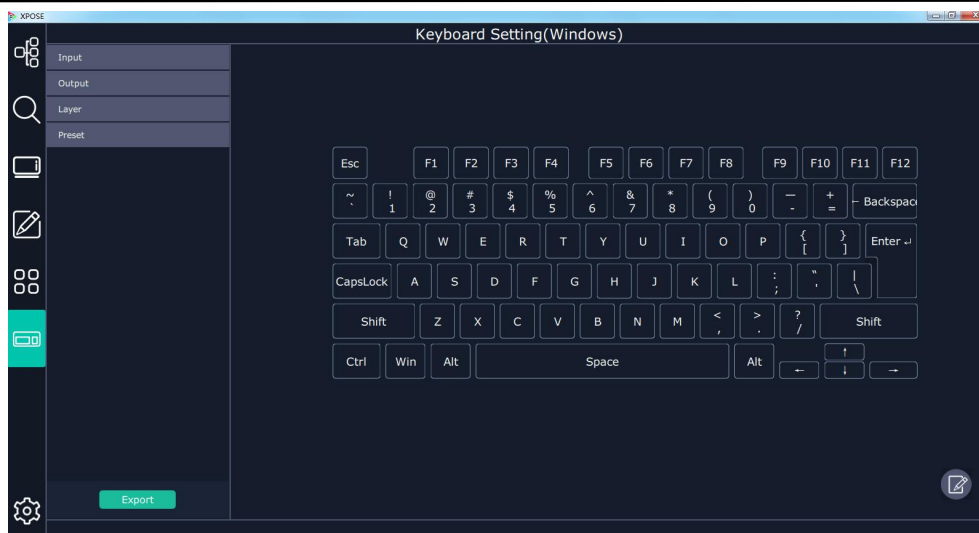
Serial port, Ethernet Communication, Both are Choose. Both are Chosen default.

Layer Management:Auto Cut On or Off

Keyboard Management: click keyboard it will redirected to keyboard setting window.

Keyboard setting is designed to fit for different operation systems such as Windows and Mac.

Users can set short cut keys for Input, Output, Layer and Preset.

Drag Input, Output, Layer and Preset from the list to the keys you desired as follow:

 Input, Output, Layer and Preset.

Please note the keyboard area where allows to set short cut keys as follow:

If the setting goes wrong or no need for short cut keys any more, click to clear some keys or clear all.

Clear: is to clear some keys, the keys need to selected before hand.

Clear all: is to remove all already set short cut keys.

Authorization Setting: Click to open up the authorization entry.

Click **Management**

New:Add new USER NAME and PASSWORD

Edit: Edit user name and password already built.

Delete:Delete user name and password already built.

Permission: functions on this XPOSE 2.0 on this computer that the users are allowed to

operate.
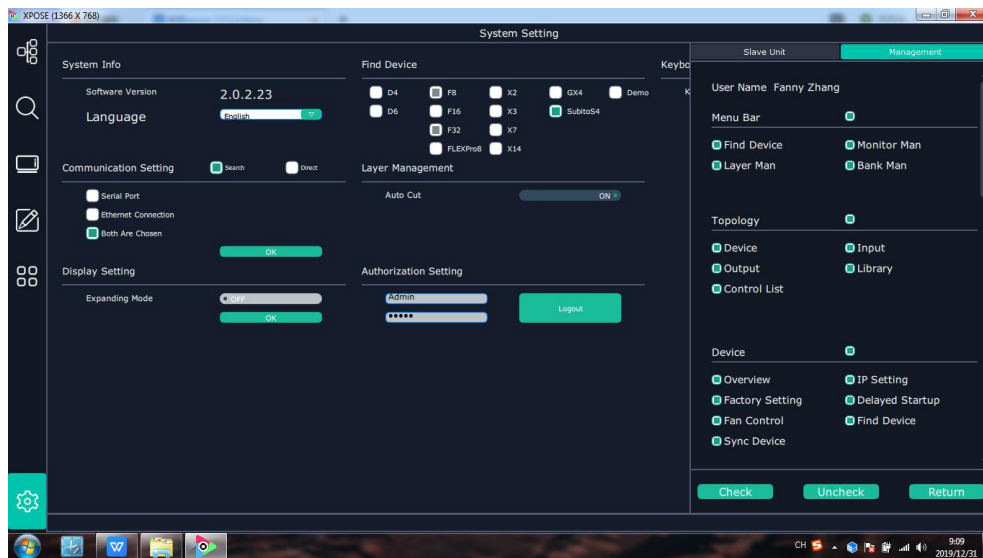
Click the green block to remove the function not to be permitted.

3.2.4 Output | Input | Overview

Connect the Device
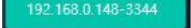
After Topology Diagram is finished, users can move to next step, the exact setting on each input and output board.

Click icon and enter the operation interface.

First, choose the device from All Devices for example X14 SN:3344
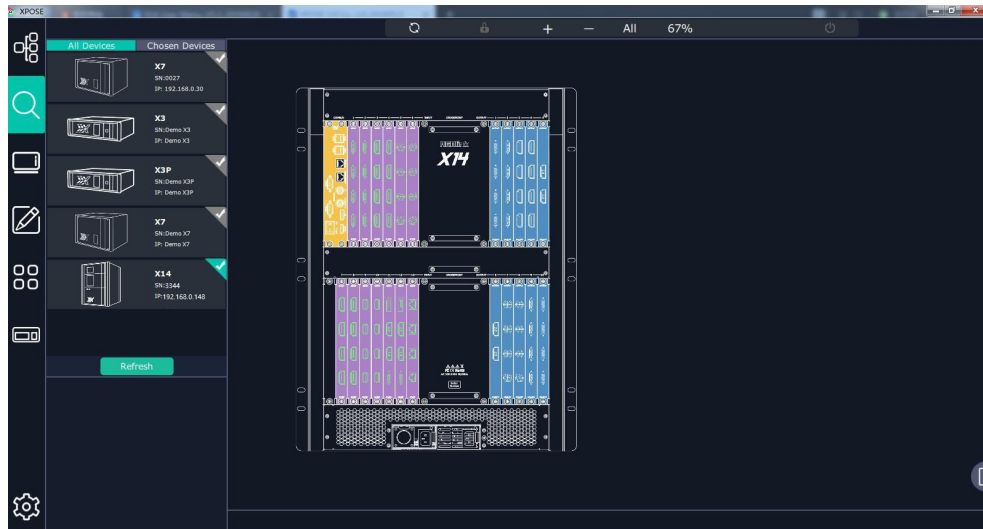
Then click icon behind X14 in **Chosen Device**,IP and SN of this device is shown on the left

top corner of the interface ,which indicates that the device is connected to the

computer and it can be operated by XPOSE2.0 from now on.

Output Setting

1. Click any output port in blue area, the board where the port locates is selected. Users can do settings to the board now.

A red rectangle flashes around the chosen port when it is clicked.

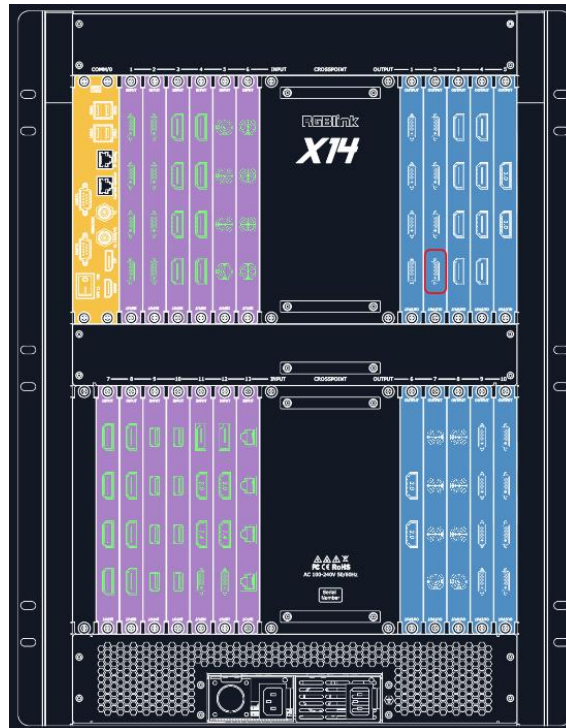After DVI or HDMI board is selected, users can do the following settings in the edit section after

clicking ![icon] icon: Resolution Setting, Test Pattern DE Setting OSD Setting.

Resolution Setting
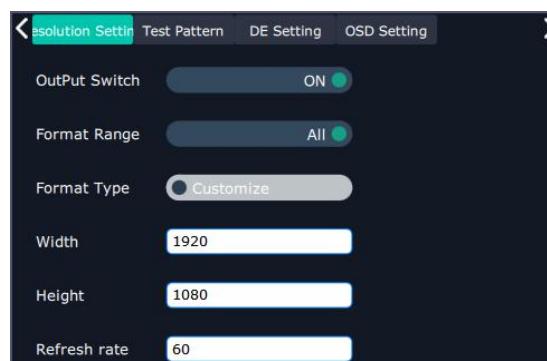
Output Switch: Slide to On or OFF

Format Range: select ALL or Module；

Format Type:Standard /Customize

Format: when Format Range is All, 49 types of standard format from 720×480@60i to 7680×1080@60, when Format Range is Module, 32 types of standard format from 720×480@60i to 2560×816@60.

Choose Customize, width, Height, Refresh Rate have to be put in by users manually.

Test Pattern

slide ON/OFF the Status. After slide ON the test pattern, users can choose Color Bar or Pure Color
as test Pattern.

Color Bar   Pure Color
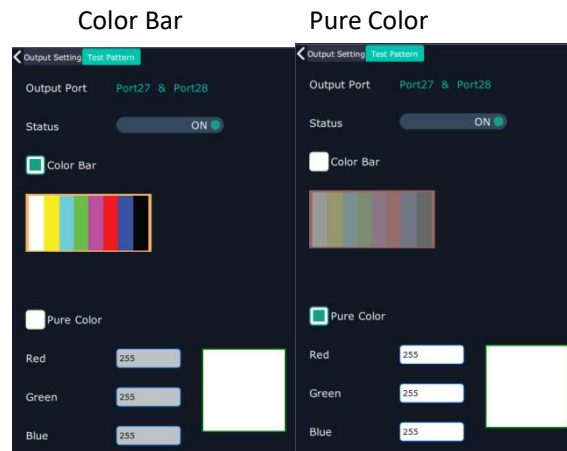
2.1.3 **DE Setting**

Output Port：choose current port or Port All

HDMI Output Type: DVI or HDMI

Color Range: Image or Video

Bits：8 bits for DV, 8bits/10bits/12bits for HDMI

Brightness：0-128

DE Switch：ON or OFF

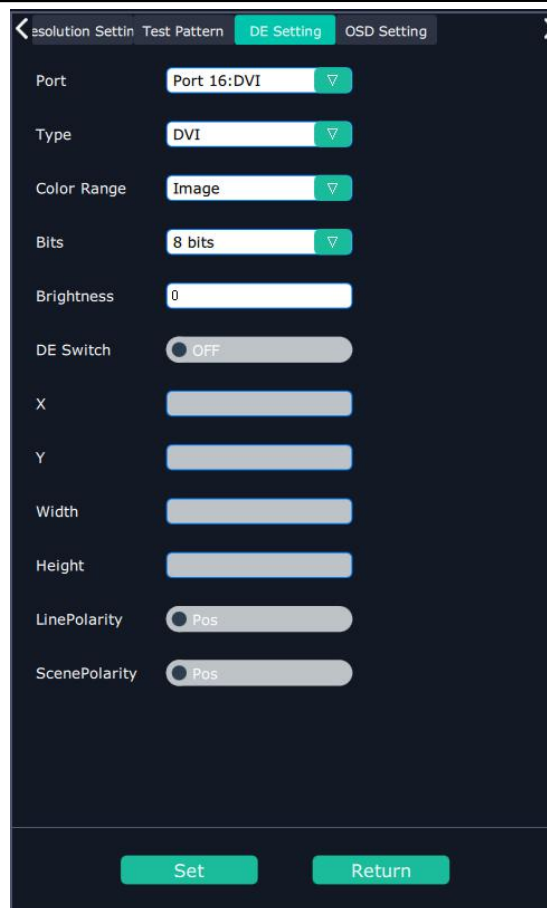Switch ON DE to set X,Y,Width,Height,Line Polarity

X：horizontal position

Y：vertical position

Width：horizontal size

Height：vertical size

Line Polarity：POS or Neg (Positive or Negative)

Scene Polarity: POS or Neg (Positive or Negative)

OSD Setting

Output port: the current port

Status: ON or OFF

X/Y:the starting horizontal and vertical position

Width/Height:the horizontal and vertical size of the text

Font：font of the text,all fonts installed in the computer is available

Font Type：Normal,Italic,Bold,Bold Italic

Font size：0-300 pixels

Pixel alignment：Left, Right, Center to Horizontal,Vertical Center Right, Align Bottom Right, Align left bottom, Vertical center left, Vertical center, Horizontal center bottom

Font Transparent,

Background Transparent

Scroll Speed：0-16

Scroll Direction：Scroll Off, Scroll Left, Scroll Right

Input Text:The exact content of the text.

After setting, users choose Save OSD,Clear OSD(if the setting is not desired) or Close All OSD

When 4K (HDMI 2.0) Output board is selected. Resolution setting and Test Pattern are available.

When H.264 board is select, H.264 setting and RMTP setting available to do.

Output setting Checklist

	DVI	HDMI 1.3	HDBaseT	Rotation(RS1)	SDI	H.264	HDMI 2.0
Resolution Setting	√	√	√		√		√
Test Pattern	√	√	√	√	√		√
DE Setting	√	√		√			
OSD	√	√	√		√		
H.264 Setting						√	
RTMP Setting						√	

Input Setting

Click any input port in purple area, the board where the port locates is selected. Users can do settings to the board now. A red rectangle ☐ flashes around the chosen port when it is clicked.
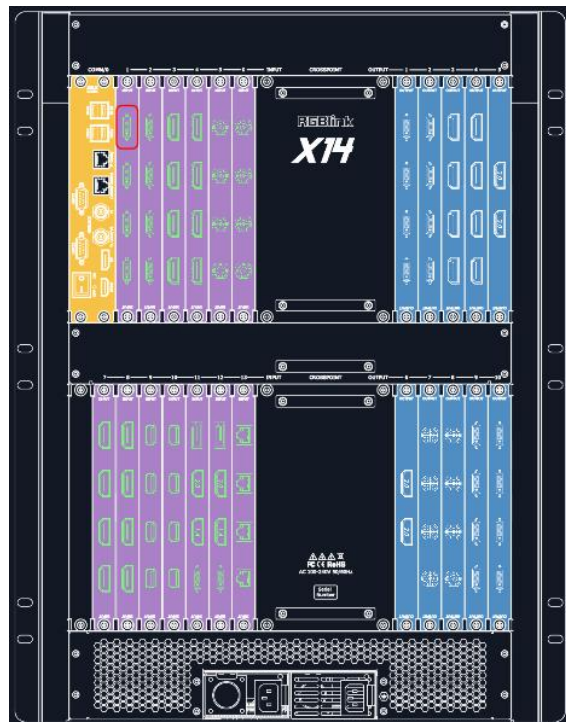
When DVI borad is chosen, Property,DSK Setting,EDID Setting,LOGO,Source Merge could be done.
Property
Input Port：Current port
Scale
X/Y：Vertical and horizontal position
Width/Height：Vertical and horizontal size

Crop：

Left:crop left

Top:crop top

Width:horizontal size after crop

Height:vertical size after crop

Display mode：Live or Freeze

Picture Adjustment

Mirror：ON or OFF

Alpha：transparency adjustment, range from 0~128.

Mini Delay mode:On or Off. Select this mode on the output and input pixel ratio is 1:1.Under this mode, the image is under the best state.

Saturation：slide to adjust

Hue：slide to adjust

Color Temperature

Red：Slide to adjust

Green：Slide to adjust

Blue：Slide to adjust
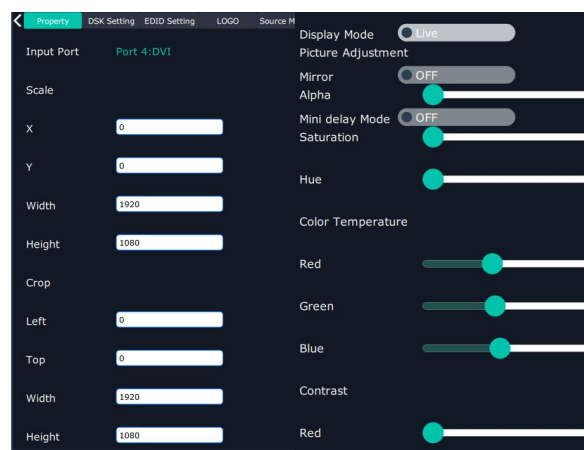
Contrast

Red：Slide to adjust

Green：Slide to adjust

Blue：Slide to adjust

DSK Setting：

Input Port:Current Port

Preset：Customize,White on Black 1,White on Black 2,Black on White 1,Black on White 2,Green on Black 1,Green on Black 2,Green on White 1,Green on White 2,Red on Black 1,Red on Black 2,Red on White 1,Red on White 2

DSK Setting switch：On or Off

Operation Mode：0 or 1,automatically show according to user's Preset choice

Transparent：0-255,automatically show according to user's Preset choice

Red,Green,Blue Max：0-255,automatically show according to user's Preset choice

Red, Green，Blue Min：0-255,automatically show according to user's Preset choice

EDID Setting

Input Port: Current Port and type

Customized EDID

EDID Template : RGB-DVI and RGB-HDMI to choose

White Height Frequency: automatically show current port.

Read Control

Export File: Export to local computer and store to XPOSE 2.0 File.

Write Control

Write HDMI

Write DVI

Follow EDID :Output 1

Logo

Input Port：Current Port

Select **Logo capture** or **Set Logo**

Logo Catpure

Logo ID：select from Logo1-Logo10

Slide to enable   Logo capture

Set Logo

Logo ID: select from Logo1-Logo 10

Slide to enable Show Logo

Source Merge

Source merge is used to merge input sources on the same input module, and combine the inputs to display in the same layer, with different layout.

Resolution：resolution of current input source

Layers：up to 4 layers (choose layers first, layers depending on how many pictures need to show on one display)

Merge patterns (choose merge patterns after layer number decided)

Click the layer to select it

| Source 2
X :0 Y :0
W :960 H :540 | Source 1
X :960 Y :0
W :960 H :540 |
| Source 2
X :0 Y :540
W :1920 H :540 | Source 4
X :960 Y :540
W :960 H :540 |
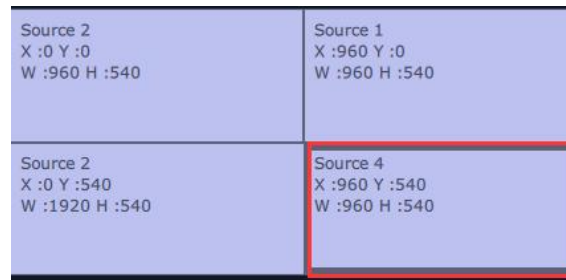
then select source 1 source 2 to change the content of this layer.

When HDMI port is select, users can do setting of Property and EDID

When SDI port is select, users can do setting of Property , DSK, LOGO and Source Merge.

When USB port is selected, Property and USB setting could be done.

USB Setting：

Input Port   Current USB port

Select **Video** or **Image**

Choose Video, will list down the media files in video format by index.

Set play loop by ,switch to previous , next and stopplaying

Choose Image, will list down the media files in graphic format by index.

Set playing time from 0 to 255S.

Note: the time setting is only enable when User select Image

Select H.264 input, **H2.64 setting** is available. IP set and Rtsp Set could be done.

Select any port on 4K@60 board.
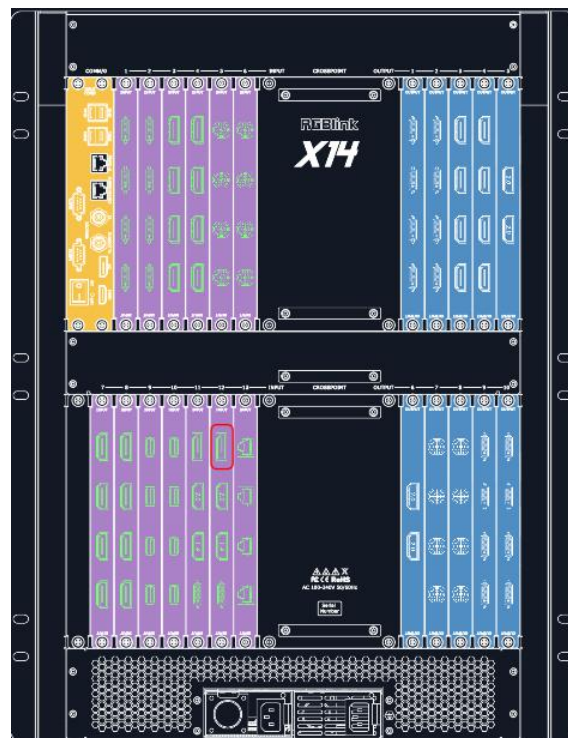
There comes Property,4K Setting ,EDID Setting
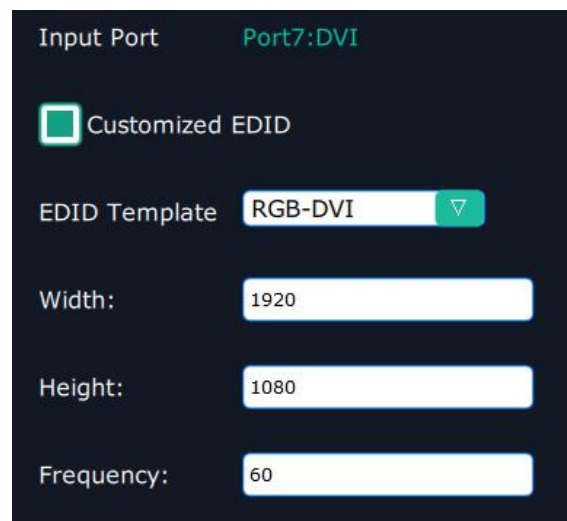
EDID Setting

Input Port Current Port and Type

Customized EDID

EDID Template：RGB-DVI or RGB-HDMI

Width, Height, Frequency:current
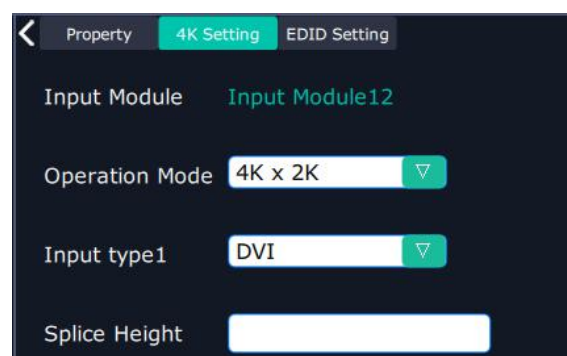
Property

Color Temperature:9300,7500,6500,5800,SRGB,USER

When choose Color Temperature as USER, users can set the Red,Green value by sliding the bar.

4K Setting

Input Module: current module position

Operation mode: 4K x 2K, 4K x 1K, 2K x 1K, PIP

4K x 2K

Input type 1: select from DVI, HDMI and DP

Splice Height: no more than 2160

4K x 1K

Input type 1 & Input type 2: select from DVI, HMDI and DP

Splice Width 1& Splice Width 2: no more than 10000

2K x 1K

Input type 1&Input type 2: select from DVI, HDMI and DP

PIP

Select Main and Subsidiary picture from DVI,HDMI,DP

12G SDI is selected, two mode SQD and 2SI of 12G SDI is available.

Checklist of input setting

	DVI	HDMI	4K@60HZ	12G SDI	3G SDI	USB	H.264	HDBaseT
Property	√	√	√	Mode	√	√		Reserved
DSK Settimg	√	√			√			
EDID	√	√	√					
Logo	√	√			√			
Source Merge	√	√			√			
4KSetting			√					
USB Setting						√		
H.264 Setting							√	

Device Overview

Click Return [Return] , there are overview, IP setting,Factory Setting,Power ON,Fan Control
Overview show Device Info, board info in each slot.
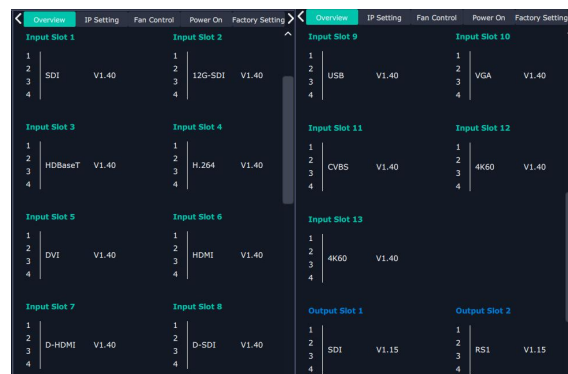
IP：select Auto IP addres or manually type in the IP address, MASK and Gateway
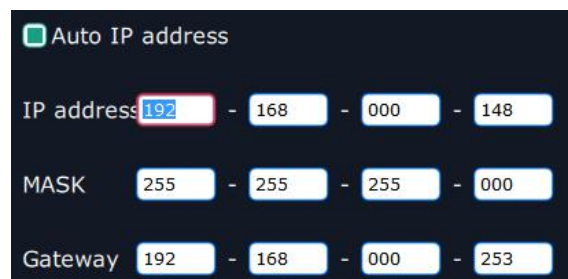
Power on
Power on reconfiguration seconds:0-255S
Front lights:14 options to choose from drop down list.
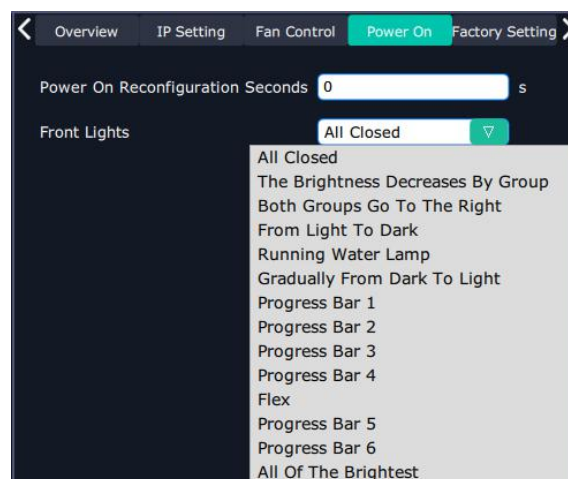
Fan Control：Auto adjustment,Fan speed 0-99
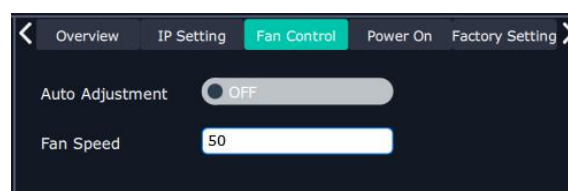
Factory setting：Remove Logo and/or Remove EDID

X14
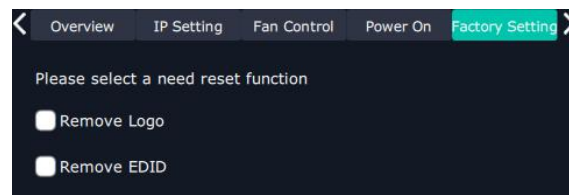
3.2.5 Display System

Display System is for users to set layout of outputs.

Click this icon first and then click enter the interface as follow:
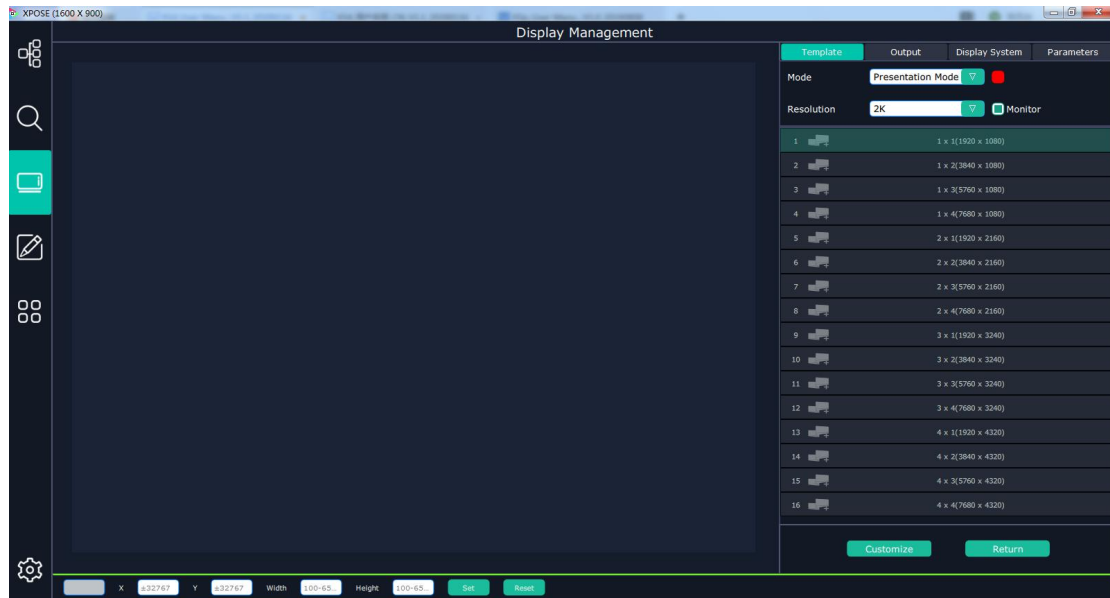
Template：

There are 16 types of basic "Display Area" which is used to contain output interface,and could be regarded as layout of output.

Mode：

At present, there are Presentation Mode, PST+PGM Mode,Matrix|Aux,Rotation Mode and Edge Blending . Rotation and Edge blending is valid only when ARO rotation module is installed to the device.

XPOSE2.0 allows multiple modes running on one same interface, to differentiate each mode, different color is given to each mode.
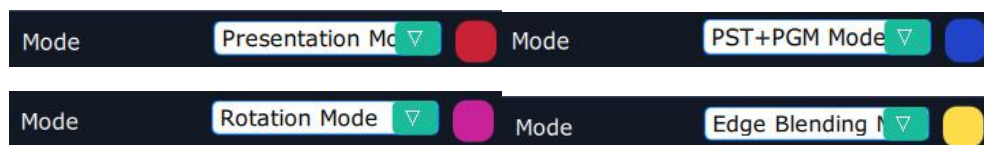
Resolution:

choose the resolution of monitor. Only under Presentation mode, there is 4K to choose, others are default in 2K.

Click this icon to cancel the monitor in Display Area

Long pressing this icon to cancel the Display Area

Use the bar under the interface and type in the parameter to set resolution and position of monitor
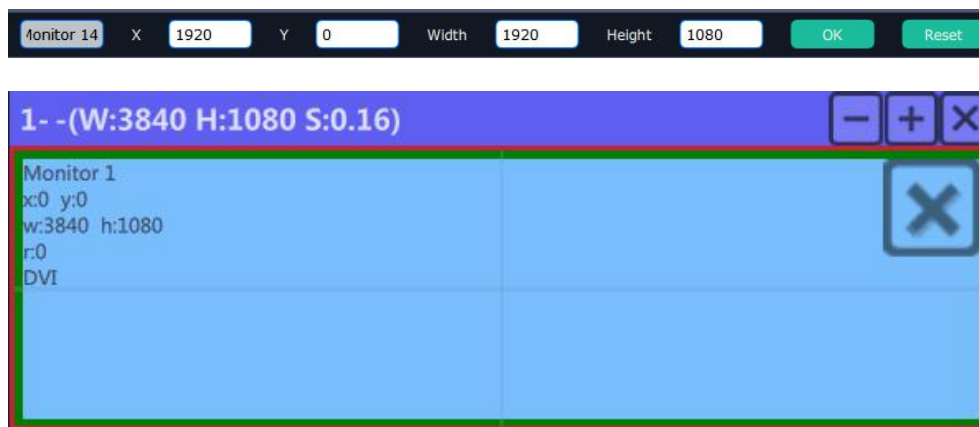
Created: Click Customize below template, user can type in the width, height ,Row and Column, according to actual display in field.It will automatically calculate the width and height of each monitor based on the parameter above.

Used:

Show the already used "Display Area", all the used "Display Area" can be kept unless users "**Delete All**"
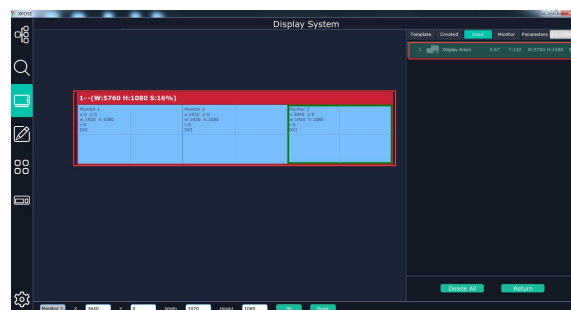
Output

Show all the output ports (monitors) of this device. If the output is in dark (black), it indicates that this output is available to choose otherwise it is in grey.

Parameters

It is designed to adjust the size and position of the output display.

The position and size adjustment can be done by using the bar under the window. It also offes output port swap feature.

Adjust Display Area

Drag the boarder of the display area to move its place in the interface.\

Click icon to shrink,Click to enlarge the proportion of display area on interface.
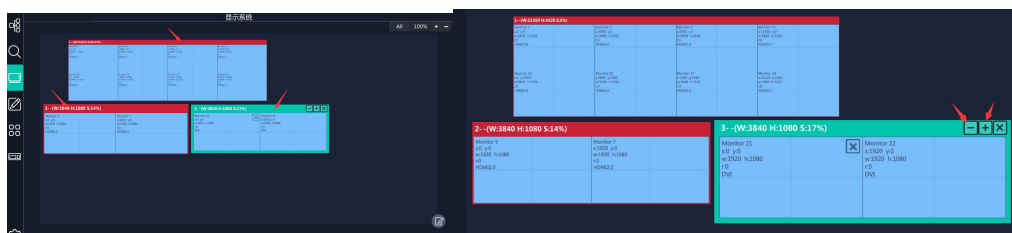
3.2.6 Layer Management

Layer Management is designed to manage the layer of each monitor. Click this icon to enter the interface:
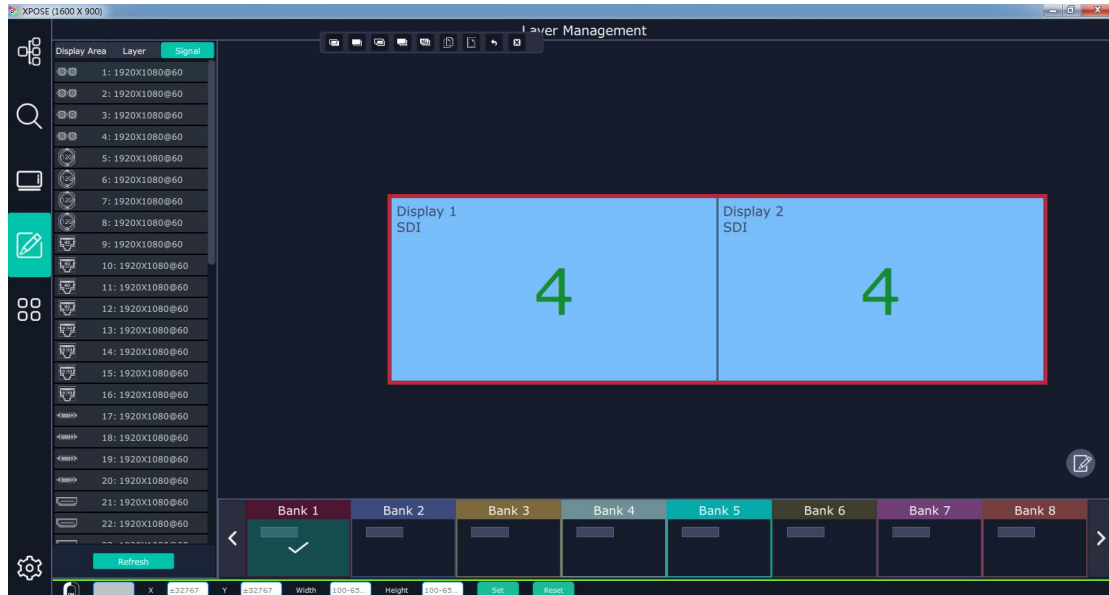
Display Area

Here is to show all the Display Area set in previous step System Management. Click to cancel or use the corresponding Display Area.
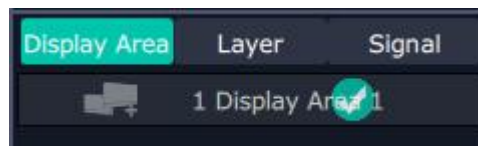
Signal

To show the signal list of 52 inputs. Drag source from signal list to monitor

Numbers on Monitor

Numbers on monitor is to show how many layers at present allowed to put in the monitor .

Each monitor (output port) can contain layers no more than 4. Any 1 input signal cross 1 border of a monitor is regarded as 2 layers.
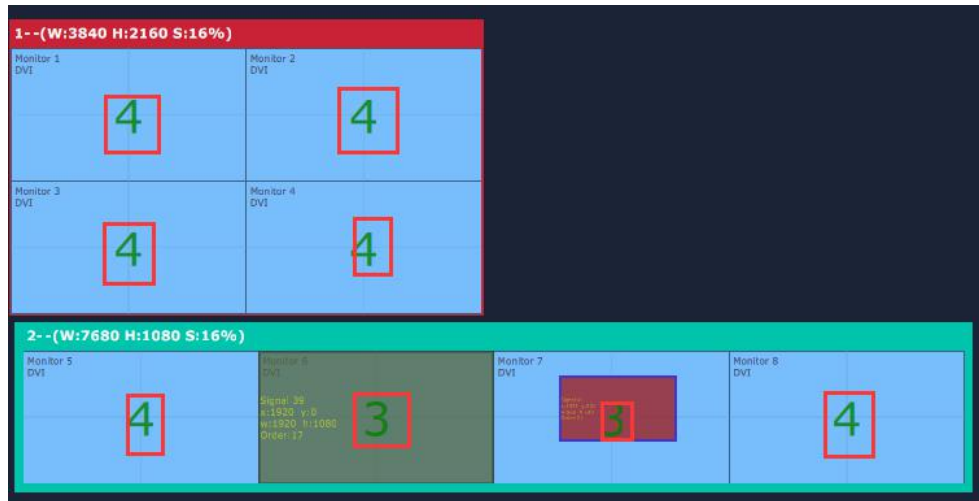
Layer

After Signal is dragged into the output display, it can be listing each layer index and their corresponding signal index.

Layer Adjustment

Under the Presentation Mode, there are two ways to adjust layer.

1. Use the bar under the interface

Choose one layer and the bar shows its signal source, type in position and size.

2. Layer Scale or Crop

Layer Movement

Place the cursor on the layer, it turns to a palm icon , press the left of mouse, the icon turns

to a fist , moving the mouse can drag the layer.

Layer Remove

Click the cross on the top right of the layer to remove the layer if needed.
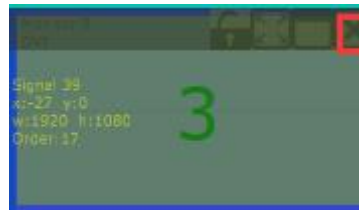
Layer Max

Click this icon , to cover up all monitors in the same Display Area with the one signal, as the

following:

Layer Copy

Press Ctrl and mouse left at the same time, move the mouse the layer selected can be copied and

place in any monitor in the same Display Area but it doesn't work when cross over display area.
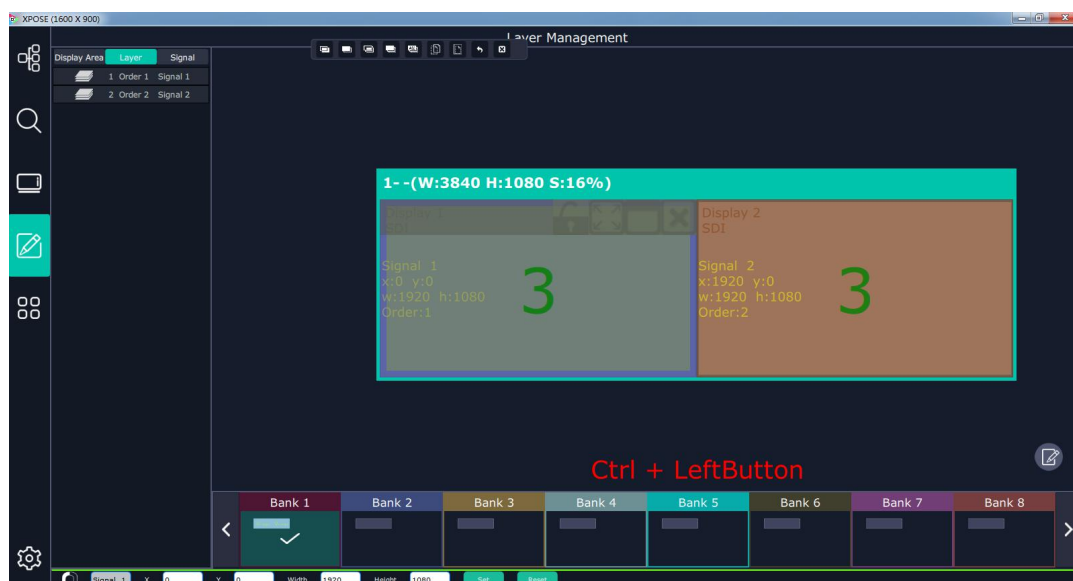
Layer Lock

Click the lock icon on the right middle of the later boarder.
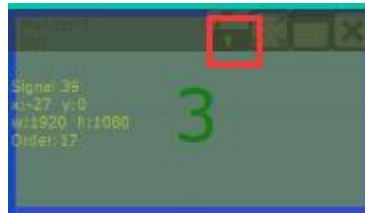
When the layer is locked, any movement or removal to the layer is invalid

Streaming
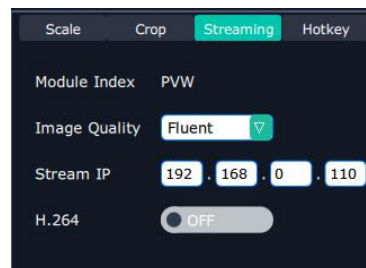
Module Index:PVW (show which module the streaming signal comes from, on X14, this streaming

is from the Ethernet port 2 on communication board)

Image Quality: fluent or high quality

Stream IP:show the IP of the streaming port

H.264: when it is on, image of all input source can be previewed.
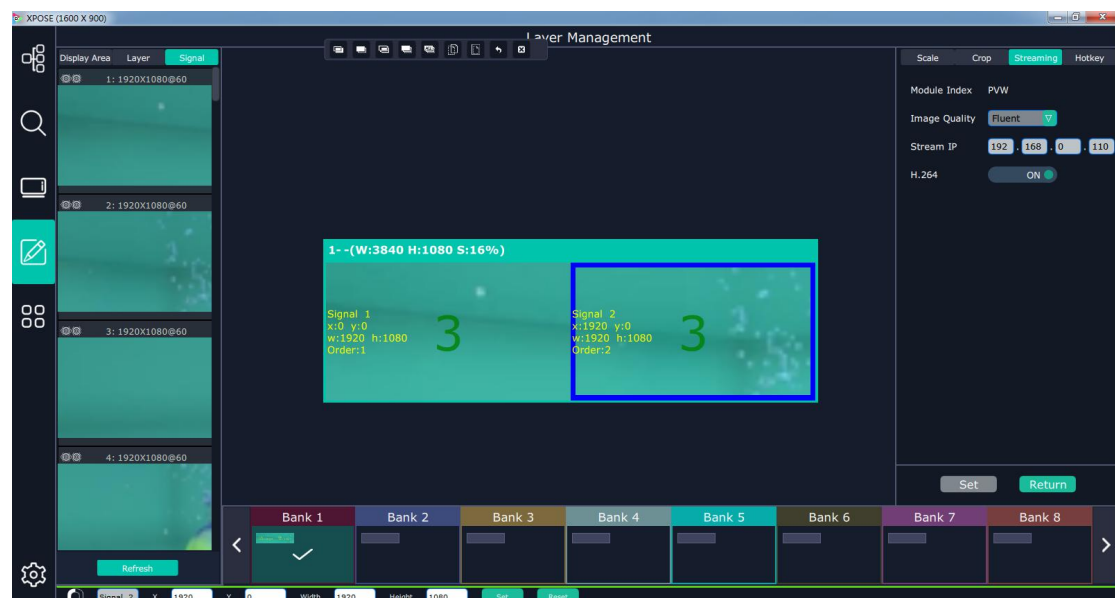
Save to Bank Automatically

When one Bank (where the set is contained) is finished, click next Bank, previous set is saved to

bank.
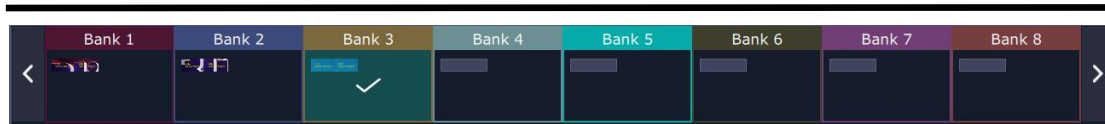
Hot Key

Show all shortcut keys applicable in layer management section.

3.2.7 Preset Management

Preset Management is designed to switch bank (scene setting done in last step).

Preset Management Mode：1 Manual Mode, 2 Schedule Mode
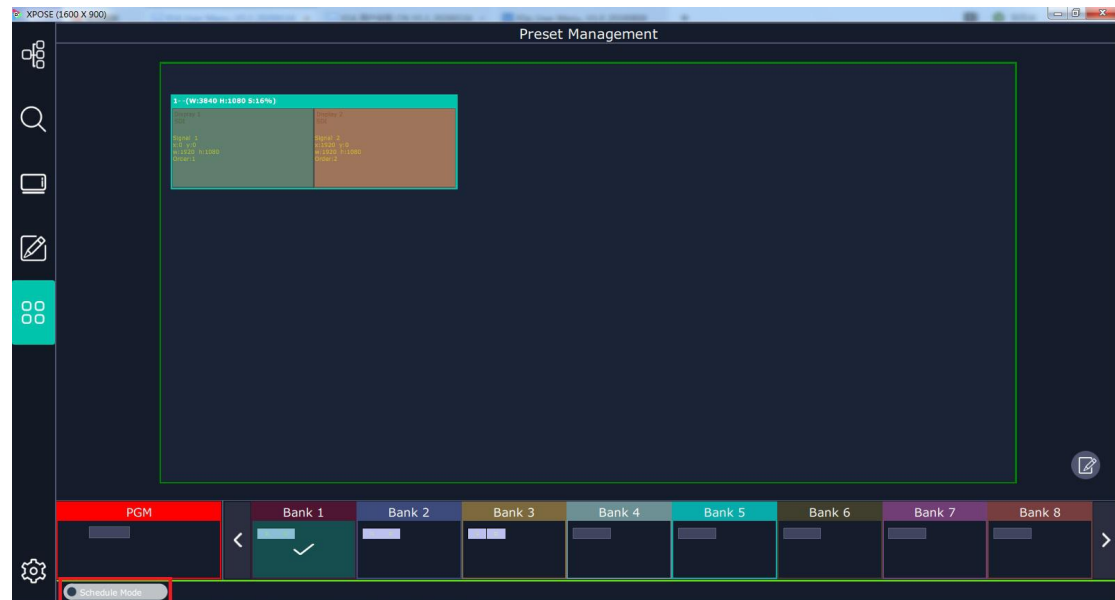
switch manual mode and schedule mode here

Manual Mode

Click this icon to _____ to open up the Setting of :Taking Setting, Page, Scirpt, Display Area,

Preset Name .

Take Setting

Fade Time： 0.0-10.0S

Display: On or Off. It is designed to switch each display in one bank in different transition effect.

To realize each display in a bank switching with different transition, users need to slid ON here

and open up **Display Area** setting

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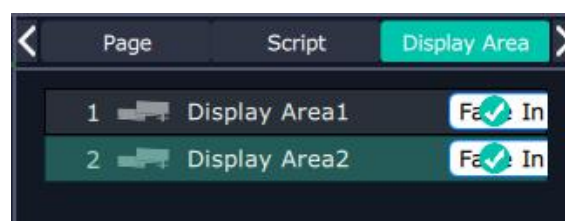
User can remove the display area that needs to keep content the same as previous bank by

clicking the ![check], and by clicking the transition name to open up the transition list as follow to

choose the desired transition effect:
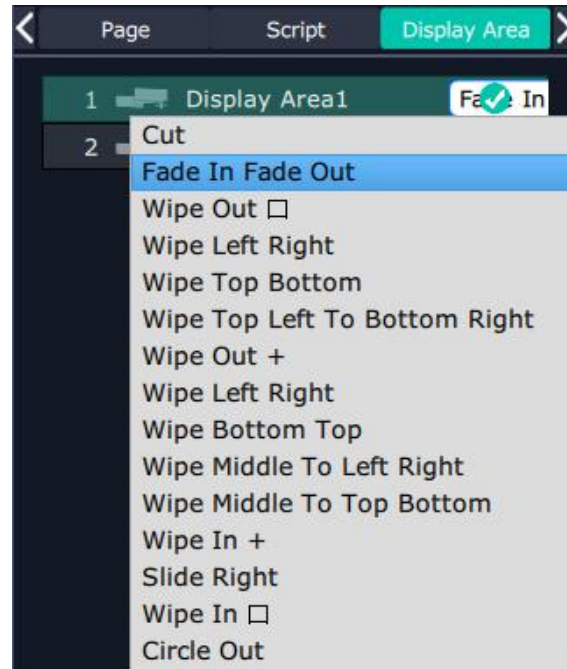
Black out： slide to ON or OFF

The tick on the bank indicates that the bank is selected.
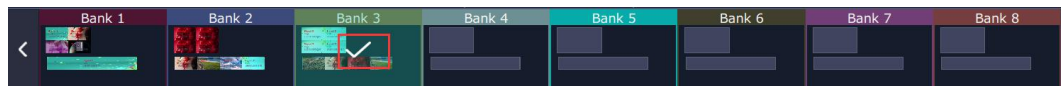
Click Cut or TAKE to switch the content on PST to PGM.
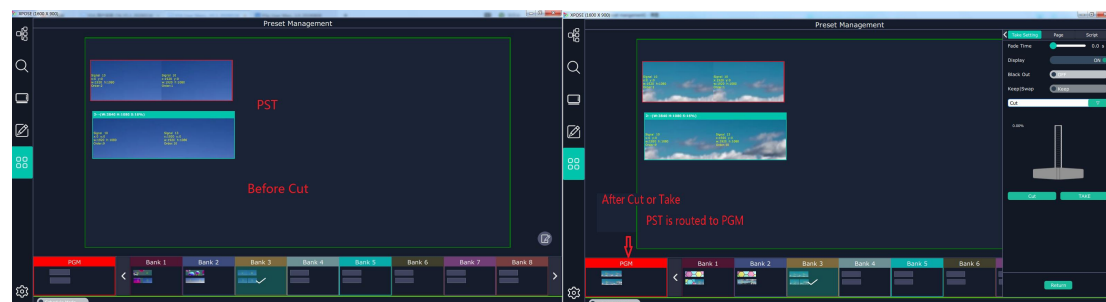
Cut is to switch without any transition.

Take is to switch with the selected transition.

Keep|Swap

Under the **Keep** status, users need to select a bank and use Cut or Take to switch image from PST

to PGM.

Under **Swap** status, users select a bank, then use Take or Cut to swap this bank and the bank

before this one. When **Display** is On, **Keep|Swap** doesn't work.

Bank Save and Load

Save Bank to Page

Select a bank,click Page,select Page X,the bank is saved in the page.
The page turns green then become grey, indicating the bank is saved in the page.
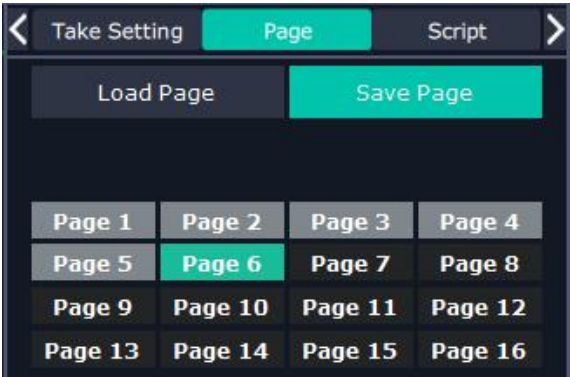
Load bank from Page

Click Load Page, pages with bank saved are green, select one from them and the selected one becomes red. The bank is loaded from page to PST.
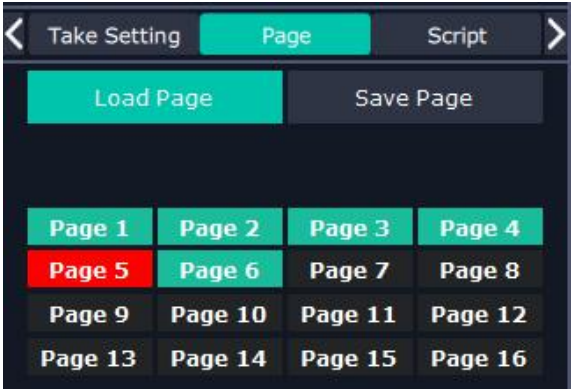
Script Save and Load

Save Script

Click [Script] ,fill in the blank with the name of setting and Save
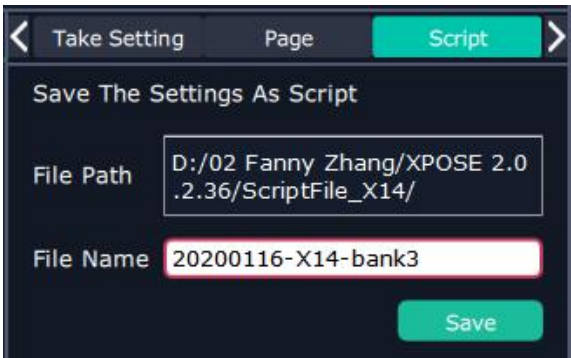
Load and Delete Script

After the script is saved, the bank name will appear in the load list.

Select the file and click Load

Select the file and click Delete, the chose file can be deleted from list.
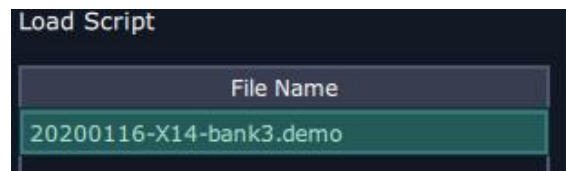
Preset Name

Select a bank and click Preset Name , fill in the blank after New Preset Name to rename a Preset
(Bank)
Click the color block after Color Selection and choose a new color for the boarder of chosen bank.
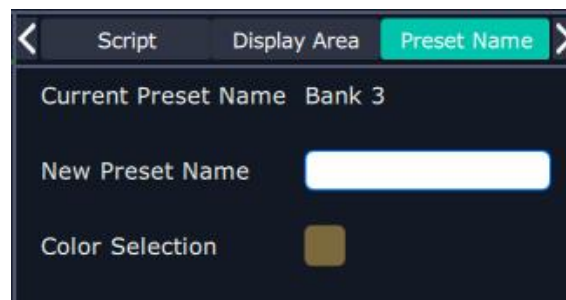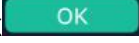
Schedule Mode

This mode is designed to set auto bank (scene/preset) switch.
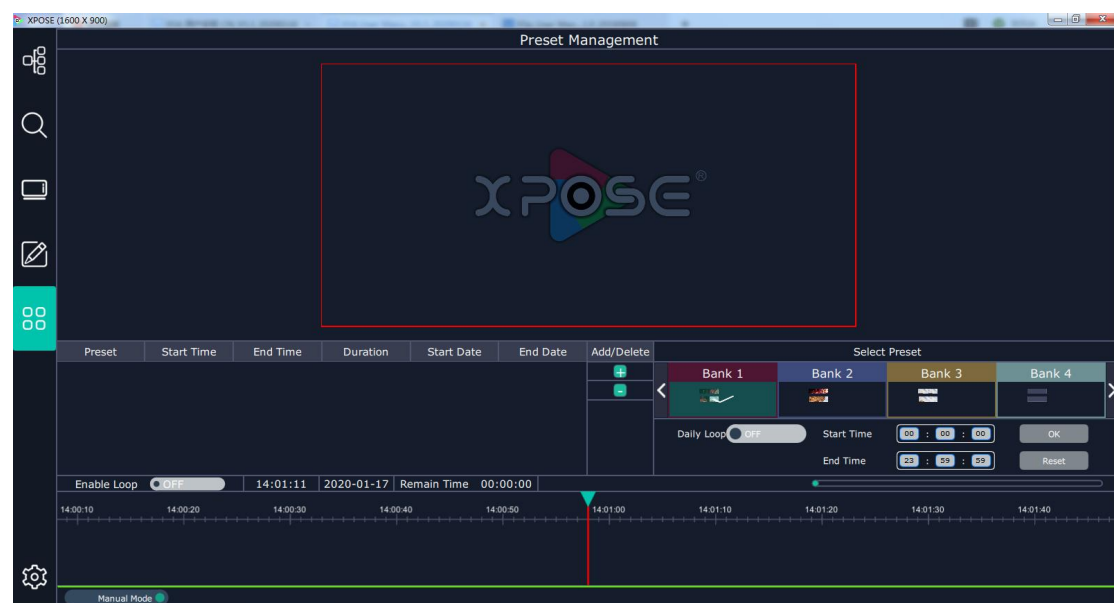
Loop

Click ➕ under **Add/Delet**, select a bank and set Start Time and End Time.

Click OK **OK**, the bank will be added to the loop list on the left.

Enable Loop to On **Enable Loop ON ●**

Long pressing ➖ to remove the bank from loop list when loop is OFF

Enable Loop ○ OFF (Note, Loop need to be disabled first, if a bank need to be removed

from loop list)
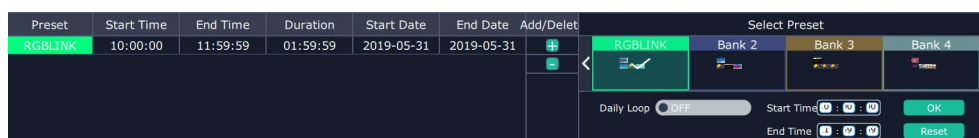
Chapter 4 Ordering Codes

4.1 Product

310-0014-01-0   X14

4.2 Options

4.2.1 Input Options

190-0014-02-0	Quad 2K D-HDMI Input Module
190-0014-03-0	Quad 3G D-SDI Input Module
190-0014-04-0	4K@60 Digital Input Module
190-0014-05-0	12G SDI Input Module
190-0014-06-0	Quad HDBaseT Input Module
190-0014-07-0	Quad H.264 Input Module

4.2.2 Output Options

190-0014-21-0	Quad DVI Output Module
190-0014-22-0	Quad 2K HDMI Output Module
190-0014-23-0	Quad 3G-SDI Output Module
190-0014-24-0	Quad HDBaseT Output Module
190-0014-25-0	H.264 Output Module
190-0014-26-0	Dual 4K HDMI Output Module
190-0014-27-0	ARO Rotation Module

4.2.3 Other Options

190-0014-00-0	Input Interface EXT
190-0014-20-0	Output Interface EXT
950-0006-00-0	Power Supply 1200W

Chapter 5 Support

5.1 Contact Us

RGBlink **Headquarters** Xiamen, China	**China Regional** **Sales & Support** Shenzhen, China	**Shanghai Region** **Office** Shanghai, China	**Beijing Region** **Office** Beijing, China
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18668 Bandera Rd Helotes TX 78023	Flight Forum Eindhoven 5657 DW	78/626, Motilal Nagar, No1, Rd No1, Goregaon West, Mumbai
📞 +1 (210) 742 -1288	📞 +31 (040) 202 71 83	📞 +91 98200 86718
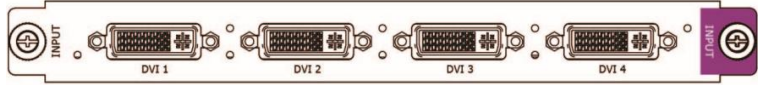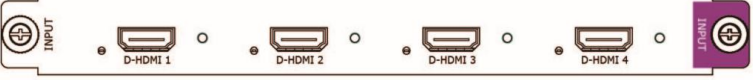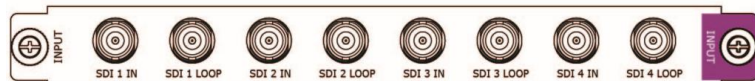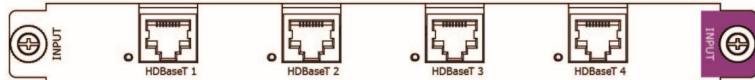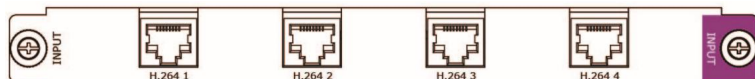
Chapter 6 Appendix
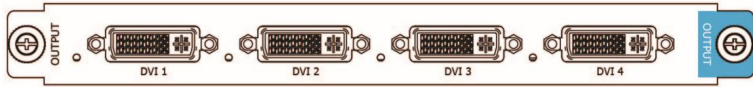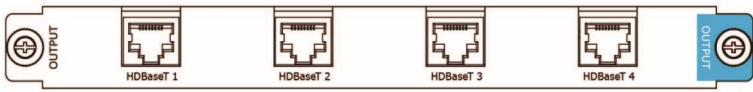
6.1 Specification
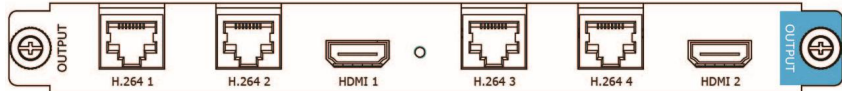
CVBS Input Module	
Interface Appearance	
Board Size	216(L)×20(W)（mm）
Number of Inputs	8
Connector	Standard BNC Socket
Supported Standards	PAL I NTSC I SECAM
Signal Level	1Vpp±3db (0.7V Video+0.3v Sync) 75 ohm
Multiplex	480i I 576i

VGA Input Module		
Interface Appearance		
Board Size	216(L)×20(W)（mm）	
Number of Inputs	4	
Connector	DB15	
Supported Standard	VGA-UXGA	
Supported Resolution	VESA	800×600@60 I 1024×768@60 I 1280×1024@60 I 1440×900@60 I 1600×1200@60

DVI Input Module		
Interface Appearance		
Board Size	216(L)×20(W)（mm）	
Number of Inputs	4	
Connector	DVI-I	
Supported Resolution	SMPTE	480i | 576i | 720p50/59.94/60 I1080i50/59.94/60 I 1080p50/59.94/60
	VESA	800×600@60 I 1024×768@60 I 1280×768@60 I 1280×1024@60 I 1600×1200@60 I 1920×1080@60
Signal Level	TMDS pwl, single pixel input,165MHz bandwidth	
Supported Standard	Single-Link DVI	
USB Input Module		
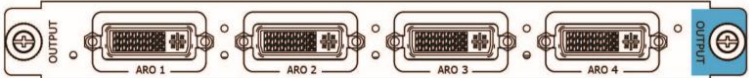
Interface Appearance			
Board Size	216(L)×20(W)（mm）		
Number of Inputs	4		
Connector	USB		
Supported Standard	USB 2.0		
Supported resolution	Support general Image and video formats		
2K HDMI Input Module			
Interface Appearance			
Board Size	216(L)×20(W)（mm）		
Number of Inputs	4		
Connector	HDMI-A		
Supported Resolution	SMPTE	480i| 576i|720p50/59.94/60 I 1080i50/59.94/60 I 1080p50/59.94/60	
	VESA	800×600@60 I 1024×768@60 I 1280×768@60 I 1280×1024@60 I 1600×1200@60 I 1920×1080@60	
Supported Standard	HDMI 1.3		
2K D-HDMI Input Module (with Deinterlace feature)			
Interface Appearance			
Number of Inputs	4		
Connector	HDMI-A		
Supported Resolution	SMPTE	480i | 576i｜720p@50/59.94/60 I 1080i@50/59.94/60 I 1080p@50/59.94/60	
	VESA	800x600@60 | 1024X1468@60 | 1280X1468@60 | 1280x1024@60 | 1600x1200@60 | 1920x1080@60	
Format Standard	HDMI 1.3		
2K S-HDMI Input Module (With Synchronization feature)			
Interface Appearance			
Number of Inputs	4		
Connector	HDMI-A		
Supported Resolution	SMPTE	480i | 576i｜720p@50/59.94/60 I 1080i@50/59.94/60 I 1080p@50/59.94/60	
	VESA	800x600@60 | 1024X1468@60 | 1280X1468@60 |	
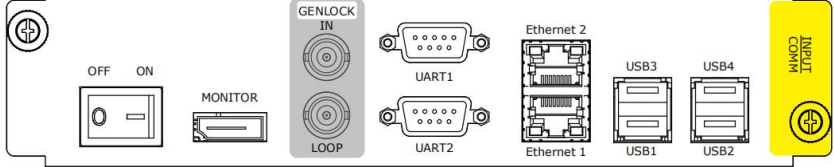
	1280x1024@60 | 1600x1200@60 | 1920x1080@60
Format Standard	HDMI 1.3
Interface Appearance	
Number of Inputs	4 (4 In |4 Loop)
Connector	BNC
Supported Resolution	SMPTE 480i | 576i | 720p@50/60 | 1080i@59.94/60 | 1080p@23.98/24/25/29.97/30/59/59.94/60 | 1080psf@23.98/24/25/29.97/30
Format Standard	SMPTE 425M (Level A & B) | SMPTE 424M | SMPTE 292M | SMPTE 259M-C | DVB-ASI
4K@60 Input Module	
Interface Appearance	
Number of Inputs	4
Connector	1xDVI-I | 2 x HDMI-A| 1x DisplayPort
Supported Resolution	Dual DVI|HDMI 1.4
	SMPTE 720p@25/30/50/60 | 1080p@23.98/24/25/29.97/30/50/59.94/60 |2160p@30
	VESA 800x600@60 | 1024x768@60 | 1280x768@60 | 1280x800@60 |1280x1024@60 | 1360x768@60 | 1366x768@60 | 1400x900@60 | 1600x1050@60 | 1600x1200@60 |1680x1050@60 | 1920x1080@23.98/24/25/29.97/30/50/59.94/60 | 1920x1200@60 | 2048x1152@60 | 2560x812@60 | 2560x816@60 | 3840x2160@24/25/30
	HDMI 2.0 | DP 1.2
	SMPTE 720p@25/30/50/60 | 1080p@23.98/24/25/29.97/30/50/59.94/60 |2160p@24/25/30/50/59.94/60
	VESA 800x600@60 | 1024x768@60 | 1280x768@60 | 1280x800@60 |1280x1024@60 | 1360x768@60 | 1366x768@60 | 1400x900@60 | 1600x1050@60 | 1600x1200@60 |1680x1050@60 | 1920x1080@23.98/24/25/29.97/30/50/59.94/60 | 1920x1200@60 | 2048x1152@60 | 2560x812@60 | 2560x816@60 | 3840x2160@24/25/30/50/60 | 4096x2160@60
Supported Standard	DVI Dual Link DVI
	HDMI HDMI 2.0

	DP	DisplayPort 1.2
HDBaseT Input Module		
Interface Appearance		
Number of Inputs	4	
Connector	RJ45	
Supported Resolution	SMPTE	720p@50/59.94/60 | 1080p@23.98/24/25/29.97/30/50/59.94/60
	VESA	800x600@60/75/85 | 1024X1468@60/75/85 | 1280X1468@60 | 1280x800@60 | 1280x1024@60/75/85 | 1360X1468@60 | 1366X1468@60 | 1400x900@60 | 1600x1050@60 | 1600x1200@60 | 1680x1050@60 | 1920x1080@60 | 1920x1200@60 | 2048x1152@60 | 2560x812@60 | 2560x816@60
Standard	HDBaseT 1.0	
H.264 Input Module		
Interface Appearance		
Number of Inputs	4	
Connector	RJ45	
Supported Resolution	176x144@60 | 240x180@60 | 320x180@60 | 320x240@60 | 320x256@60 | 352x228@60 | 352x480@60 | 400x224@60 | 400x320@60 | 480x270@60 | 480x272@60 | 480x320@60 | 480x360@60 | 480x384@60 | 480x480@60 | 544x480@60 | 608x448@60 | 640x360@60 | 640x480@60 | 704x576@60 | 720x404@60 | 720x480@60 | 720x540@60 | 720x576@60 | 850x480@60 |1024x576@60 | 1280X1420@60 | 1680x1056@60 | 1920x1080@60	
Standard	H.264/MPEG-4 AVC	
12G SDI Input Module		
Input interface		
Numbers of Inputs	4	
Connector	BNC	
Supported Resolution	SMPTE	480i | 576i | 720p@25/30/50/60Hz |1080i@50/50.94/60 |1080p@23.98/24/25/29.97/30/50/59.94/60| 2160p@30/50/60
Supported Standard	SMPTE ST 2082-1, SMPTE ST 2081-1, SMPTE ST 424, SMPTE ST 292-1, SMPTE ST 259, DVB-ASI,MADI	

DVI Output Module	
Interface Appearance	
Board Size	216(L)×20(W)（mm）
Number of Outputs	4
Connector	DVI-I
Signal Level	TMDS pw, 165MHz bandwidth
Supported Resolution	SMPTE 625/25/50 PAL, 525/29.97/59.94 NTSC, 1080i50/59.94/60 I 720p50/59.94/60 I 1080P50/59.94/60
	VESA 720×480@50i I 720×480@60i I 1024×768@60 I 1024×768@75 I 1024×768@85 I 1280×720@50 I 1280×720@59.94 I 1280×720@60 I 1280×800@60 I 1280×1024@60 I 1280×1024@75 I 1280×1024@85 I 1360×768@60 I 1366×768@60 I 1400×1050@60 I 1440×900@60 I 1600×1200@60 I 1680×1050@60 I 1920×1080@50i I 1920×1080@59.94i I 1920×1080@60i I 1920×1080@50 I 1920×1080@59.94 I 1920×1080@60 I 1920×1200@60 I 2048×1152@60 I 2560×816@60
HDBaseT Output Module	
Interface Appearance	
Number of outputs	4
Connector	RJ45
Supported Resolution	SMPTE 720p@50/59.94/60 | 1080i@50/59.94/60 | 1080p@23.98/24/25/29.97/30/50/59.94/60
	VESA 800x600@60/75/85 | 1024X1468@60/75/85 | 1280X1468@60 | 1280x800@60 | 1280x1024@60/75/85 | 1360X1468@60 | 1366X1468@60 |1400x900@60 | 1600x1050@60 | 1600x1200@60 |1680x1050@60 | 1920x1080@60 | 1920x1200@60 | 2048x1152@60 | 2560x812@60 | 2560x816@60
Supported Standards	HDMI 1.3
3G-SDI Output Module	
Interface Appearance	
Number of outputs	4
Connector	BNC
Supported Resolution	SMPTE 480i | 576i | 720p@25/30/50/60Hz |1080i@50/50.94/60 |1080p@23.98/24/25/29.97/30/50/59.94/60

Supported Standard	SMPTE 425M (Level A & B) | SMPTE 424M | SMPTE 292M | SMPTE 259M-C | DVB-ASI
H.264 Output Module	
Interface Appearance	
Number of outputs	6
Connector	4 x RJ45 | 2 x HDMI-A
Supported Resolution	H.264 176x144@60 | 240x180@60 | 320x180@60 | 320x240@60 | 320x256@60 | 352x228@60 | 352x480@60 | 400x224@60 | 400x320@60 | 480x270@60 | 480x272@60 | 480x320@60 | 480x360@60 | 480x384@60 | 480x480@60 | 544x480@60 | 608x448@60 | 640x360@60 | 640x480@60 | 704x576@60 | 720x404@60 | 720x480@60 | 720x540@60 | 720x576@60 | 850x480@60 | 1024x576@60 | 1280X1420@60 | 1680x1056@60 | 1920x1080@60
	HDMI SMPTE 480i | 576i | 720p@50/59.94/60 | 1080i@50/59.94/60 | 1080p@25/29.97/30/50/59.94/60 VESA 1024X1468@60/75/85 | 1280x800@60 | 1280x1024@60/75/85 | 1360X146@x60 | 1366X1468@60 | 1024X1468@60/75/85 | 1280x800@60 | 1280x1024@60/75/85 | 1360X1468@60 | 1366X1468@60
Format Standard	H.264/MPEG-4 AVC HDMI 1.3
2K HDMI Output Module	
Interface Appearance	
Number of outputs	4
Connector	HDMI-A
Supported Resolution	SMPTE 720p@50/59.94/60 I 1080i@50/59.94/60 I 1080p@50/59.94/60 VESA 800x600@60 | 1024X1468@60 | 1280X1468@60 | 1280x1024@60 | 1600x1200@60 | 1920x1080@60
Supported Standards	HDMI 1.3
4K HDMI Output Module	

Interface Appearance		
Number of outputs	2	
Connector	HDMI-A	
Supported Resolution	SMPTE	720p@60|1080p@60|2160p@60
	VESA	1280x720@60 | 1360x768@60| 1366x768@60|1600x900@60 | 1920x1080@60|2540x1440@60 |3480x2048@60 |3840x2160@60
Supported Standard	HDMI 2.0	

2K DVI ARO (Advanced Rotation) Output Module		
Interface Appearance		
Number of outputs	4	
Connector	DVI-I	
Supported Resolution	SMPTE	720P@50/59.94/60 | 1080P@23.98/24/25/29.97/30/50/59.94/60
	VESA	800x600@60 | 1024x768@60/75/85 | 1280x720@50/59.94/60 | 1280 x 800@60 | 1400x1050@60 I 1600x1200@60 | 1920x1080@23.98/24/25/29.97/30/50/59.94/60
Supported Standard	Single Link DVI	

Communication Board	
Interface Apperance	
Genlock In/Loop	
Connector	2xBNC (1 In | 1 Loop)
Supported Resolution	480i I 576i I 720p@50 I 720p59.94 I 1080i59.94 I 1080i50 I 1080p50 I 1080p59.94 I 1080p60 I 1080psf23.98 I 1080psf24
Communication	
Connector	2 x DB9 (UART1|UART2)-RS232 1 x RJ45 (Ethernet 1) 4 x USB Type A -USB 2.0

H.264 PVW	
Connector	1 x RJ45 (Ethernet 2)

Power Module	
Connector	1 x IEC-3
Power Supply	100-240V
Max Power	1200W
Working Environment	0°C~45°C
Stored Environment	10% to 90%
Product Warranty	3 years parts and labor warranty

6.2 Terms & Definitions

 The following terms and definitions are used throughout this guide.

● **RCA**：Connector used primarily in consumer AV equipment for both audio and video. The RCA connector was developed by the Radio Corporation of America.

● **BNC:** Stands for Bayonet Neill-Concelman. A cable connector used extensively in television (named for its inventors). A cylindrical bayonet connector that operates with a twist-locking motion .

● **CVBS**：CVBS or Composite video, is an analog video signal without audio. Most commonly CVBS is used for transmission of standard definition signals. In consumer applications the connector is typically RCA type, while in professional applications the connector is BNC type.

● **YPbPr:** Used to describe the colour space for progressive-scan. Otherwise known as component video.

● **VGA**：Video Graphics Array. VGA is an analog signal typically used on earlier computers. The signal is non-interlaced in modes 1, 2, and 3 and interlaced when using in mode

● **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.

● **SDI**：Video signal standardized in SMPTE 424M that uses a single serial link at 2 Gbit/s for uncompressed transmission of video with embedded audio. Connector is BNC.

● **HDMI**：High Definition Multimedia Interface: An interface used for the transmission of uncompressed high definition video, up to 8 channels of audio, and control signals, over a single cable.

● **DisplayPort:** A VESA standard interface primarily for video, but also for audio, USB and other data. DisplayPort (orDP) is backwards compatible with HDMI, DVI and VGA.

● **NTSC :** The colour video standard used in North America and some other parts of the world created by the National Television Standards Committee in the 1950s. NTSC utilizes an interlaced video signals.

● **PAL:** Phase Alternate Line. A television standard in which the phase of the colour carrier is

alternated from line to line. It takes four full images (8 fields) for the colour-to-horizontalimages (8 fields) for the colour-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, is widely used in needed on a PAL TV set. PAL, is widely used in Western Europe, Australia, Africa, the Middle East, and Micronesia. PAL uses 625-line, 50-field (25 fps) composite colour transmission system.

● **SMPTE**：Society of Motion image 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.

● **VESA**: Video Electronics Standards Association. An organization facilitating computer graphics through standards.

● **HDCP**: High-bandwidth Digital Content Protection (HDCP) was developed by Intel Corporation an is in wide use for protection of video during transmission between devices.

● **HDBaseT**: A video standard for the transmission of uncompressed video (HDMI signals) and related features using Cat 5e/Cat6 cabling infrastructure.

● **ST2110**: A SMPTE developed standard, ST2110 describes how to send digital video over and IP networks. Video is transmitted uncompressed with audio and other data in a separate streams.
It is intended principally for broadcast production and distribution facilities where quality and flexibility are more important.

● **SDVoE**: Software Defined Video over Ethernet (SDVoE) is a method for transmission, distribution and management AV signals using a TCP/IP Ethernet infrastructure for transport with low latency. SDVoE is commonly used in integration applications.

● **Dante AV**: The Dante protocol was developed for and widely adopted in audio systems for the transmission of uncompressed digital audio on IP based networks. The more recent Dante AV specification includes support for digital video.

● **NDI**: Network Device interface (NDI) is a software standard developed by NewTek to enable video-compatible products to communicate, deliver, and receive broadcast quality video in a high quality, low latency manner that is frame-accurate and suitable for switching in a live production environment over TCP (UDP) Ethernet based networks. NDI is commonly found in broadcast applications.

● **RTMP:** Real-Time Messaging Protocol (RTMP) was initially a proprietary protocol developed by Macromedia (now Adobe) for streaming audio, video and data over the Internet, between a Flash player and a server.

● **RTSP :** The Real Time Streaming Protocol (RTSP) is a network control protocol designed for use in entertainment and communications systems to control streaming media servers. The protocol is used for establishing and controlling media sessions between end points.

● **MPEG:** Moving Picture Experts Group is a working group formed from ISO and IEC developing standards that allow audio/video digital compression and Transmission.

● **H.264:** Also known as AVC (Advanced Video Coding) or MPEG-4i is a common video compression standard. H.264 was standardized by the ITU-T Video Coding Experts Group (VCEG) together with the ISO/IEC JTC1 Moving Picture Experts Group (MPEG).

● **H.265:** Also known as **HEVC** (High Efficiency Video Coding)H.265 is the successor to the widely used H.264/AVC digital video coding standard. Developed under the auspices of ITU, resolutions up to 8192x4320 may be compressed.

● **API:** An Application Programming Interface (API) provides a predefined function which allows access capabilities and features or routines via a software or hardware, without accessing source code or understanding the details of inner working mechanism. An API call may execute a function and/or provide data feedback/report.

● **DMX512:** The communication standard developed by USITT for entertainment and digital lighting systems.The wide adoption of the Digital Multiplex (DMX) protocol has seen the protocol used for a wide range of other devices including video controllers. DMX512 is delivered over cable of 2 twisted pairs with 5pin XLR cables for connection.

● **ArtNet:** An ethernet protocol based on TCP/IP protocol stack, mainly used in entertainment/events applications. Built on the DMX512 data format, ArtNet enables multiple "universes" of DMX512 to be transmitted using ethernet networks for transport.

● **MIDI:** MIDI is the abbreviation of Musical Instru- ment Digital Interface. As the name indicates the protocol was developed for communication between electronical musical instruments and latterly computers. MIDI instructions are triggers or commands sent over twisted pair cables, typically using 5pin DIN connectors.

● **OSC:** The principle of Open Sound Control (OSC) protocol is for networking sound synthesizers, computers, and multimedia devices for musical performance or show control. As with XML and JSON, the OSC protocol allows sharing data. OSC is transported via UDP packets between devices connected on an Ethernet.

● **Brightness：** Usually refers to the amount or intensity of video light produced on a screen without

regard to colour. Sometimes called black level.

● **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. Well-controlled viewing conditions should yield a practical contrast ratio of 30:1 to 50:1.

● **Colour Temperature:** The colour quality, expressed in degrees Kelvin (K), of a light source. The higher the colour temperature, the bluer the light. The lower the temperature, the redder the light. Benchmark colour temperature for the A/V industry include 5000°K, 6500°K, and 9000°K.

● **Saturation:** Chroma, Chroma gain. The intensity of the colour, or the extent to which a given colour in any image is free from white. The less white in a colour, the truer the colour or the greater its saturation. Saturation is the amount of pigment in a colour, and not the intensity.

● **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.

● **Frame:** In interlaced video, a frame is one complete image. A video frame is made up of two fields, or two sets of interlaced lines. In a film, a frame is one still image of a series that makes up a motion image.

● **Genlock:** Allows synchronisation of otherwise video devices. A signal generator provides a signal pulses which connected devices can reference. Also see Black Burst and Color Burst.

● **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.

● **Colour Burst:** In colour TV systems, a burst of subcarrier frequency located on the back part of the composite video signal. This serves as a colour synchronizing signal to establish a frequency and phase reference for the Chroma signal. Colour burst is 3.58 MHz for NTSC and 4.43 MHz for PAL.

● **Colour Bars：** A standard test pattern of several basic colours (white, yellow, cyan, green, magenta, red, blue, and black) as a reference for system alignment and testing. In NTSC video, the most commonly used colour bars are the SMPTE standard colour bars. In PAL video, the most commonly used colour bars are eight full field bars. On computer monitors the most commonly used colour bars are two rows of reversed colour bars

● **Seamless Switching:** A feature found on many video switchers. This feature causes the switcher to wait until the vertical interval to switch. This avoids a glitch (temporary scrambling) which often is seen when switching between sources.

● **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.

● **PIP:** Picture-In-Picture. A small image within a larger image created by scaling down one of image to make it smaller. 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.

● **HDR:** is a high dynamic range (HDR) technique used in imaging and photography to reproduce a greater dynamic range of luminosity than what is possible with standard digital imaging or photographic techniques. The aim is to present a similar range of luminance to that experienced through the human visual system.

● **UHD:** Standing for Ultra High Definition and comprising 4K and 8K television standards with a 16:9 ratio, UHD follows the 2K HDTV standard. A UHD 4K display has a physical resolution of 3840x2160 which is four times the area and twice both the width and height of a HDTV/FullHD (1920x1080) video signal.

● **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 provided EDID data, ensuring proper video image quality.

6.3 Revision History

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

Format	Time	ECO#	Description	Principal
V1.0	2019-07-9	0000#	Release	Fanny
V1.1	2020-1-7	0001#	Revise （order code, XPOSE control）	Fanny