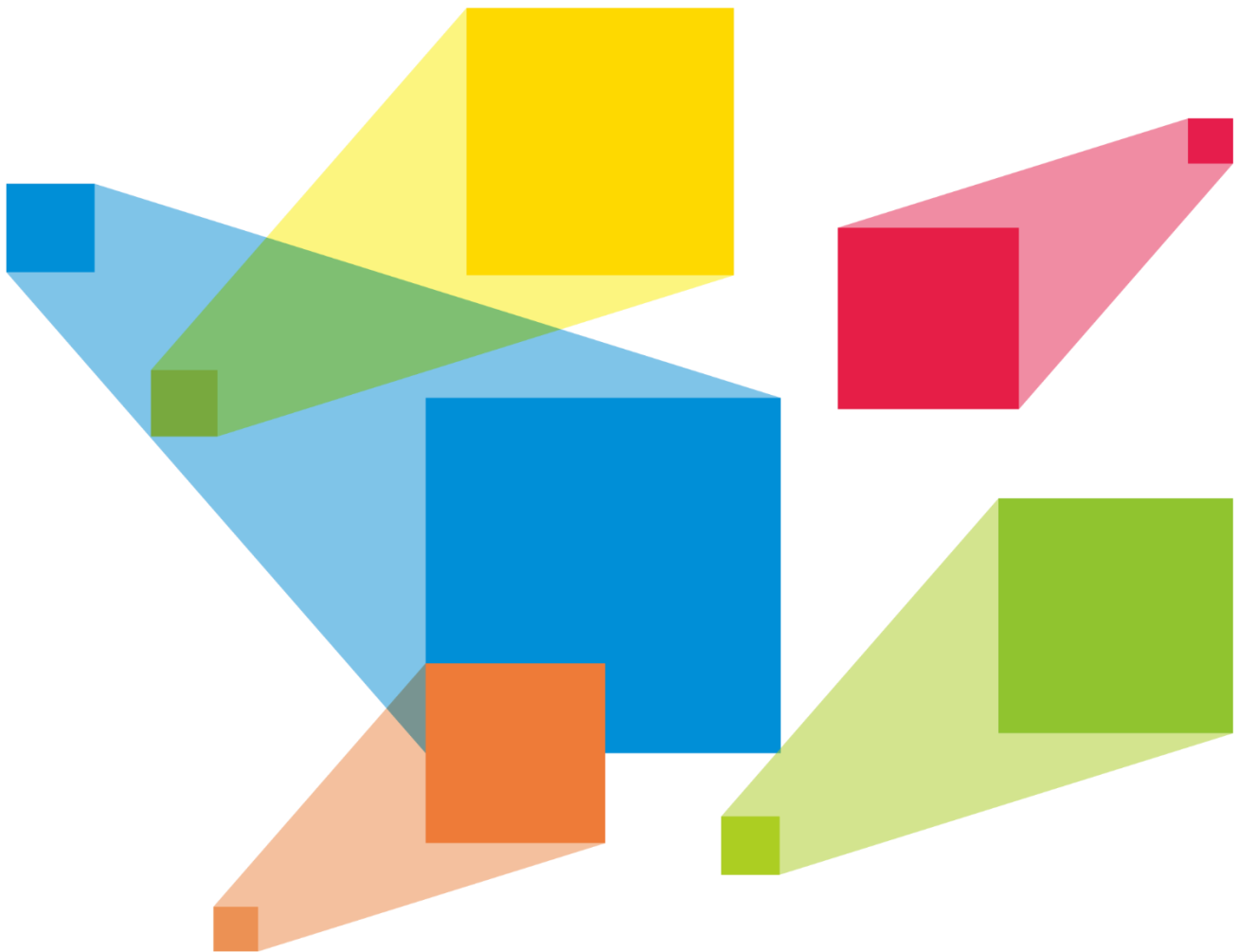


# NovaPro UHD

## All-in-One Controller

V1.0.0

NS160100386



User Manual

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**Warning**

A battery subjected to extremely low air pressure that may result in an explosion or the leakage of flammable liquid or gas.

# Contents

---

1 Overview .....	1
2 Appearance and Specifications .....	1
2.1 Front Panel.....	1
2.2 Rear Panel .....	3
3 Applications.....	5
4 Menu Operations.....	5
4.1 Home Screen .....	1
4.2 Screen Brightness .....	3
4.3 Screen Settings .....	3
4.3.1 Quick Configuration.....	3
4.3.2 Advanced Configuration.....	4
4.3.3 Save to RV Card .....	4
4.3.4 More Settings.....	4
4.4 Layer Settings .....	6
4.4.1 Layer .....	6
4.4.1.1 Layer Properties .....	6
4.4.1.2 Advanced .....	7
4.4.2 LOGO.....	11
4.4.3 OSD.....	13
4.4.4 BKG.....	13
4.5 Input Settings .....	14
4.5.1 DVI Input Mode .....	14
4.5.2 Input Source.....	14
4.5.3 Input Source Resolution.....	15
4.5.4 Input Color .....	15
4.5.5 Color Range.....	16
4.5.6 HDCP .....	16
4.6 Preset Settings .....	16
4.7 Display Control .....	17
4.8 Advanced Functions.....	17
4.8.1 HDR.....	17
4.8.2 Low Latency.....	18
4.8.3 OPT Mode.....	18
4.8.4 AUX.....	20
4.9 General Settings.....	20
4.9.1 Synchronization.....	20
4.9.2 Hot Backup .....	20
4.9.3 FN .....	21
4.9.4 Monitor.....	21
4.9.5 Miscellaneous .....	21
4.9.6 Factory Reset.....	22
4.9.7 Firmware Update.....	22
4.9.8 About Us .....	22
4.10 Communication Settings .....	23
4.10.1 Communication Mode.....	23
4.10.2 Network Settings .....	23
4.11 Language.....	23
5 Built-in Platform Master VI.....	24
5.1 Home Page .....	24
5.2 Screen Configuration .....	25

5.2.1 Adding Cabinets .....	25
5.2.2 Cabinet Connection .....	26
5.3 Layer Configuration .....	29
5.3.1 System.....	31
5.3.2 Settings.....	31
5.3.3 OSD.....	34
5.3.4 Adding Layers .....	37
5.3.5 Preset Settings.....	38
5.4 Settings.....	40
6 Specifications .....	41
7 Video Source Features .....	42

# 1 Overview

The NovaPro UHD is a new all-in-one controller developed by NovaStar. By integrating video processing, video control and LED screen configuration functions into one controller, this product is capable of receiving a variety of video signals, processing and sending images of resolutions up to ultra HD 4K×2K@60Hz and 8K×1K@60Hz, and provides a maximum loading capacity of 8.8 million pixels.

With the built-in Master VI smart platform, the NovaPro UHD supports layer creation, property settings, and screen configuration via mouse, keyboard and monitor.

The NovaPro UHD can send the processed video to LED display through Neutrik Ethernet ports or fiber optical connectors. With powerful video processing and sending capabilities, this product is well suited for high-end rental applications, stage control systems and fine-pitch LED displays.

# 2 Appearance and Specifications

## 2.1 Front Panel



Button	Function
Power button	This is the power button of the device. <ul style="list-style-type: none"> <li>● Press it to power on the device.</li> <li>● Hold it down to power off or restart the device.</li> </ul>
Layer buttons	These are the shortcut buttons for layer operations. <ul style="list-style-type: none"> <li>● Press a button to quickly create a layer.</li> <li>● Blue: The layer is open, and the input source is accessed normally.</li> <li>● White: The layer is open, but the input source is not accessed.</li> </ul>

Button	Function
	<ul style="list-style-type: none"> <li>● Off: The layer is not added.</li> <li>● When a layer is opened, hold down the layer button to close the layer.</li> <li>● Flashing: The layer is being edited.</li> <li>● Blue, flashing: An input source is accessed to the layer and the input source is normal.</li> <li>● White, flashing: No input source is accessed to the layer or the input source is abnormal.</li> </ul>
Input source buttons	<p>Indicate the status of the input source.</p> <ul style="list-style-type: none"> <li>● Press a button to quickly select an input source.</li> <li>● Blue: The input source is accessed and in normal use.</li> <li>● White: The input source is accessed but not in use.</li> <li>● Off: The input source is not accessed or used.</li> <li>● When the indicators of all the buttons with numbers are blue, these buttons can be used to enter numbers.</li> </ul>
TFT screen	Display current device status and settings menu.
Knob	<ul style="list-style-type: none"> <li>● On the home screen, press the knob to enter the operation menu screen.</li> <li>● On the operation menu screen, rotate the knob to select a menu item, and press the knob to confirm the selection or enter the submenu.</li> <li>● When a menu item with parameters is selected, rotate the knob to adjust the parameters. Please note that after adjustment, you need to press the knob again to confirm the adjustment.</li> </ul>
Function buttons	<ul style="list-style-type: none"> <li>● Navigation button: Hold it down to enter or exit quick navigation screen. By rotating the knob, you can quickly get started with NovaPro UHD.</li> <li>● FTB: Set LED to black screen.</li> <li>● LOGO: Enter LOGO settings menu.</li> <li>● PRESET: Enter preset menu.</li> <li>● FREEZE: Freeze the PGM screen.</li> <li>● OSD: Enter OSD settings menu.</li> <li>● FN: Custom function button</li> <li>● TEST: Enter test pattern menu.</li> <li>● BKG: Enter BKG settings menu.</li> <li>● TAKE: Press the button to switch PVW to PGM with the transition effect set previously. A total of 16 transition effects are supported.</li> <li>● CUT: Press the button to switch PVW directly to PGM.</li> </ul>
ESC button	Press the button to exit the current menu or cancel the operation.
USB ports	<p>2 x USB ports</p> <p>Insert a USB drive to perform system update.</p> <p>Connect a mouse or keyboard.</p>

## 2.2 Rear Panel





### Note:

The NovaPro UHD supports replacement of input card. DVI input card is the default configuration. If you need to change other input cards, please purchase and replace the input card yourself.

Input		
Connector	Quantity	Description
12G-SDI	4	<p>Supports ST-2082-1 (12G), ST-2081-1 (6G), ST-424 (3G) and ST-292 (HD) input signals.</p> <p>Supports input resolutions up to 4Kx2K@60Hz and downward compatibility.</p> <p>Supports 12G-SDI loop output.</p> <p><b>Note:</b></p> <ol style="list-style-type: none"> <li>When the input source is a 12G-SDI signal, it is recommended you use CANARE / L-4.5CHD+ / UHDTV-SDI SDI cables and the cable length should be less than 50 m.</li> <li>12G-SDI connectors 1, 2 and 3 do not support deinterlaced function, but connector 4 supports the function.</li> </ol>
DP 1.2	1	<p>Supports input resolutions up to 4Kx2K@60Hz (8Kx1K@60Hz) and downward compatibility.</p> <p>Supports HDCP 1.3.</p> <p>Does not support interlaced signal inputs.</p>
HDMI 2.0	1	<p>Supports input resolutions up to 4Kx2K@60Hz (8Kx1K@60Hz) and downward compatibility</p> <p>Supports HDCP 1.4 and HDCP 2.2.</p> <p>Does not support interlaced signal inputs.</p> <p>Supports HDMI 2.0 loop output.</p>
HDMI 1.3	4	<p>D_4xHDMI 1.3 input card by default</p> <p>Supports input resolutions up to 1920x1080@60Hz.</p> <p>Supports HDCP 1.3.</p> <p>Supports interlaced signal inputs.</p> <p>The HDMI input card can be changed to other input cards, such as D_4xDVI input card and D_4xDP 1.1 input card.</p>
Output		
Connector	Quantity	Description

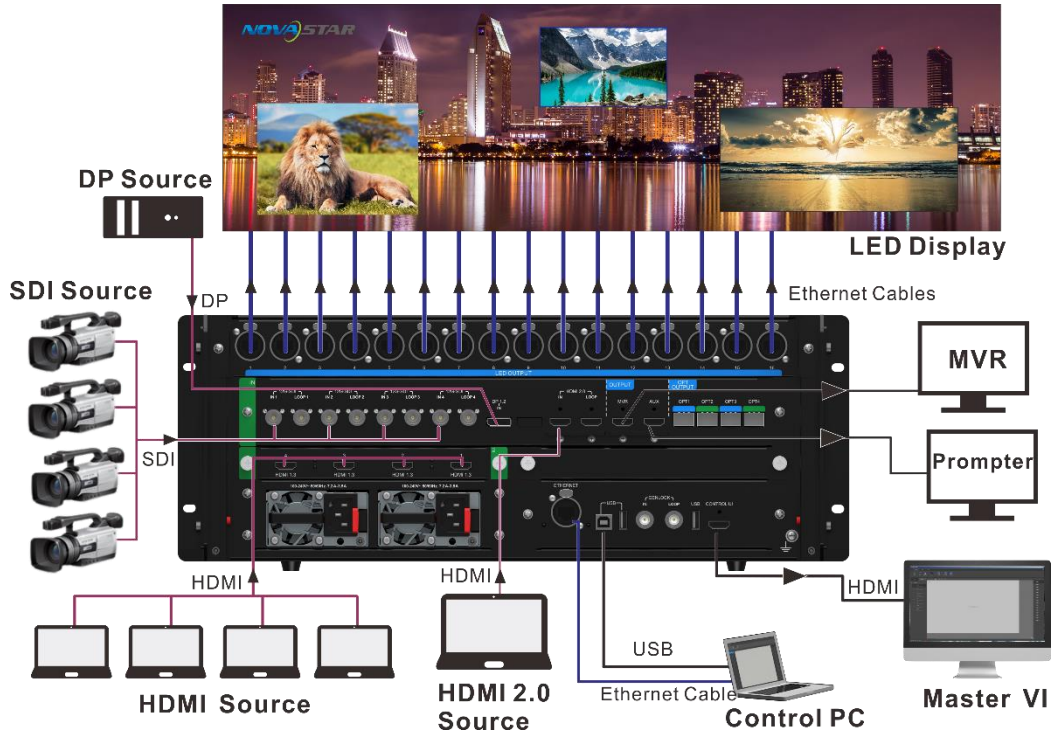
Ethernet port	16	Gigabit Ethernet output ports Maximum loading capacity: 8.8 million pixels Maximum width: 8192 pixels Maximum height: 8192 pixels
OPT 1–4	4	10G fiber optical output connectors with copy and hot backup modes OPT 1 transmits data of Ethernet ports 1–8. OPT 2 transmits data of Ethernet ports 9–16. OPT 3 is the copy/hot backup channel for OPT 1 or Ethernet ports 1–8. OPT 4 is the copy/hot backup channel for OPT 2 or Ethernet ports 9–16.
MVR	1	HDMI 1.3 connector, used as monitoring connector to monitor input sources, PVM, PGM or perform mixed monitoring.
AUX	1	HDMI 1.3 connector, used as auxiliary output connector for connecting an auxiliary device, such as a teleprompter.
<b>Control</b>		
<b>Connector</b>	<b>Quantity</b>	<b>Description</b>
ETHERNET	1	For PC communication or network connection
USB	1	USB (Type-B): Connect to the PC for device debugging. USB (Type-A): Output connector for device cascading
GENLOCK IN-LOOP	1	Connect a synchronization signal source to synchronize the cascaded devices.
USB	1	Insert a USB drive to perform system update. Connect a mouse or keyboard.
CONTROL UI	1	Connect to a monitor for human-machine interaction.

## Electrical Safety Labels

Label	Description
	The device is supplied by two power sources. Unplug both power cords after powering off the device.
	Electrical shock hazard.



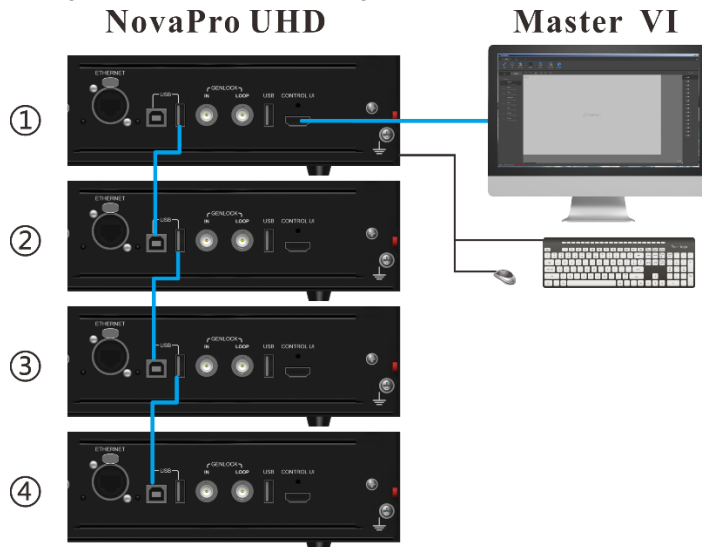
# 3 Applications



**Note:**  
 This product can be placed horizontally only. Do not mount vertically or upside-down.

## Cascade Control

The NovaPro UHD allows for cascading of at most 4 device units. Under cascading control, when you connect a monitor, mouse and keyboard to any of the device units, you can control each device unit independently through Master VI. The cascading control connections are shown as follows.



# 4 Menu Operations

**Button descriptions:**

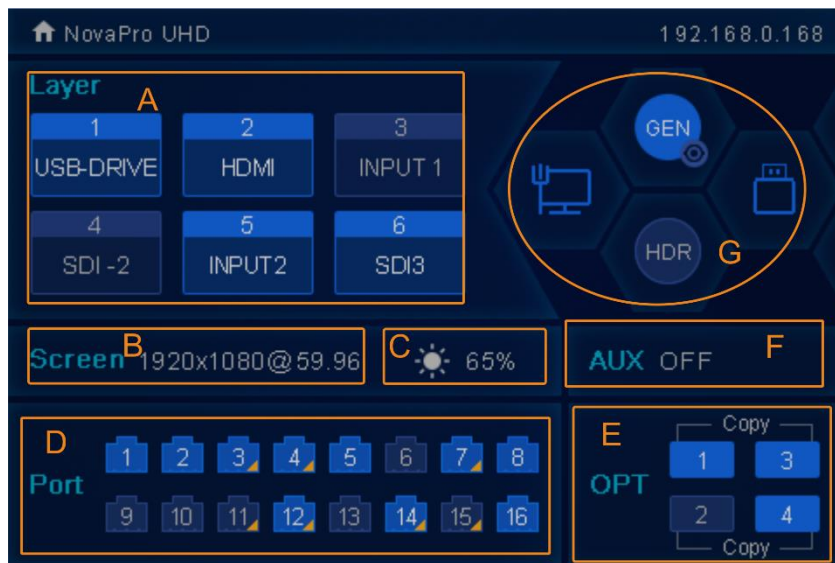
Knob:

- On the home screen, press the knob to enter the operation menu screen.
- On the operation menu screen, rotate the knob to select a menu item, and press the knob to confirm the selection or enter the submenu.
- When a menu item with parameters is selected, you can rotate the knob to adjust the parameters. Please note that after adjustment, you need to press the knob again to confirm the adjustment.










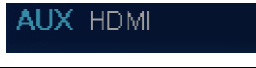











ESC: Press the button to exit the current menu or cancel the operation. On the quick navigation screen, hold it down to exit the screen.




## 4.1 Home Screen

Figure 4-1 Home Screen



Area	Icon	Description
A		Display the layer number, status and input source. The layer is opened or closed.
		The layer number is 6. The layer input source is SDI.
B		Display the resolution of the configured screen.
C		Display the screen brightness.
D		Display the device working mode and Ethernet port status. Device working mode: Set as Primary
		Ethernet port: Connected/Disconnected

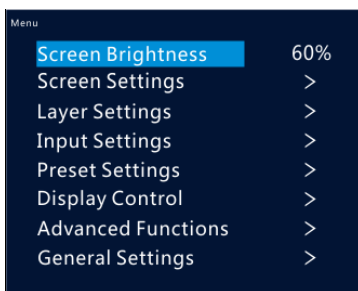
Area	Icon	Description
		Display the device working mode and Ethernet port status. Device working mode: Set as Backup
		Ethernet port: Connected/Disconnected  flashing: The backup port is enabled.  not flashing: The backup port is disabled.
		The corresponding Ethernet port of the fiber converter connected to the NovaPro UHD is connected to the LED screen.
E		Display the OPT mode and optical fiber port status. Hot Backup: OPT mode: Hot backup Optical fiber ports 3/4 backup the data of optical fiber ports 1/2. Copy:
		OPT mode: Copy Optical fiber ports 3/4 copy the data of optical fiber ports 1/2.  : Optical fiber port: Connected  : Optical fiber port: Disconnected
F		AUX function is turned on and the input source for AUX is displayed.
		AUX function is turned off.
G	Synchronization	 Display the GenLock status. Small icon: Green GenLock connector: Connected GEN text: White GenLock function: On
		 Small icon: Green GenLock connector: Connected GEN text: Yellow GenLock function: Waiting to be turned on
		 Small icon: Green GenLock connector: Connected GenLock function: Off
		 Small icon: Gray GenLock connector: Disconnected GenLock function: On
		 Small icon: Gray GenLock connector: Disconnected GenLock function: Waiting to be turned on
		 Small icon: Gray GenLock connector: Disconnected GenLock function: Off
	HDR	 HDR function is turned on.
		 HDR function is turned off.
	USB drive	 USB drive is inserted.
		 USB drive is not inserted.

Area	Icon	Description
	Communication	 The current device communication mode is USB Preferred.
		 The current device communication mode is LAN Preferred.
		 The current device is not connected to the control PC.

## 4.2 Screen Brightness

You can adjust the screen brightness in an eye-friendly way according to the current ambient brightness. Besides, appropriate adjustment of screen brightness can extend the service life of the LED screen.

Figure 4-2 Screen brightness



Step 2 Press the knob to enter the main menu screen.

Step 3 Select **Screen Brightness** and press the knob to confirm the selection.

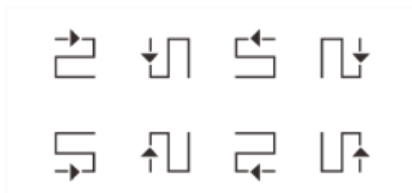
Step 4 Rotate the knob to adjust the brightness value, and the LED screen will display the effect in real-time. Then press the knob to apply the set brightness when you are satisfied with it.

## 4.3 Screen Settings

### 4.3.1 Quick Configuration

#### Preconditions

- LED screen must be a regular screen.
- Cabinets of the screen must be regular cabinets with the same resolution.
- The following data flow settings are supported. During data flow settings, you must ensure that the physical connection of each port is along the same direction and downward to next one.



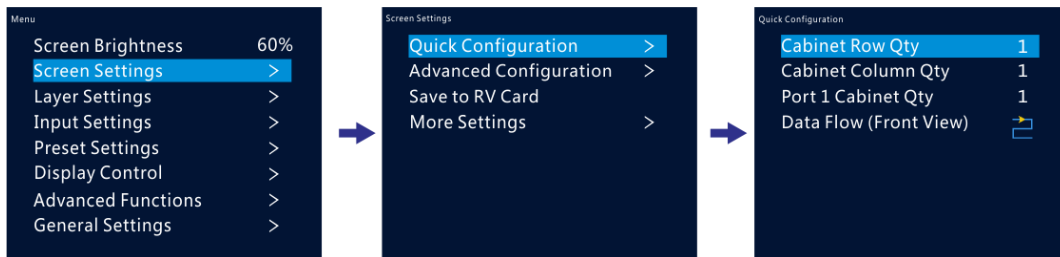
- During data flow settings, you must ensure that the Ethernet Port 1 is at the beginning position of the whole physical connection.

#### Procedure

Step 1 Power on the LED screen.

- Step 2 Rotate the knob to choose **Screen Settings > Quick Configuration**, and press the knob to enter the quick configuration screen.

Figure 4-3 Quick configuration



- Step 3 Set **Cabinet Row Qty** and **Cabinet Column Qty** according to the actual row and column quantities of the cabinets.

- Step 4 Rotate the knob to **Port 1 Cabinet Qty** to set the quantity of the cabinets loaded by Ethernet port 1.

- Step 5 Rotate the knob to **Data Flow** and press it, then select an appropriate one.

Data flow is the physical cabinet connection pattern when viewed in front of the screen.

During data flow settings, you can view the real-time effects of different data flow settings on LED display by rotating the knob. When you are satisfied with the LED display image, press the knob to apply the settings.

### 4.3.2 Advanced Configuration

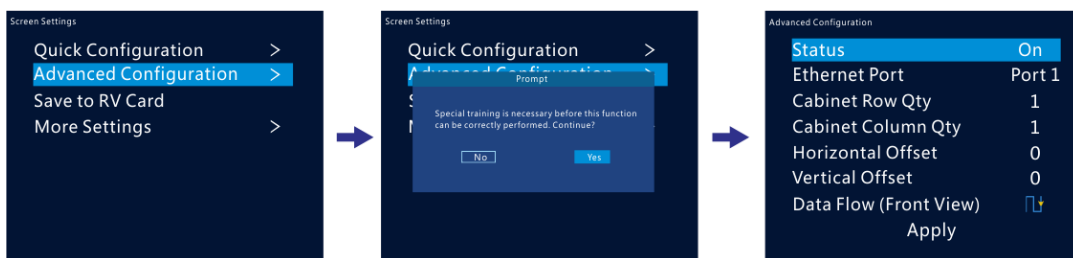
You can set the cabinet row and column quantities, horizontal offset, vertical offset and data flow of the cabinets loaded by a single Ethernet port.

- Step 1 Press the knob to enter the main menu screen.

- Step 2 Rotate the knob to choose **Screen Settings > Advanced Configuration**, and press the knob to enter the advanced configuration screen.

- Step 3 Turn on the advanced configuration function, and then set the cabinet row and column quantities, horizontal offset, vertical offset and data flow for the target Ethernet port.

Figure 4-4 Advanced configuration



### 4.3.3 Save to RV Card

You can send and save the screen configuration to the receiving card. The configuration data will not be lost after the device is powered off.

### 4.3.4 More Settings

#### Mapping

Mapping is used to show the relations between the cabinets of LED screen and the sending devices. You can view or check the connections of the cabinets.

**Note:**

This function is available when the receiving cards connected to the NovaPro UHD support the mapping function.

Figure 4-5 Mapping turned on

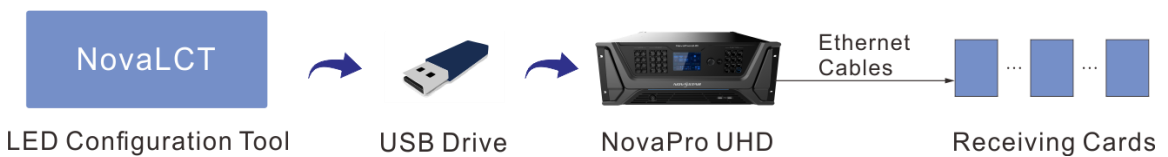


P:05 stands for the Ethernet port number of the sending device.  
 #001 stands for the number of the cabinet loaded by the Ethernet port.

**Load RCFGx Files**

After the LED screen is powered on, if a certain cabinet or the entire LED screen is not lit, you can save the receiving card configuration files (\*.rcfgx) that have been configured on NovaLCT software to the USB drive, and then load the files from the USB drive.

Figure 4-6 Loading RCFGx files



**LED Screen Color**

You can adjust the color temperature and Gamma of LED screen to make the images displayed on the screen more clearer and vivid.

- Color Temperature: Set the cool or warm degree of images displayed on LED screen.
- Gamma: Adjust the distortion degree from the input image to output image. The greater the value is, the more distorted the image will be. The range is 0.25–4.00.



## 4.4 Layer Settings

### 4.4.1 Layer

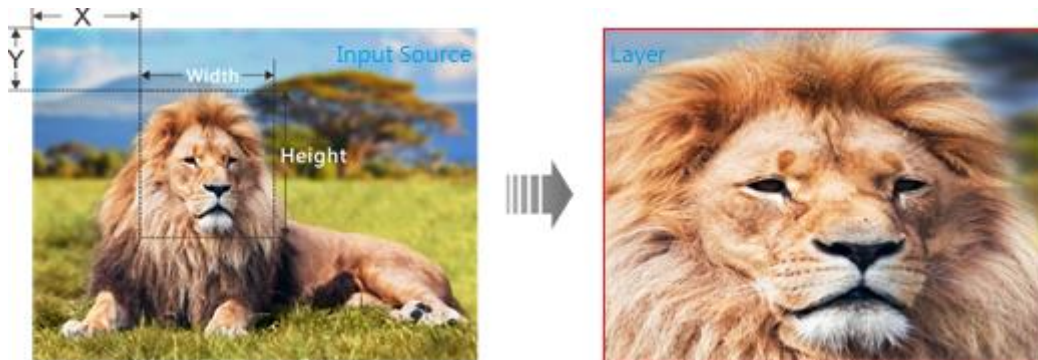
#### 4.4.1.1 Layer Properties

Menu	Description
Select Layer	Select the desired layer. At most 6 layers are supported. Note: Press a number button in the <b>LAYER</b> area on the device front panel to enter the layer settings screen and open the selected layer.
Status	Select to open or close the layer.
Input Source	Select the input source for the selected layer. Note: Press an input source button in the <b>SOURCE</b> area on the device front panel to quickly select an input source for the layer.
Layer Adjust	Adjust the aspect ratio, size and other parameters of the layer. <ul style="list-style-type: none"> <li>● Aspect Ratio: Set the proportional relationship between the layer width to its height.</li> <li>● The options are 1:1, 5:4, 4:3, 3:2, 16:9, 16:10 and Custom.</li> <li>● Keep Ratio: Keep the aspect ratio.</li> <li>● H Width: The range is 64–8192 and the default value is 800.</li> <li>● V Height: The range is 64–8192 and the default value is 600.</li> <li>● Initial X: Set the horizontal initial coordinate of the layer.</li> <li>● Initial Y: Set the vertical initial coordinate of the layer.</li> <li>● Full Screen: Make the layer in full screen.</li> <li>● Reset: Reset all the settings to defaults.</li> </ul>
Priority	Set the layer display order. The range is 1–6. <ul style="list-style-type: none"> <li>● 1: The layer is at the bottom.</li> <li>● 6: The layer is on the top.</li> </ul>
Input Crop	Crop the input source image and make it in full screen. <ul style="list-style-type: none"> <li>● Status: Turn on or turn off this function for the selected layer.</li> <li>● H Width: The horizontal width of the current input source. The range is 64–horizontal width of the input source.</li> <li>● V Height: The vertical height of the current input source. The range is 64–vertical height of the input source.</li> <li>● Initial X: The horizontal initial coordinate of the cropped part upon the current input source. The default value is 0.</li> <li>● Initial Y: The vertical initial coordinate of the cropped part upon the current input source. The default value is 0.</li> </ul>
Advanced	Set the copying, flipping and other properties of the layer. For details, please see 4.4.1.2 Advanced.
Reset	Reset all the layer settings to defaults.

Figure 4-7 Layer parameter descriptions



Figure 4-8 Input crop



4.4.1.2 Advanced

Copy

Create a new layer displaying the input source image in the selected mode.

Menu	Description
Status	Set to turn on or turn off the layer copying function. The options are None, Clone, Left Mirror and Right Mirror. <b>None</b> indicates turning off the function.
Initial X	Set the horizontal initial coordinate of the new layer. The vertical initial coordinate of the new layer keeps the same with that of the old one.
Reset	Reset all the settings to defaults.



Figure 4-9 Clone

LED Screen

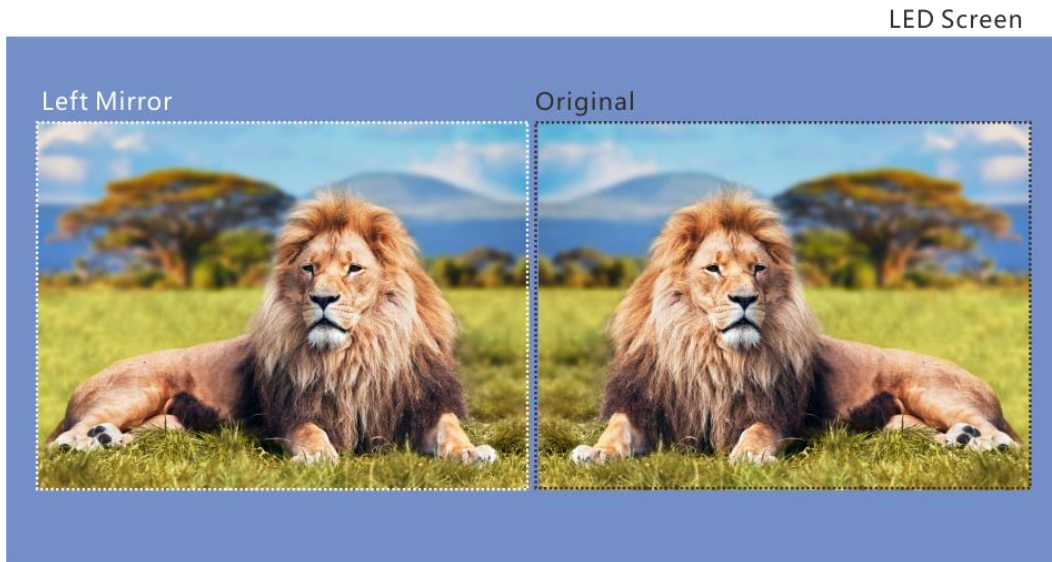


Figure 4-10 Right mirror

LED Screen



Figure 4-11 Left mirror

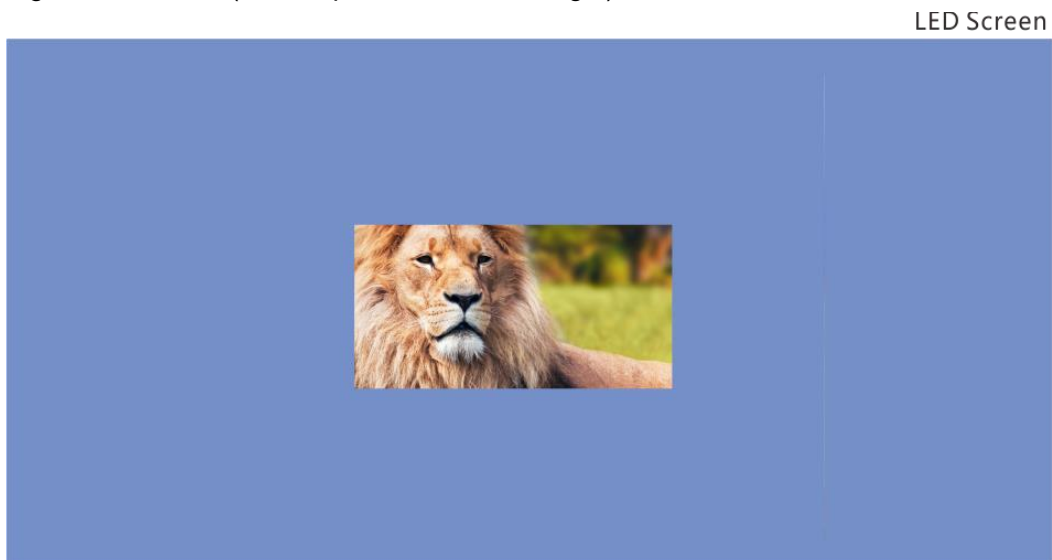


## Mask

Set to mask certain part of the layer. The masked area is transparent and the layer size remains the same. The adjustment unit is pixel.

Menu	Description
Status	Set to turn on or turn off the layer mask function.
Mode	The options are Mask Top, Mask Bottom, Mask Left and Mask Right. The range of the mask is 0–vertical height/horizontal width of layer and the default value is <b>0</b> .
Reset	Reset all the settings to defaults.

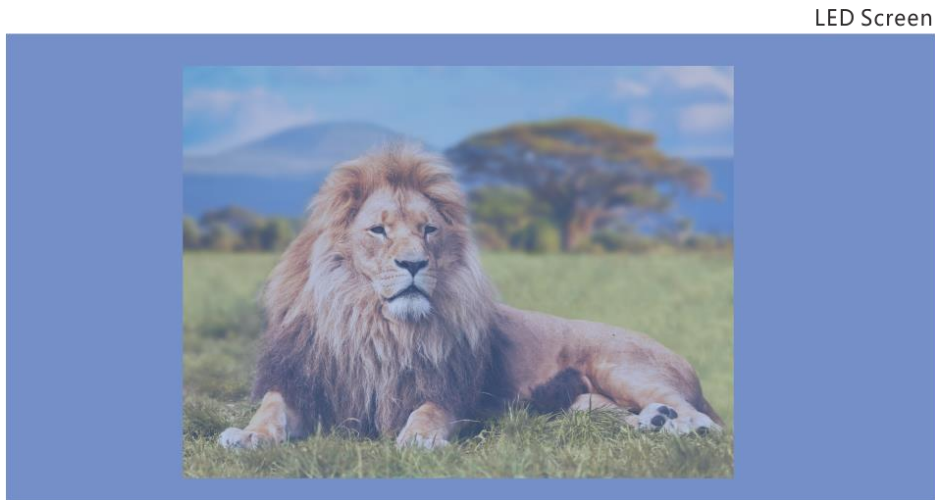
Figure 4-12 Mask (mask top, bottom, left and right)



## Opacity

Set the opacity of the layer. The range is 0% (transparent)–100% (non-transparent). The default value is **100%** and the adjustment stepping is 1%.

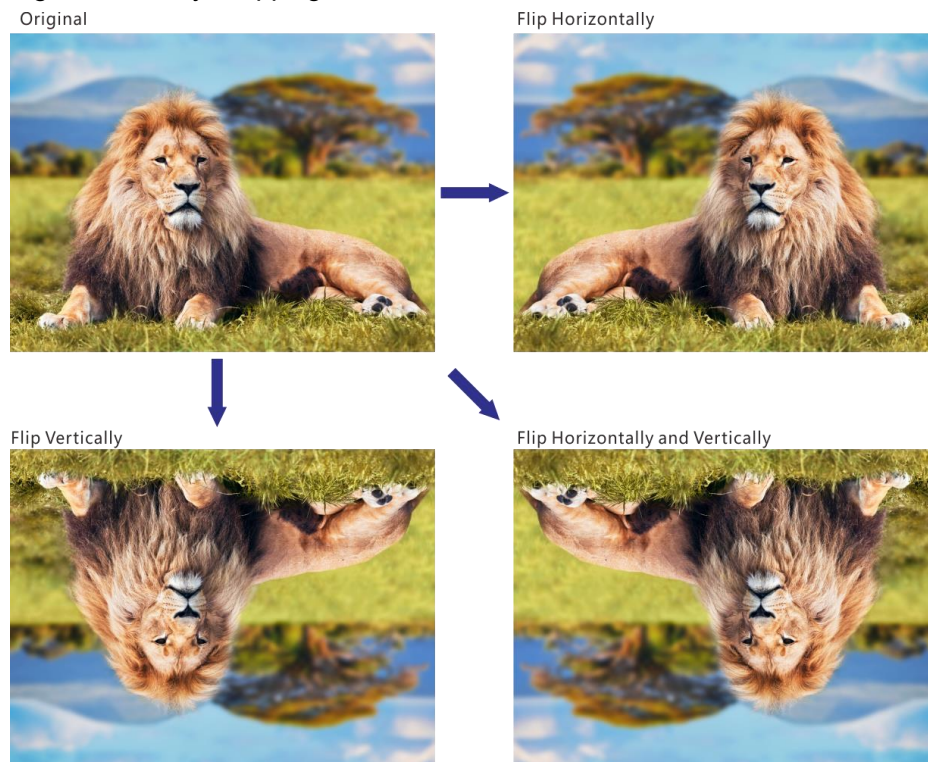
Figure 4-13 Opacity: 50%



## Flip

Set whether to flip the layer image. The options are **None**, **H**, **V** and **H/V**. **None** indicates not flipping.

Figure 4-14 Layer flipping



## Color

Adjust the parameters of the layer, including brightness, contrast, saturation, hue, monochrome and inverting colors.

Menu	Description
Brightness	Adjust the brightness of the layer image. The range is 0–100 and the default value is <b>50</b> .
Contrast	Adjust the contrast of the layer image. The range is 0–100 and the default value is <b>50</b> .
Saturation	Adjust the saturation of the layer image. The range is 0–100 and the default value is <b>50</b> .



Menu	Description
Hue	Adjust the hue of the layer image. The range is -180 to +180 and the default value is 0.
Monochrome	Select whether to set the layer image to gray scale image. The default option is <b>Off</b> .
Invert Colors	Invert the color to its complementary color that combined with the original color makes white (RGB: 255,255,255). For example, if the original color is red (RGB: 255,0,0), the inverted color is cyan (RGB: 0, 255, 255).

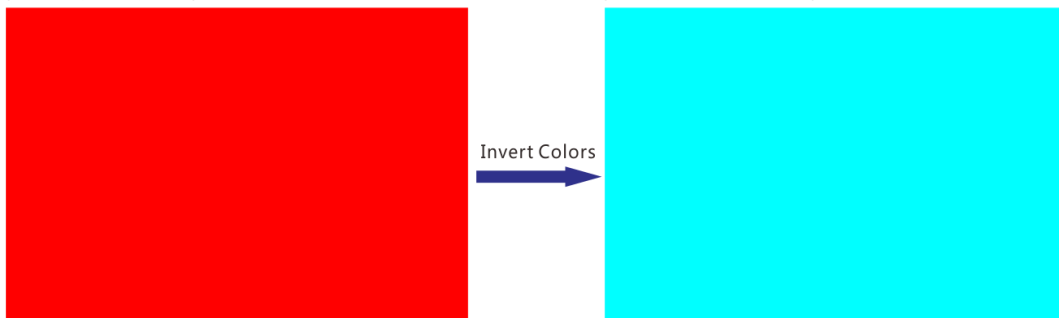
Figure 4-15 Monochrome



Figure 4-16 Invert colors

( R : 255 ; G : 0 ; B : 0 )

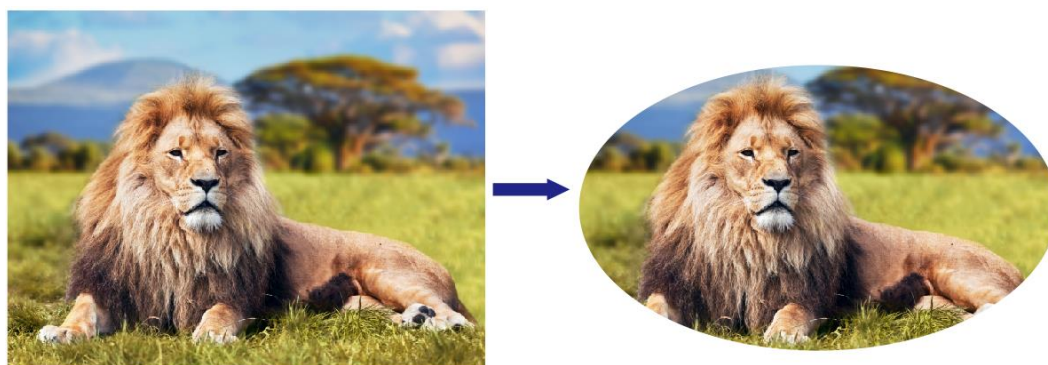
( R : 0 ; G : 255 ; B : 255 )



### Shape

Set the layer shape. The options are **Normal**, **Heart**, **Star**, **Circle**, **Crescent**, **Oval**, and **Diamond**.

Figure 4-17 Oval layer



### 4.4.2 LOGO

Display the company Logo.

Menu	Description
Status	Set to turn on or turn off the LOGO function. The default option is <b>Off</b> . Note: If no LOGO images are added or imported, the LOGO function cannot be enabled.
Select LOGO	Select the desired LOGO file. The LOGO file is sent by the built-in platform Master VI.
Initial X	Set the horizontal initial coordinate of the LOGO file upon the screen. The range is -8192 to +8192 and the default value is <b>0</b> .
Initial Y	Set the vertical initial coordinate of the LOGO file upon the screen. The range is -8192 to +8192 and the default value is <b>0</b> .
Opacity	Set the opacity of the added LOGO file. The range is 0% (transparent)-100% (non-transparent) and the default value is <b>100%</b> .
Crop	<ul style="list-style-type: none"> <li>● Status: Set to turn on or turn off the LOGO cropping function. The default option is Off.</li> <li>● H Width: Set the horizontal width of the LOGO file after cropping.</li> <li>● V Height: Set the vertical height of the LOGO file after cropping.</li> <li>● Initial X: Set the horizontal initial coordinate of the cropped area upon the LOGO file.</li> <li>● Initial Y: Set the vertical initial coordinate of the cropped area upon the LOGO file.</li> <li>● Reset: Reset all the settings to defaults.</li> </ul>

**Note:**

- LOGO has the highest priority and is placed on the top of OSD and BKG.
- Press the **LOGO** button in the **FUNCTION** area on the device front panel to turn on the LOGO function and enter the LOGO settings screen.

Figure 4-18 LOGO position

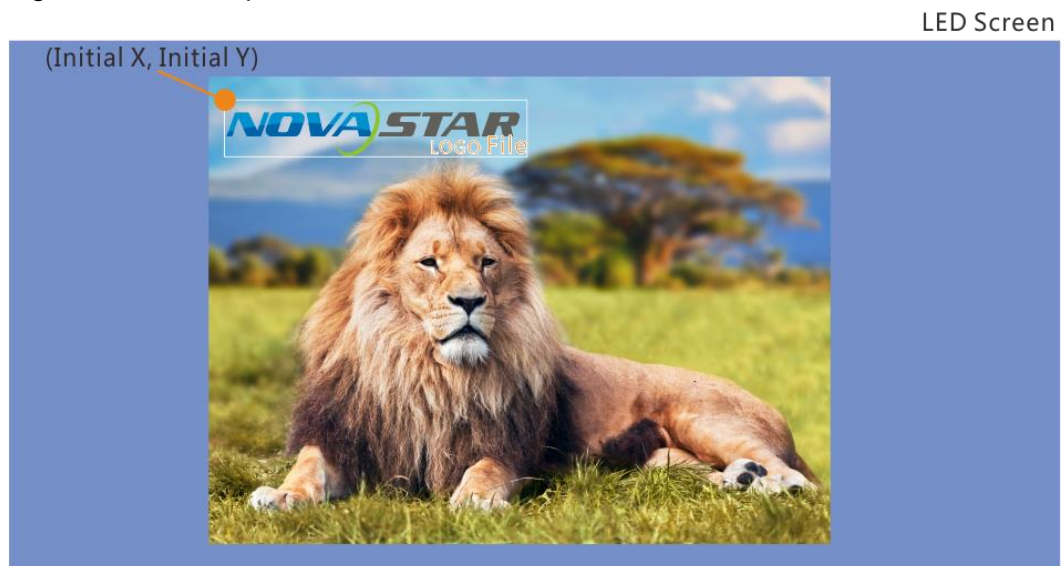


Figure 4-19 LOGO cropping



### 4.4.3 OSD

Set the text and picture overlay display effect of the output image.

Menu	Description
Status	Set to turn on or turn off the OSD function. The default option is <b>Off</b> .
Select OSD	Select the desired OSD text or picture file.
Initial X	Set the horizontal initial coordinate of the OSD file upon the screen. The range is -8192 to +8192 and the default value is <b>0</b> .
Initial Y	Set the vertical initial coordinate of the OSD file upon the screen. The range is -8192 to +8192 and the default value is <b>0</b> .
Speed	Set the scrolling speed of the OSD file. The range is 1-3 and the default value is <b>1</b> . This function is available when OSD is text.
Direction	Set the scrolling direction of the OSD file. The options are From Right to Left (default) and From Left to Right. This function is available when OSD is text.
Opacity	Set the opacity of the OSD file. The range is 0%-100%. The default value is <b>100%</b> and the adjustment stepping is 10%. <ul style="list-style-type: none"> <li>● 100%: Non-transparent</li> <li>● 0%: Transparent</li> </ul>
Crop	<ul style="list-style-type: none"> <li>● Status: Set to turn on or turn off the OSD cropping function. The default option is Off.</li> <li>● H Width: Set the horizontal width of the OSD file after cropping.</li> <li>● V Height: Set the vertical height of the OSD file after cropping.</li> <li>● Initial X: Set the horizontal initial coordinate of the cropped area upon the OSD file.</li> <li>● Initial Y: Set the vertical initial coordinate of the cropped area upon the OSD file.</li> <li>● Reset: Reset all the settings to defaults.</li> </ul>

#### Note:

- OSD has the second highest priority, and is placed on the top of other layers.
- Press the **OSD** button in the **FUNCTION** area on the device front panel to enter the OSD settings screen.

### 4.4.4 BKG

Set the background image that has the lowest priority.

Menu	Description
Status	Set to turn on or turn off the BKG function. The default option is <b>Off</b> .
Type	Select the desired BKG file. The options are <b>Pure Color</b> and <b>Image</b> .
BKG Image/Pure Color BKG	<ul style="list-style-type: none"> <li>● BKG Image: You can capture the input source as the BKG image or import the image from Master VI.</li> <li>● Pure Color BKG: You can set the individual R, G and B values to set a pure color as the BKG.</li> </ul>
Capture	<ul style="list-style-type: none"> <li>● Source: Select an input source to be captured.</li> <li>● Save To: Set the save location of the captured image.</li> </ul> <p>If a BKG image already exists in the location, the original image will be overwritten by the new one.</p> <p>The location name consists of two parts: BKG and a number.</p> <p>At most 16 BKG images can be saved.</p>

Menu	Description
	<ul style="list-style-type: none"> <li>● Capture: Save the captured input source image to the selected location.</li> </ul> <p>Note: If the AUX signal source is set to PGM or PVW and the source for capturing is PVW or PGM, the AUX display will flicker during BKG capturing.</p>

Figure 4-20 Capturing



## 4.5 Input Settings

### 4.5.1 DVI Input Mode

This menu can be shown and set only when the DVI input card is installed. If no DVI card is installed, this menu is hidden.

DVI input card supports **Single Link** and **Dual Link** modes.

- Single Link: 4 × Single link DVI connectors, each with the resolutions up to 1920×1080@60Hz
- Dual Link: 2 × Dual-link DVI connector (connectors 2 & 4), each with the resolutions up to 3840×1080@60Hz

Figure 4-21 Single link mode

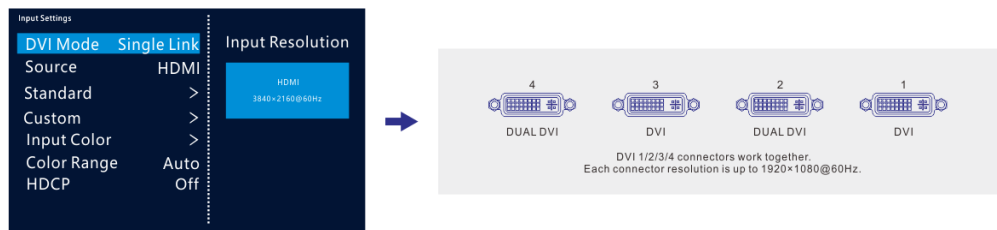
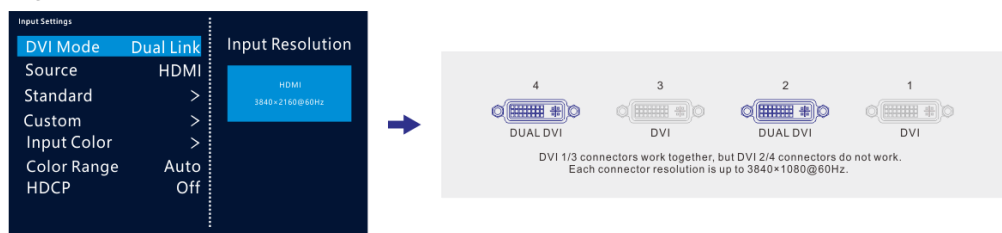


Figure 4-22 Dual link mode



### 4.5.2 Input Source

The NovaPro UHD supports SDI-1, SDI-2, SDI-3, SDI-4, INPUT1, INPUT2, INPUT3, INPUT4, DP and HDMI input connectors.

The input source is named after the input connector.

Rotate the knob to select the desired input source and press the knob to enter the input source resolution menu.

**Note:**

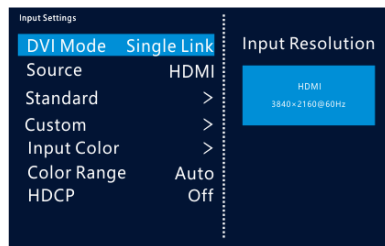
When **DP** is selected as the input source and the DP source is output by the VIO 4K from ANALOG WAY, you must hold down **ESC** on the NovaPro UHD to enter the **Parameter Settings** screen and turn on **SWING Configuration**.

### 4.5.3 Input Source Resolution

You can adjust the resolution and frame rate of the input source through the following two ways.

- Standard resolution
- Custom resolution

Figure 4-23 Setting input source resolution

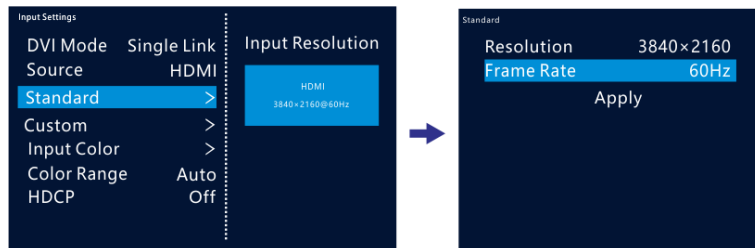
**Note:**

SDI input source does not support resolution settings.

### Standard Resolution

You can select a standard resolution and frame rate. Then rotate the knob to select **Apply** and press the knob to make the settings take effect. If you do not press the knob, the settings will not take effect.

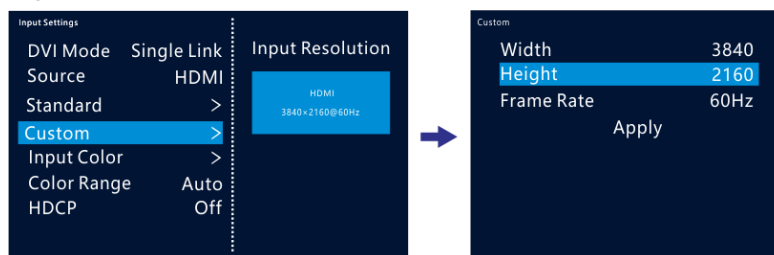
Figure 4-24 Standard resolution



### Custom Resolution

You can set a custom width, height and frame rate. The stepping of the knob rotation is 4. Then rotate the knob to select **Apply** and press the knob to make the settings take effect. If you do not press the knob, the settings will not take effect.

Figure 4-25 Custom resolution



### 4.5.4 Input Color

Adjust the parameters of the input source image.



Menu	Description
Brightness	Adjust the brightness of the input source. The range is 0–100 and the default value is <b>50</b> .
Contrast	Adjust the contrast of the input source. The range is 0–100 and the default value is <b>50</b> .
Saturation	Adjust the saturation of the input source. The range is 0–100 and the default value is <b>50</b> .
Hue	Adjust the hue of the input source. The range is –180 to +180 and the default value is <b>0</b> .
Gamma	Adjust the Gamma value of the input source. The range is 0.25–4.00 and the default value is <b>1.00</b> . The stepping is 0.01.
Reset	Reset all the settings to defaults.

### 4.5.5 Color Range

When the device cannot identify the color range of an RGB input source, you can set the input source color range manually, so the device can process the source precisely.

- Auto (default): The device identifies the input source color range automatically.
- Full: The grayscale range is 0–255.
- Limited: The grayscale range is 16–255.

### 4.5.6 HDCP

Turn on or turn off the HDCP function. This function is only available to the replaceable input card.

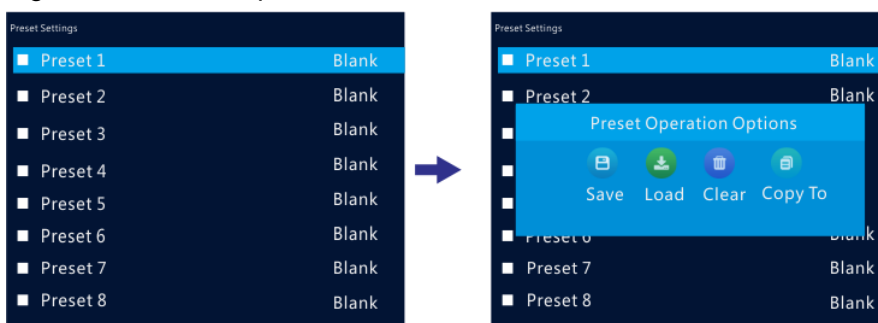
- When the input source of the input card is an HDCP-encrypted source, set HDCP to **On**.
- When the input source of the input card is not an HDCP-encrypted source, set HDCP to **Off**.

## 4.6 Preset Settings

The NovaPro UHD supports 16 user presets. User can save, load and clear the configured presets.

- Step 1** Rotate the knob to select **Preset Settings** and press the knob to enter the submenu.
- Step 2** Rotate the knob to select the desired preset and press the knob to pop up a dialog box. In the box, four preset operations are provided: **Save**, **Load**, **Clear** or **Copy To**.

Figure 4-26 Preset operations



Menu	Description
Save	Save the current layer layout and settings to the target preset.
Load	Load the selected preset to current layer layout.
Clear	Clear all the contents in the selected preset.
Copy To	Copy the current preset to the target preset.

**Note:**

If you did not set any layers, BKG, LOGO or OSD, you cannot save a preset.

## 4.7 Display Control

This function is used to control the display. You can set the display to go black, display a test pattern, or go to normal display. You can also set the transition effect and effect duration.

Menu	Description
Normal	Display the content of current input source normally.
Freeze	Freeze the current frame of the output image.
Black Out	Make the screen go black.
Test Pattern	Test the display effect and working status of the LED screen. Test patterns include <b>Pure Color</b> , <b>Gradient</b> , <b>Grid</b> and so on.
Output Color	Adjust the color of the output image and the LED screen will display the effect in real-time. <ul style="list-style-type: none"> <li>● Brightness: The range is 0–100 and the default value is 50. The stepping is 1.</li> <li>● Contrast: The range is 0–100 and the default value is 50. The stepping is 1.</li> <li>● Saturation: The range is 0–100 and the default value is 50. The stepping is 1.</li> <li>● Gamma: The range is 0.25–4.00 and the default value is 1.00. The stepping is 0.01.</li> <li>● Reset: Reset all the settings to defaults.</li> </ul>
PVW to PGM	Set the display relationship between PVW and PGM. The options are <b>COPY</b> (default) and <b>SWAP</b> . <ul style="list-style-type: none"> <li>● COPY: Send the images displayed on PVW to PGM.</li> <li>● SWAP: Swap the images displayed on PVW and PGM.</li> </ul>
Transition Effect	Set the PGM transition effect. Up to 16 transition effects are supported. The default option is <b>Fade</b> .
Effect Duration	Set the duration of the transition effect. The range is 0.5s–2s and the default setting is <b>0.5s</b> .

## 4.8 Advanced Functions

Advanced functions include HDR, low latency, OPT mode and AUX settings.

### 4.8.1 HDR

HDR is the abbreviation for High-Dynamic Range. HDR function can greatly enhance the display image quality, allowing for a more clear and vivid image when the device is used together with NovaStar A8s receiving cards.

Figure 4-27 System architecture

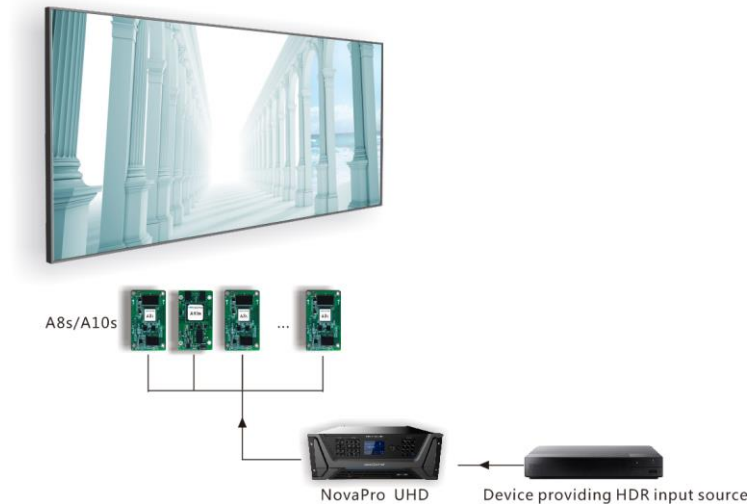


Figure 4-28 HDR effect



Step 2 Choose **Advanced Functions** > **HDR** > **Status** to turn on the HDR function.

Step 3 Rotate the knob to adjust the value of each parameter to improve the image quality.

Menu	Description
Peak Screen Brightness	Adjust the screen brightness under normal operation. The range is 100–1000 and the default setting is <b>1000</b> .
Ambient Brightness	Display the ambient brightness. The range is 0–200 and the default setting is <b>30</b> .
Low Grayscale Mode	Adjust the grayscale value of the image displayed on the LED screen. The range is 0–50 and the default setting is <b>15</b> .

Step 4 (Optional) Select **Reset** to reset all the parameters to default values.

**Note:**

Currently only HDR10 input source is supported.

### 4.8.2 Low Latency

Low latency reduces the input source signal latency from input to output image of the NovaPro UHD. This function can reduce the latency from sending card to receiving card by 2 frames when the device is used together with NovaStar A5 or later receiving cards.

**Note:**

The loading width of a single Ethernet port should be no greater than 512 pixels when low latency function is enabled.

### 4.8.3 OPT Mode

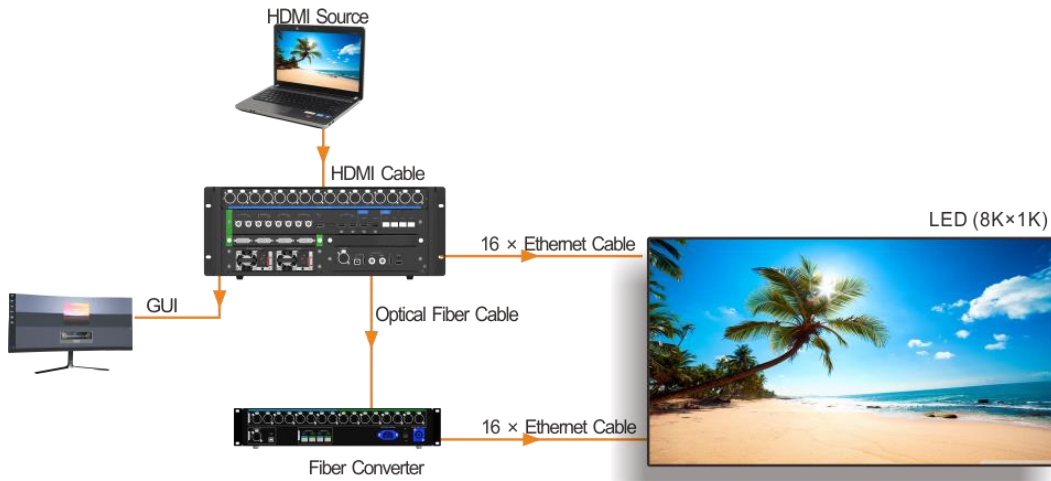
The NovaPro UHD supports two OPT modes: **Hot Backup** (default) and **Copy**.

Menu	Description
Hot Backup	Optical fiber ports 3/4 backup the data of optical fiber ports 1/2.
Copy	Optical fiber ports 3/4 copy the data of optical fiber ports 1/2.

### Hot Backup

Step 1 Perform the hardware connections for hot backup mode.

Figure 4-29 Connections for hot backup mode



**Note:**

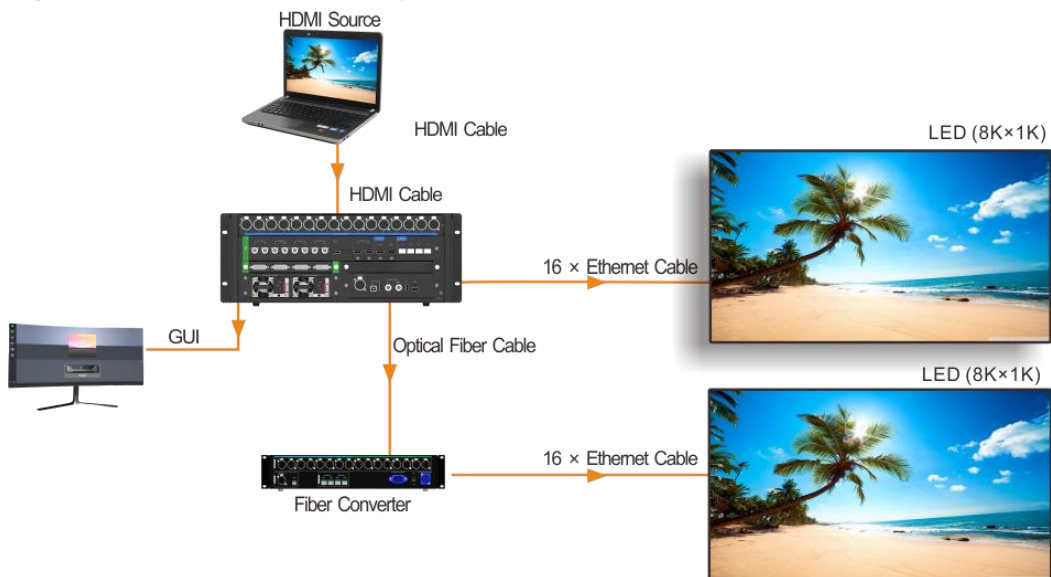
If the Ethernet cable of the NovaPro UHD or fiber converter fails, the LED screen can still work normally.

Step 2 Choose **Advanced Functions > OPT Mode > Hot Backup** to set the OPT mode as hot backup.

### Copy

Step 1 Perform the hardware connections for copy mode.

Figure 4-30 Connections for copy mode



Step 2 Choose **Advanced Functions > OPT Mode > Copy** to set the OPT mode as copy.

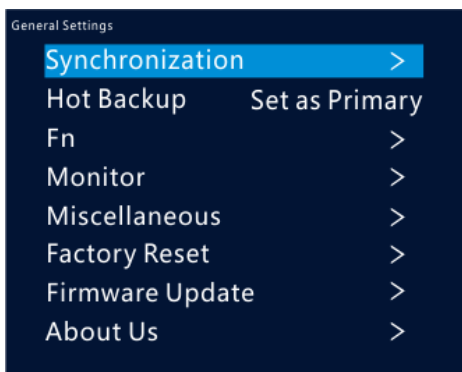
## 4.8.4 AUX

This function is used for auxiliary output of input sources, PVW or PGM. You can output the unprocessed signal source to the connected display device.

Menu	Description
Status	Set to turn on or turn off the AUX function. The default option is <b>Off</b> .
Select AUX	Select the desired AUX signal source. The options are all input sources, PVW and PGM.
AUX Scaling	Set the AUX display mode. <ul style="list-style-type: none"> <li>• Full Screen: Display the image in full screen.</li> <li>• Proportional: Scale the image proportionally and then display it on the screen.</li> </ul>
Follow Preset	Set whether the AUX follow the preset during switching. <ul style="list-style-type: none"> <li>• On: If there is AUX data in the preset, the AUX input source will be switched during preset switching.</li> <li>• Off: The AUX input source will not be switched during preset switching.</li> </ul>

## 4.9 General Settings

Figure 4-31 General settings



### 4.9.1 Synchronization

You can select a synchronization signal to synchronize the cascaded devices.

Step 1 Rotate the knob to select **Synchronization** and press the knob to enter the submenu.

Step 2 Rotate the knob to set the synchronization status and source respectively.

Menu	Description
Status	Set to turn on or turn off the synchronization function. The default option is <b>Off</b> .
Source	Select <b>GenLock</b> or other input sources as the sync source.

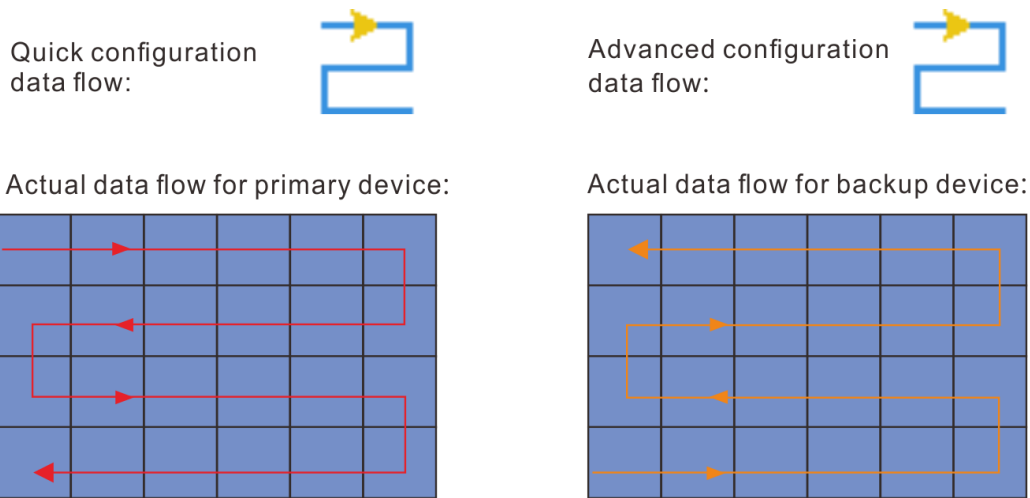
### 4.9.2 Hot Backup

The NovaPro UHD supports two hot backup modes: **Set as Primary** and **Set as Backup**. Figure 4-29 shows a common application for this function.

Menu	Description
Set as Primary	In device backup applications, when the device is set as the primary device, it cannot be used for Ethernet port backup.
Set as Backup	In device backup applications, when the device is set as the backup device, it cannot be used for Ethernet port backup.

Menu	Description
Set as Normal	The device is not used for any backup.

Figure 4-32 Data flow for Primary and Backup modes



### 4.9.3 FN

The **FN** button on the device front panel can be customized to a **Synchronization**, **Capture**, **Quick Configuration** or **Output Color** shortcut button.

- Press the button to enter the menu screen for the set function.
- Hold down the button to enter the FN button settings screen.

### 4.9.4 Monitor

Set to monitor all input sources, PVW and PGM and one of them.

Menu	Description
All	Set to monitor all input sources, PVW and PGM.
Single	Set to monitor the selected input source, PVW or PGM.

### 4.9.5 Miscellaneous

#### Output Frame Rate

Set the output frame rate of the image output by Ethernet port. The range is 23.98 Hz–120 Hz and the default setting is **60 Hz**.

#### Return to Home

Set the period of time during which the system stays at the current page before returning to the homepage automatically when there is no operation performed. The default setting is **60s** and the maximum value is 3600s.

#### USB Backup/Restore

You can back up the data to a USB drive or restore the data from the USB drive.

Menu	Description
USB Backup	Back up the configured presets, OSD, LOGO, BKG, configuration files and screen configuration to a USB drive.
USB Restore	Restore the backup files from the USB drive.

Figure 4-33 USB backup/restore



## Date and Time

Set the current device date and time.

Menu	Description
Date	Display the date of the device.
Time	Display the time of the device.
Change Date and Time	Adjust the <b>Year</b> , <b>Month</b> , <b>Day</b> , <b>Hour</b> , <b>Minute</b> and <b>Second</b> values to change the device date and time.

## Self-Test

- **Device Parameter Self-Test:** When problems occur on the device, you can use this function to automatically test the device and send the test result to device maintenance personnel to locate the problems or check the device.
- **Export Logs:** Export the device operating logs.

### 4.9.6 Factory Reset

Reset all the device settings to defaults.

Menu	Description
Reset (Save IP)	Reset all the settings to defaults, but save the IP address.
Reset (All)	Reset all the settings to defaults.

### 4.9.7 Firmware Update

Update the device firmware via USB drive.

Precondition: The updates should be stored in the root directory of the USB drive.

- The system can automatically detect the update program in USB drive and ask you whether to update the firmware.
- You can also choose **Firmware Update > USB** to update the firmware anytime you want.

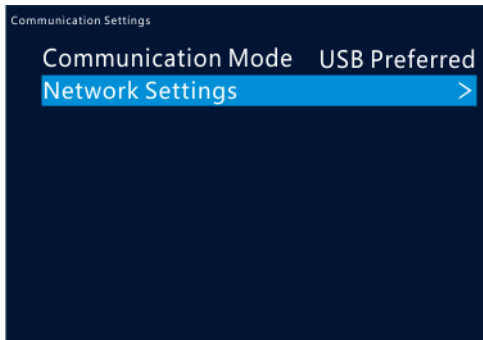
### 4.9.8 About Us

View the device hardware version, company website ([www.novastar.tech](http://www.novastar.tech)) and email address ([support@novastar.tech](mailto:support@novastar.tech)).

## 4.10 Communication Settings

### 4.10.1 Communication Mode

Figure 4-34 Communication mode



The device is connected to the PC via USB port and Ethernet port. The options are **USB Preferred** and **LAN Preferred**.

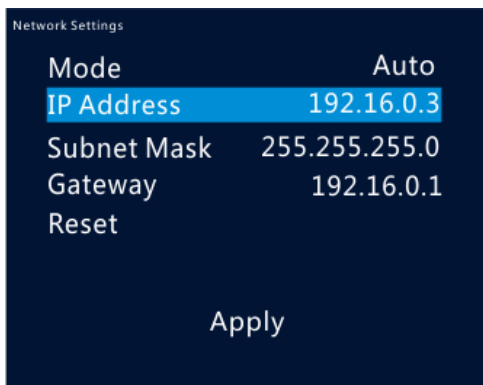
- When **USB Preferred** is selected, the device communicates with the PC via USB port.
- When **LAN Preferred** is selected, the device communicates with the PC via Ethernet port.

### 4.10.2 Network Settings

The options are **Manual** and **Auto**.

- Manual: Set the device IP address, subnet mask and gateway manually.
- Auto: The device reads the network parameters automatically.
- Reset: Reset all the settings to defaults.

Figure 4-35 Network settings




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#### Note:

1. When communicating with the control PC, the device and control PC must be on the same LAN.
  2. The IP address of current device cannot conflict with IP addresses of other devices.
- 

## 4.11 Language

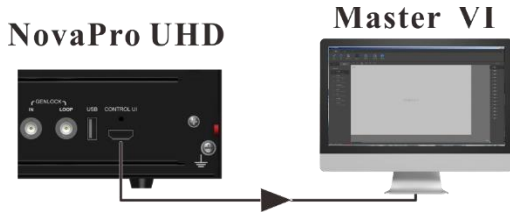
The NovaPro UHD supports both **Chinese** and **English**. You can freely switch to either language.



# 5 Built-in Platform Master VI

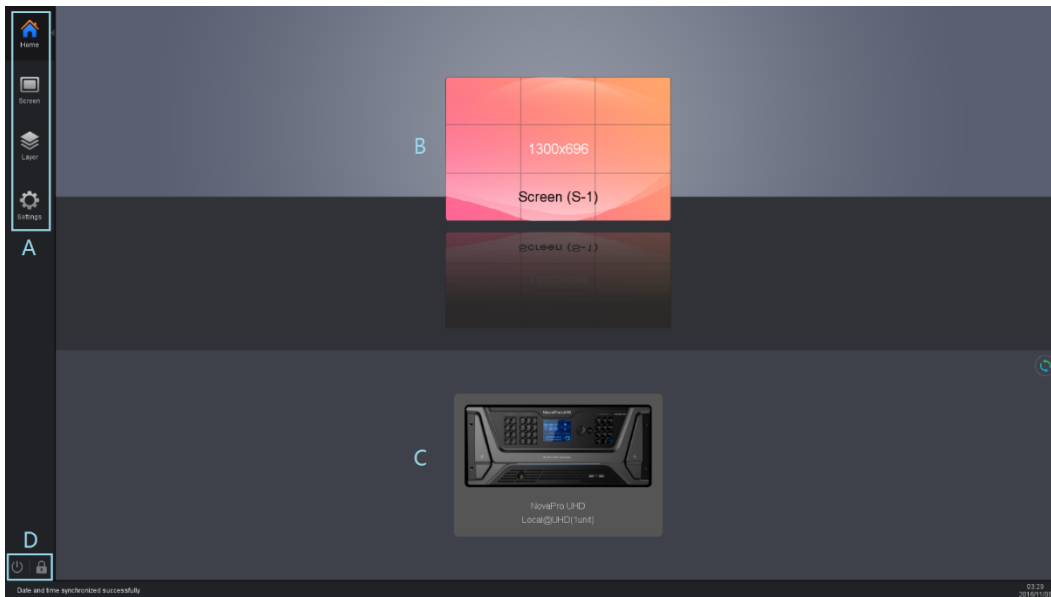
The NovaPro UHD has built in a smart control platform Master VI. The platform consists of four modules, including **Home**, **Screen**, **Layer** and **Settings**, which can help you easily perform screen and layer related configurations.


Figure 5-1 Hardware connection





## 5.1 Home Page

Figure 5-2 Master VI home page

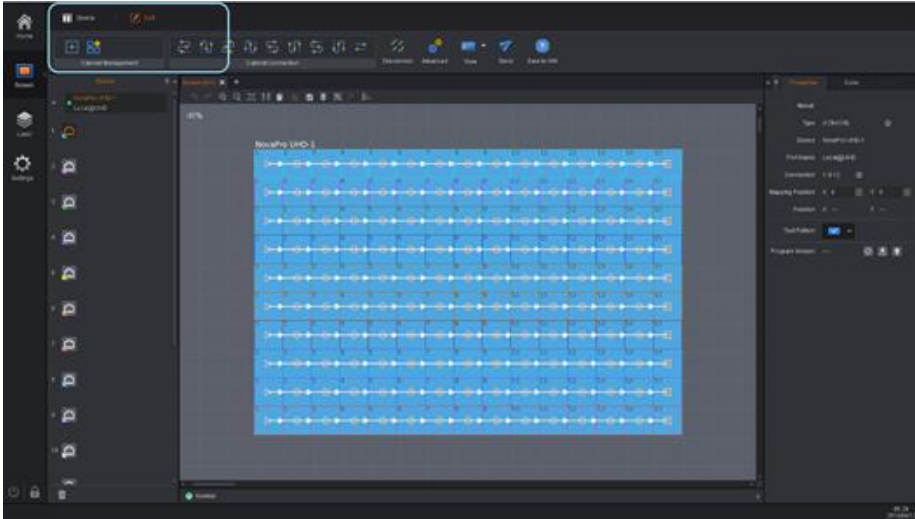


Area	Function	Description
A	Home	Display all the connected devices and configured screens.
	Screen	Configure the screens smartly, including adding cabinets and setting cabinet data flow.
	Layer	Configure the layers of different input sources.
	Settings	Provide the system related settings.
B	Screen	Display the sizes and names of the configured screens. Click a single screen to enter the <b>Screen</b> page.
C	Device	Display the names and serial port numbers of the connected devices. Click a single device to enter the <b>Layer</b> page.
		Click  at the top right corner of the device area to synchronize the device data.

Area	Function	Description
D		Shut down the connected devices.
		Set the user permissions. Password is required for login. The default password is null.

## 5.2 Screen Configuration

Figure 5-3 Adding cabinets and setting cabinet connection type





Area	Function	Description
Device	Refresh	Refresh and read the hardware information again.
	Hot Backup	Backup between devices or Ethernet ports of a device.
	Seam Brightness	Adjust the seam brightness of the screen.
	Mapping	Display the receiving card numbers and Ethernet port information on the cabinets.
	Brightness	Adjust the brightness of the LED screen.
	Frame Rate	Set the output frame rate of the NovaPro UHD.
Edit	Cabinet Management	Add cabinets and set the cabinet sizes.
	Cabinet Connection	Choose the cabinet connection type.
	Disconnect	Delete the lines between cabinets.
	Advanced	Set the cabinet display status in the editing area and the snapping mode.
	View	Front view and rear view of the cabinets
	Send	Send the display configuration file to the hardware devices.
	Save to HW	Send and save the screen configuration file to the hardware devices.

### 5.2.1 Adding Cabinets

Step 1 Select the device type and Ethernet port type.

Step 2 Choose **Edit > Cabinet Management**. Click the following icons to select the cabinet types.

- : Add the cabinets in batches.
- : Add a single cabinet.

Step 3 Select the cabinet and set the cabinet size.

Step 4 Move the mouse to the editing area and click to add cabinets.

## 5.2.2 Cabinet Connection

Step 1 Click to select the output Ethernet port on the left.

Step 2 Drag to select the cabinets loaded by the Ethernet port.

Step 3 Choose **Edit > Cabinet Connection** to select a connection type. 8 connection types are supported.

Step 4 Click **Send** in the toolbar to send the screen configuration to the receiving card.

### Note:

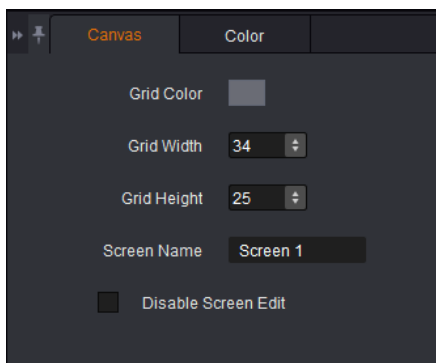
After the Ethernet port is selected, you can click the cabinets in turn according to the cabinet connection of LED screen to complete the whole connections.

## Canvas Settings

Click the blank area on the canvas and select **Canvas** to set the canvas-related properties.

Item	Description
Grid Color	Set the color of the canvas grid.
Grid Width	Set the width of the canvas grid (unit: pixel).
Grid Height	Set the height of the canvas grid (unit: pixel).
Screen Name	Name the screen currently configured.
Disable Edit	When selected, any operations to the canvas are prohibited.

Figure 5-4 Canvas settings



## Screen Color Settings

Set the screen color related parameters. Click the **Color** tab to set the screen color.

- Set custom brightness, Gamma and color temperature.
- Enable 18-bit mode.
- Enable ClearView.
- Select calibration type.
- Customize color gamut.
- Enable PAL or NTSC.

Figure 5-5 Color properties

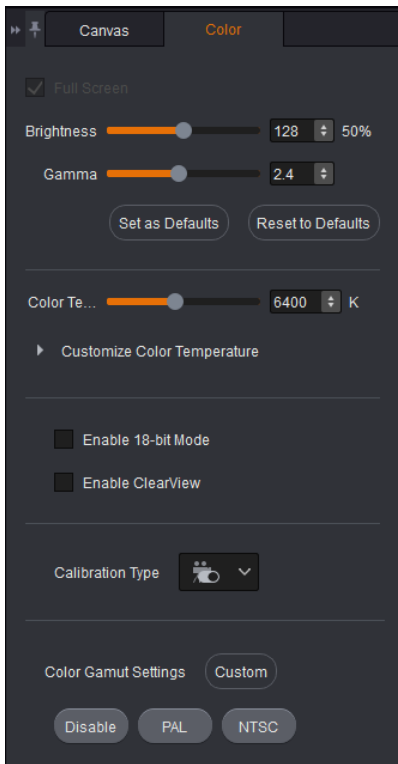


Figure 5-6 Color gamut

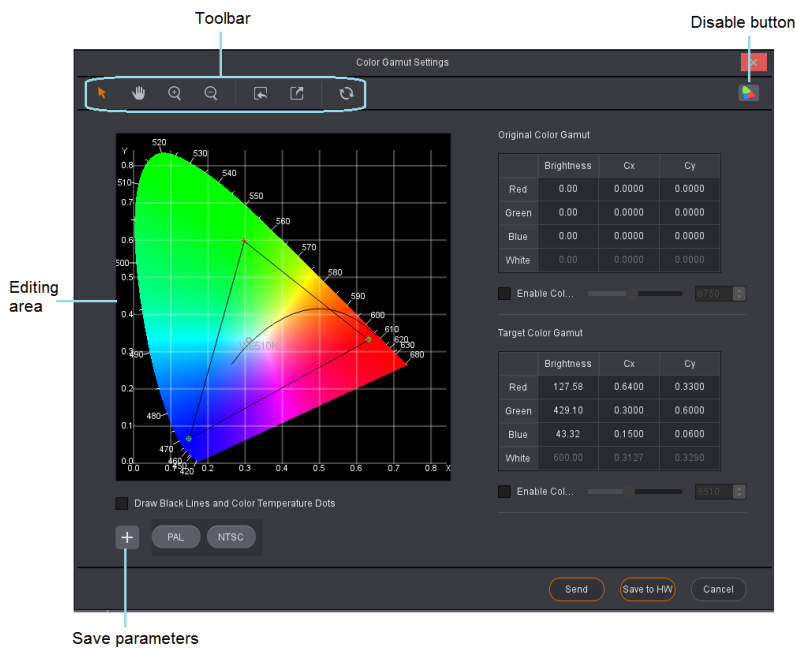














Table 5-1 Color gamut setting descriptions

Name		Description
Toolbar		Enable the editing function.
		Disable the editing function.
		Zoom in the editing area.

Name		Description
		Zoom out the editing area.
		Import the configuration files.
		Export the current configuration as configuration files.
		Reset button
Editing area		Click and drag a point to set the target color gamut.
		Disable the color gamut adjustment function.
		Save the current color gamut parameters.
 		Two standard broadcast formats
Send		Send the color gamut parameters to receiving card and these settings will be lost after power off.
Save		Send and save the color gamut parameters to receiving card and these settings will not be lost after power off.

## Device Properties

Click the target cabinet and go to the **Properties** tab to view the device properties.




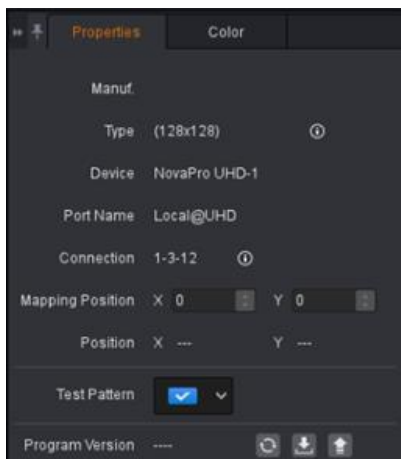
- Connection: 1-3-12 denotes that the sending card number is 1, Ethernet port number is 3, and the receiving card number is 12.
- Mapping Position: Horizontal and vertical coordinates of the top left corner of the selected cabinet on the screen
- Position: Horizontal and vertical coordinates of the top left corner of the selected cabinet on the canvas
- Test Pattern: Test the display effect.
- Program Version: Refresh, download or update the program version of the receiving card.
  - : Read the firmware version of the receiving card, which is only applicable to single cabinet.
  - : Download the firmware program of the receiving card, which is only applicable to single cabinet.
  - : Update the firmware program of the receiving card, which is applicable to both single cabinet and multiple cabinets.

Figure 5-7 Device properties



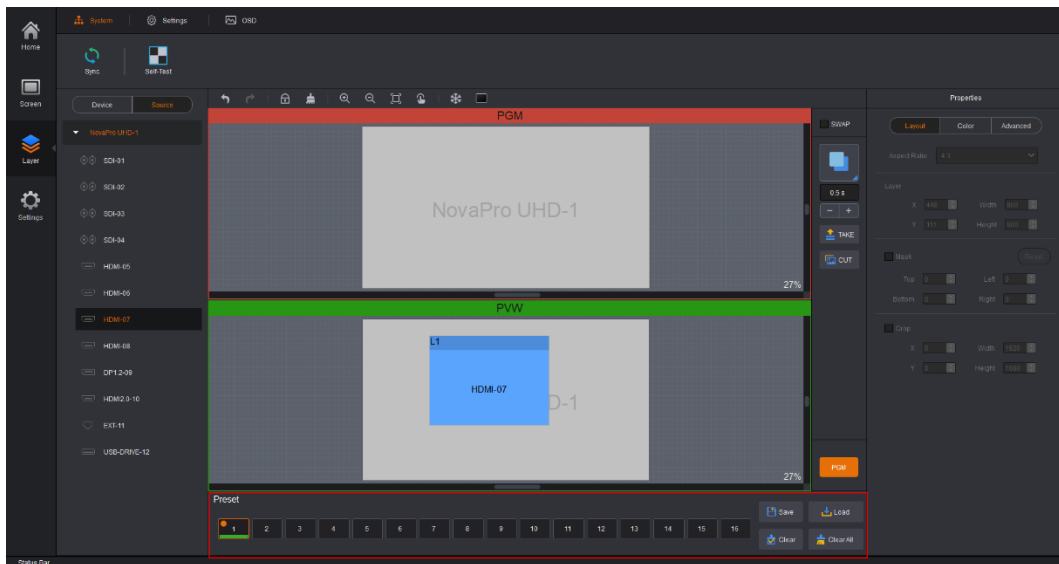
### 5.3 Layer Configuration

You can easily add or delete the layers, OSD, LOGO and BKG, as well as set the layer properties and image quality, reflecting the powerful video processing capabilities of the device.

Layer provides three function modules that can help you perform the following operations:

- System: Connect, refresh and test the device.
- Settings: Set the input/output resolution and image quality, transition effect and duration, AUX and HDR.
- OSD: Enable or disable OSD, LOGO and BKG.

Figure 5-8 Layer configuration



Area	Function	Description
System	Sync	Synchronize the configurations of the NovaPro UHD.
	Self-Test	Test the image display effect of the cabinet.
Settings	Input	Adjust the input resolution and input color.
	Output	Adjust the output color.
	Sync Mode	Enable the sync mode and select the sync source.
	AUX	Turn on/off the AUX function, and set the AUX source, switching and display mode.
	HDR	Turn on/off the HDR function, and set the HDR related parameters.
OSD	OSD	Add an image or text on the LED screen.
	LOGO	Add an image on the LED screen as LOGO that has the highest priority.
	BKG	Add an image on the LED screen as BKG that has the lowest priority.
	Color BKG	Add a pure color on the LED screen as BKG that has the lowest priority.

Figure 5-9 Toolbar



Icon	Description
	Cancel the previous action.
	Restore the previous action.









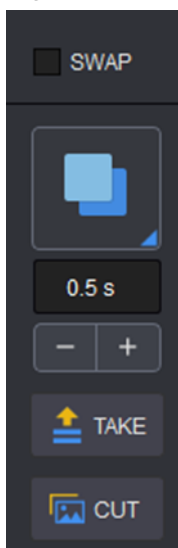


Icon	Description
	Lock LOGO, OSD and layers.
	Clear the editing area.
	Zoom in the editing area.
	Zoom out the editing area.
	Make the editing area auto fit the screen.
	Arrange all the layers, OSD and LOGO in PVW area by priorities. The 1 <sup>st</sup> layer starts from the top left corner (starting point), and every subsequent layer gets a 50-pixel offset both horizontally and vertically from its previous layer. The layers sizes are 800x600 by default.
	Freeze the PGM and the Take function is disabled at this time.
	Make the screen go black and the Take function can be enabled. When this function is disabled, the screen can display the images after Take button is clicked.

Figure 5-10 Transition settings



Area	Description
SWAP	<ul style="list-style-type: none"> <li>When <b>SWAP</b> is selected, if you click <b>TAKE</b> or <b>CUT</b>, the layers in PVW and PGM are interchanged.</li> <li>When <b>SWAP</b> is not selected, if you click <b>TAKE</b> or <b>CUT</b>, the layers in PVW are copied to PGM.</li> </ul>
	Set the transition effect when sending PVW to PGM.
	Set the transition effect duration by entering a value in the text box or clicking +/-. The value range is 0.5s–2.0s. The default value is <b>0.5s</b> .
Take	Send PVW to PGM with a transition effect.
Cut	Send PVW to PGM directly without a transition effect.

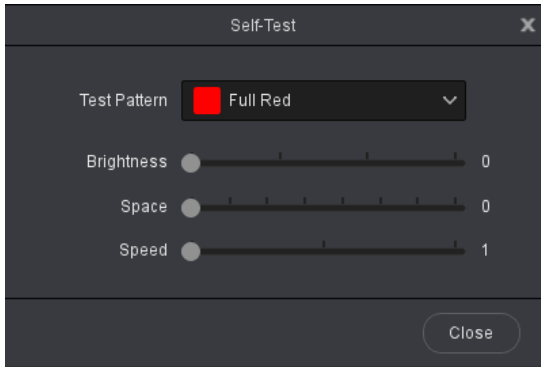
### 5.3.1 System

#### Sync

Click **Sync** to obtain all the device data, such as the layer data and preset data.

#### Self-Test

Test whether the currently-connected LED screens can display the images normally with the test patterns.



- **Test Pattern:** Select the image type to be displayed on the screen.
- **Brightness:** Set the brightness of the test pattern displayed on the LED screen.
- **Space:** Set the width of gradient color or the space between test lines. This parameter is configurable when the test pattern is not a pure color.
- **Speed:** Set the movement speed of the test lines. This parameter is configurable when the test pattern is lines.

Click **Close** to exit the self-test settings screen. When a test pattern is displayed on the LED screen, click **Self-Test** and select **Normal** on the self-test screen to close the test pattern.

### 5.3.2 Settings

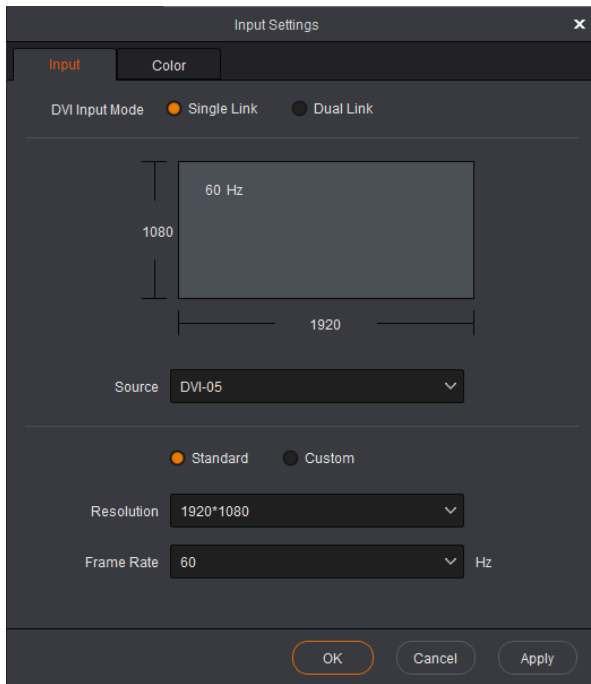
#### Input

Set the input resolution and image quality of the input connector.

- **Input**
  - Click **Input** to pop up the input settings screen. The **Input** tab is selected by default.



Figure 5-11 Input



- DVI Input Mode:

Single Link: 4 × Single link DVI connectors, each with the resolutions up to 1920×1080@60Hz

Dual Link: 2 × Dual link DVI connectors (connectors 2 & 4), each with the resolutions up to 3840×1080@60Hz

- Select an input connector from the drop-down list of **Source**.

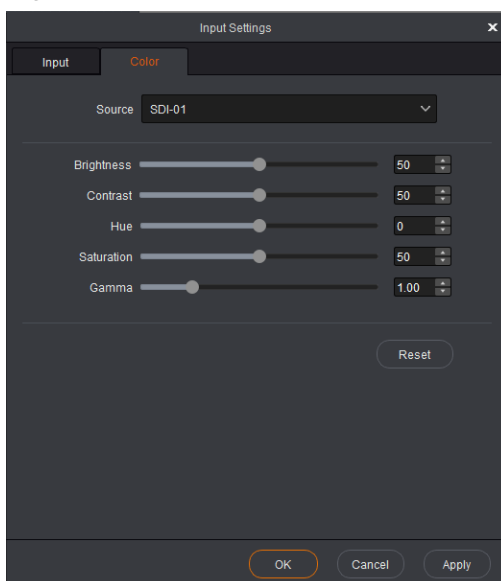
When **Standard** is selected, set the resolution and refresh rate.

When **Custom** is selected, set the width, height and refresh rate.

- Color

Step 1 Click the **Color** tab to set the input image quality.

Figure 5-12 Input color



Select an input connector from the drop-down list of **Source**. Adjust the brightness, contrast, hue, saturation and Gamma.

Step 2 Click **Apply** to send the parameters to the devices.

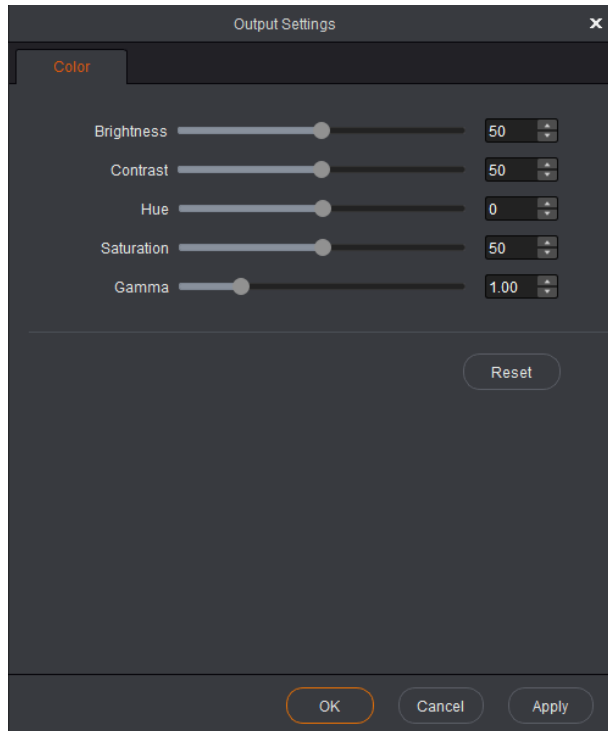
Step 3 Click **OK** to complete the input settings.

## Output

Set the output color.

Under the **Color** tab, you can adjust the brightness, contrast, hue, saturation and Gamma.

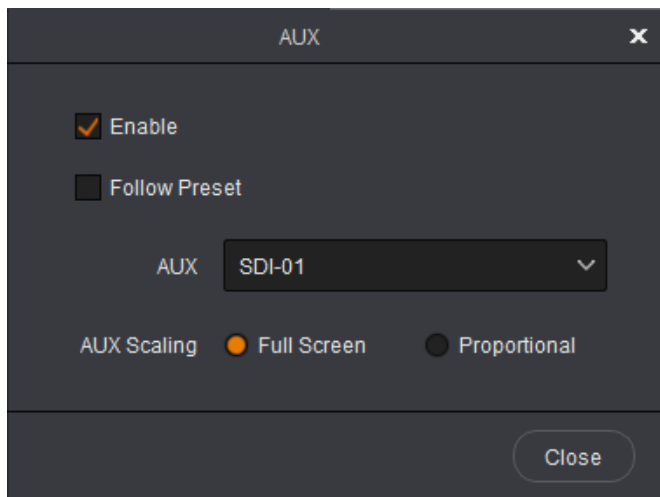
Figure 5-13 Output color



## AUX

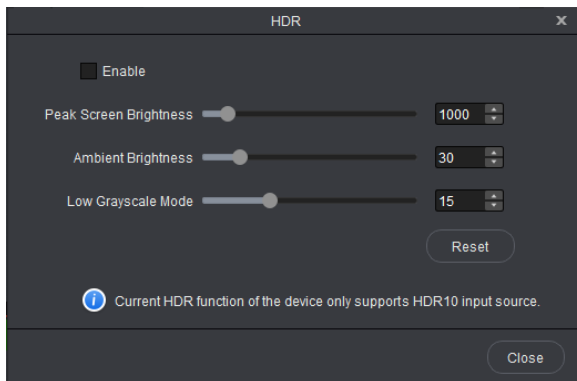
The NovaPro UHD supports one AUX. You can output any input source, PWV or PGM to the specified display device via the AUX connector.

- Select **Enable** to enable the AUX function. When selected, the following functions will be available.
- Follow Preset: Set whether the AUX follows the preset during switching.
  - Select **Follow Preset**: If the preset has AUX data, the AUX input source will be switched during preset switching.
  - Deselect **Follow Preset**: The AUX input source will not be switched during preset switching.
- AUX: Select the desired AUX signal source from the drop-down list.
- AUX Scaling: Set the AUX display mode.
  - Full Screen: Make the image in full screen.
  - Proportional: Scale the image proportionally and then display it on the screen.



## HDR

HDR function can greatly enhance the display image quality, allowing for a more clear and vivid image when the device is used together with NovaStar A8s receiving cards.



Select **Enable** to enable the HDR function. The HDR parameters are described as followings.

Table 5-2 HDR parameter settings

Menu Item	Description
Peak Screen Brightness	Adjust the screen brightness under normal operation. The range is 100–1000 and the default setting is <b>1000</b> .
Ambient Brightness	Display the ambient brightness. The range is 0–200 and the default setting is <b>30</b> .
Low Grayscale Mode	Adjust the grayscale value of the image displayed on the LED screen. The range is 0–50 and the default setting is <b>15</b> .

### 5.3.3 OSD

On the **Layer** screen, OSD, LOGO and BKG files can be added to the software for easy and direct use in future.

## OSD

At most 16 OSD files can be added. You can set image or text as the OSD.

- Adding OSD files
  - a. Click **+** in the **OSD** area to enter the OSD settings page.
    - Select **Image** to add a local image as OSD.
    - Select **Text** to set the font, size and other properties of the text.

Figure 5-14 Adding OSD file - image

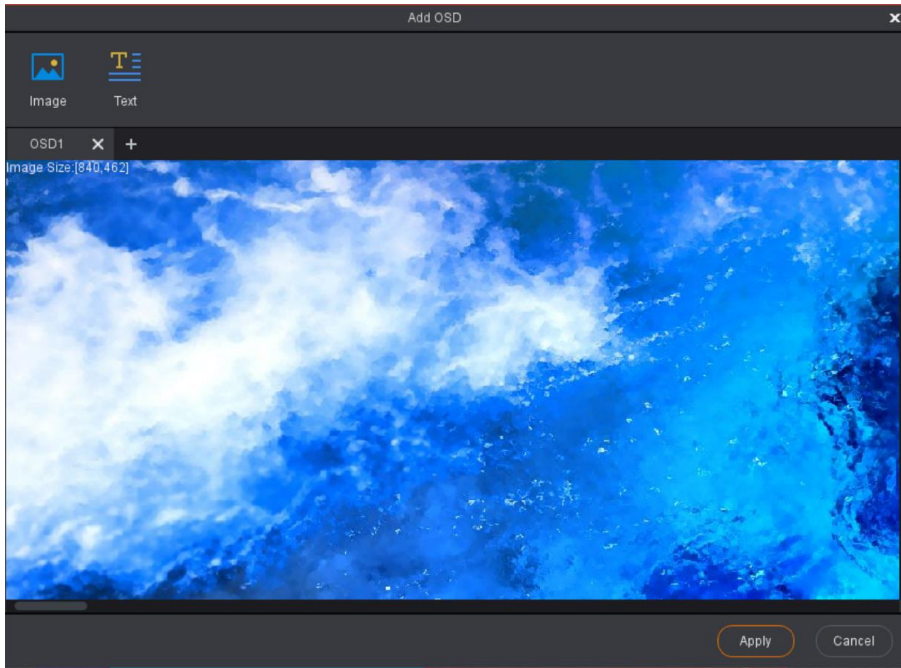
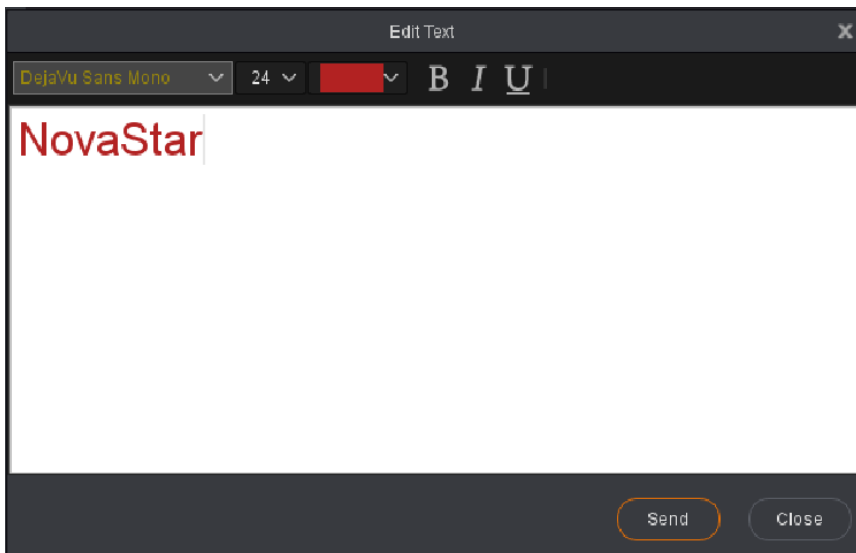


Figure 5-15 Adding OSD file - text



- b. Click **+** to add a new OSD file.
- c. Click **Apply** to save the newly-added OSD files to the software library.

**Note:**

The OSD text read back by Master VI cannot be edited.

- Applying OSD files
  - a. Select the desired OSD file and click the file to add it to PVW.
  - b. In the **PVW** area, click to select an OSD file. Then go to the property setting area on the right to configure the related parameters of the OSD file. The detailed parameter descriptions are shown in [Table 5-3](#).

Table 5-3 OSD parameter descriptions

Parameter	Description	Description
X	Set the horizontal position of the OSD file.	You can also simply use the mouse to drag

Parameter	Description	Description
Y	Set the vertical position of the OSD file.	the OSD file to the desired position.
Width	Set the width of the OSD file.	There are three ways to change the OSD file size: 1. Drag the edge of the OSD file. 2. Drag the slider of <b>Width</b> or <b>Height</b> . 3. Enter a width or height number.
Height	Set the height of the OSD file.	
Speed	Set the moving speed of the OSD text.	Drag the slider or enter a value directly to set the speed. The value range is 0–3. 0: Not moving 3: Moving at the fastest speed
Direction	Set the moving direction of the OSD text. <ul style="list-style-type: none"> <li>● Right to Left: The text moves from the right to left.</li> <li>● From Left to Right: The text moves from the left to right.</li> </ul>	Radio button
Opacity	Set the opacity of the OSD file.	100%: Non-transparent 0%: Transparent-

## LOGO

At most 16 LOGO files can be added.

- Adding LOGO files
  - Click **+** in LOGO area to enter the LOGO settings page.
  - Click **Image** to add local files as the LOGO files.
  - Click **+** to add a new LOGO file.
  - Click **Apply** to save the newly-added LOGO files to the software library.
- Applying LOGO files
  - Select the desired LOGO file and click the file to add it to PVW.
  - In the PVW area, click to select an LOGO file. Then go to the property setting area on the right to configure the related parameters of the LOGO file. The detailed parameter descriptions are shown in [Table 5-4](#).

Table 5-4 LOGO parameter descriptions

Parameter	Description	Description
X	Set the horizontal position of the LOGO file.	You can also simply use the mouse to drag the LOGO file to the desired position.
Y	Set the vertical position of the LOGO file.	
Width	-	The width and height cannot be adjusted.
Height	-	
Opacity	Set the opacity of the LOGO file.	<ul style="list-style-type: none"> <li>● 100%: Non-transparent</li> <li>● 0%: Transparent</li> </ul>

## BKG

At most 16 BKG files can be added.

- Adding BKG files
  - Click **+** in BKG area to enter the BKG settings page.
  - Click **Image** or **Capture** to add local files or capture an input source image as the BKG files.
  - Click **+** to add a new BKG file.

- d. Click **Apply** to save the newly-added BKG files to the software library.
- Applying BKG files
  - Select the desired BKG file and click the file to add it to PVW.

### 5.3.4 Adding Layers

**Step 1** Click to select a signal source on the left.







Right click the edit icon on the right of the signal source to rename the signal source.

**Step 2** You can click the video editing area and drag the mouse to create a custom-sized layer.

You can also select a signal source and drag it to the video editing area, and then release the mouse to create a layer.

- When you move the mouse to any edge of the layer and a double-headed arrow appears, you can click and drag the layer edge to adjust the layer size.
- When you move the mouse to the layer area, you can click and drag the layer to change its position.
- When a single layer is selected, you can press the arrow buttons to fine tune the layer position, while hold down the **Shift** key and press the arrow buttons to fine tune the layer size.
- When you move the mouse to the layer top, five buttons appear in the top right corner of the layer. The detailed button functions are shown in [Table 5-5](#).

Table 5-5 Layer buttons

Icon	Description
	Fit the layer to the screen loaded by the current connector.
	Fit the layer to the whole output screen.
	Close the layer.
	Enable the pixel-to-pixel display mode.
	Unlock the layer.
	Lock the layer.

You can right click the layer to perform the following operations:


- **Switch Source:** Change the signal source of the layer.
- **Bring to Front:** Bring the layer to the front.
- **Send to Back:** Send the layer to the back.
- **Bring Forward / Send Backward:** Move the layer forward or backward.
- **Lock Layer / Unlock Layer:** Lock or unlock the layer.
- **Close Current Layer:** Close the selected layer.
- **Close All Layers:** Close all the layers.

### Setting layer properties

You can configure the layer properties in the property setting area on the right. In this area, you can configure the layer properties through **Layout**, **Color** and **Advanced**.

- Layout

Parameter	Description
<b>Aspect Ratio</b>	
Aspect Ratio	Set the proportional relationship between the layer width and its height. After the layer size is adjusted manually, if the aspect ratio does not match any of the listed ratios, the aspect ratio will be <b>Custom</b> .
<b>Layer</b>	

X	Set the horizontal initial position of the layer.
Y	Set the vertical initial position of the layer.
Width	Set the layer's width. After you click  next to <b>Width</b> and <b>Height</b> , the width and height will be increased or decreased at the ratio of 1:1. After the height reaches the maximum value, only the width can be changed.
Height	Set the layer's height.
<b>Mask</b>	
Top	Mask the layer from top to bottom.
Bottom	Mask the layer from bottom to top.
Left	Mask the layer from left to right.
Right	Mask the layer from right to left.
<b>Crop</b>	
X	Set the horizontal initial position for the input source cropping.
Y	Set the vertical initial position for the input source cropping.
Width	Set the width of the output after cropping.
Height	Set the height of the output after cropping.

- Color

Parameter	Description
Brightness	Adjust the brightness of the output image. The range is 0–100.
Contrast	Adjust the contrast of the output image. The range is 0–100.
Hue	Adjust the gradation or variety of the output image. The range is -180–180.
Saturation	Adjust the purity or vividness grade of the output image. The range is 0–100.
Opacity	Adjust the opacity of the output image.
Monochrome	Set the layer image to gray scale image.
Invert Colors	Invert the color to its complementary color that combined with the original color makes white (RGB: 255,255,255). For example, if the original color is red (RGB: 255,0,0), the inverted color is cyan (RGB: 0, 255, 255).

- Advanced

In **Advanced** tab, you can set the layer shape, layer flipping and copying. Select a layer in PVW area.

- Shaped: Select a layer shape from the drop-down list.
- Flip: Select **Horizontally** to flip the output image horizontally. Select **Vertically** to flip the output image vertically. Select both **Horizontally** and **Vertically** to flip the image both horizontally and vertically
- Copy: Add a new layer according to the copy mode you select.
  - None: Do not copy the layer.
  - Clone: Add a new layer which is the same as the original one. The two layers are symmetric horizontally by default.
  - Left Mirror: Add a mirrored layer on the left of the original layer. The two layers display mirrored images.
  - Right Mirror: Add a mirrored layer on the right of the original layer. The two layers display mirrored images.
  - X: Set the horizontal initial coordinate of the new layer.

### 5.3.5 Preset Settings

16 presets are supported in layer configuration. The preset will be saved to the software automatically after you have set it, which is easier for future use.

Step 1 In the **Preset** area, click to select a preset.

Step 2 In the **PVW** area, add a layer and set its size and position.

---

**Note:**

The preset includes layer-related information, as well as BKG, LOGO and OSD configuration.

---

Step 3 Click **Save** to save the layer configurations to this preset.

The preset with no data is shown as , and the preset with data is shown as .

The preset currently being edited is shown as . The currently loaded preset is shown as .

- Select a preset with data, then click **Load** to load the preset to PVW.
- Select a preset with data, then click **Clear** to clear the preset data.
- Click **Clear All** to clear all the preset data.

---

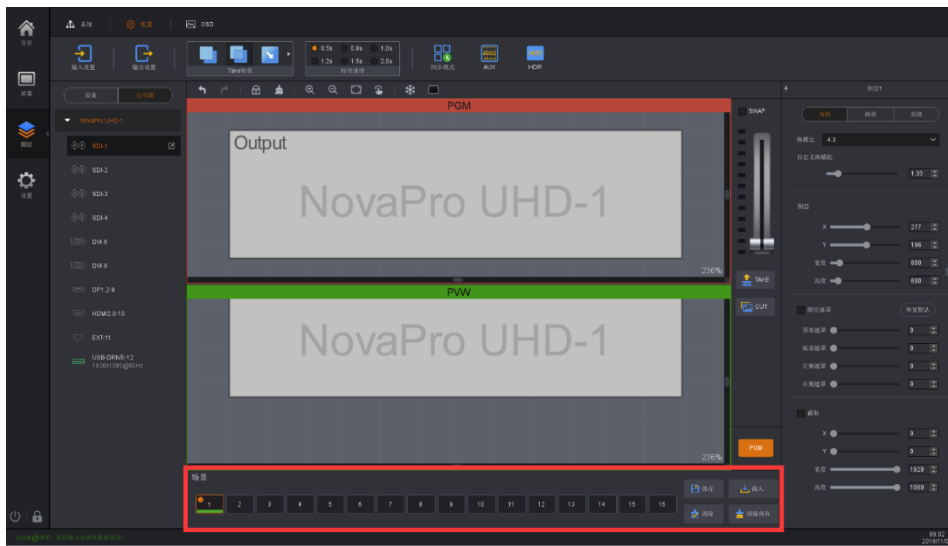
**Note:**

Double click to rename the preset. Only the saved preset can be renamed.

If you hover on a preset icon, the preset name is displayed.

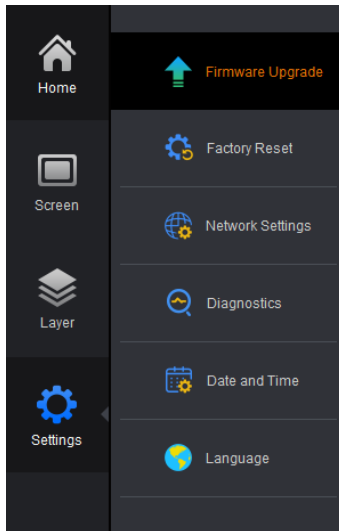
---

Figure 5-16 Preset settings





## 5.4 Settings



- Firmware Upgrade: Upgrade the firmware via USB port. Click  to select the program file.
- Factory Reset: When multiple devices are cascaded, select the device to be reset from the drop-down list and reset all its parameters to default values.
  - Save IP: Reset the device parameters to factory settings, but save the device IP address.
  - Reset all the device parameters to factory settings.
- Network Settings: Select **DHCP** or **Static** and set the device IP address, subnet mask and gateway of the device.
- Diagnostics: Diagnose the device when the device fails and send the result to the technical support of NovaStar to solve the problems as soon as possible.
- Date and Time: Set the device date and time.
- Language: English and Chinese are supported currently.

## 6

## Specifications

Overall Specifications		
Electrical Specifications	Power connector	AC100-240VAC~, 50/60Hz, power backup design
	Power consumption	180 W
Operating Environment	Operating temperature	-10°C to +60°C
	Operating Humidity	0% RH to 80% RH
	Storage Humidity	0% RH to 95% RH
Physical Specifications	Dimensions	482.6 mm x 177 mm x 497.5 mm 4U standard chassis
	Net weight	21 kg
	Gross weight	42 kg
Packing Information	Accessories	2 x power cords 1 x USB drive (16GB) 1 x DVI cable 1 x USB cable 1 x HDMI cable 1 x DP cable 1 x Mini DP to DP cable 1 x Custom Letter 1 x Quick Start Guide 1 x Packing List 1 x Safety Manual 46 x Silicone dustproof plugs
	Flight case	523 mm x 265 mm x 700 mm
Certifications		FCC, IC, EMC, UL/CUL, CB, CE, ROHS 10, EAC
Noise Level (typical at 25°C/77°F)		57 dB(A)

## 7

## Video Source Features

Input Connector	Color Depth		Max. Input Resolution
<ul style="list-style-type: none"> <li>• HDMI 2.0</li> <li>• DP 1.2</li> </ul>	8 bit	RGB4:4:4	3840x2160@60Hz
		YCbCr4:4:4	
		YCbCr4:2:2	
		YCbCr4:2:0	Unsupported
	10 bit	RGB4:4:4	1920x1080@60Hz
		YCbCr4:4:4	
		YCbCr4:2:2	3840x2160@60Hz
		YCbCr4:2:0	Unsupported
	12 bit	RGB4:4:4	1920x1080@60Hz
		YCbCr4:4:4	
		YCbCr4:2:2	3840x2160@60Hz
		YCbCr4:2:0	Unsupported
HDMI 1.3	8 bit	RGB4:4:4	1920x1080@60Hz
		YCbCr4:4:4	1920x1080@60Hz
		YCbCr4:2:2	
	10 bit	RGB4:4:4	
		YCbCr4:4:4	
		YCbCr4:2:2	
	12 bit	RGB4:4:4	
		YCbCr4:4:4	
		YCbCr4:2:2	
12G-SDI	<ul style="list-style-type: none"> <li>• Maximum input resolution: 4096x2160@60Hz</li> <li>• Does not support input resolution and bit depth settings.</li> <li>• Supports ST-2082-1 (12G), ST-2081-1 (6G), ST-424 (3G) and ST-292 (HD) input signals.</li> </ul>		

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