

# NovaPro UHD

## All-in-One Controller

V1.0.0

NS160100386



User Manual

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# 1 Safety Instructions

## 1.1 Environmental Requirements

- Ensure adequate air flow in the equipment room.
- Take measures to prevent dust, water and static electricity.
- Avoid long-term direct sunlight.
- Do not place the equipment in a position near fire and heat.
- Do not place the equipment in an area containing explosive materials.
- Do not place the equipment in a corrosive environment.
- Do not place the equipment in a strong electromagnetic environment.

## 1.2 Operation Requirements

- Only trained technicians may repair the equipment.
- Save the packing boxes and materials for future storage and shipping of the equipment.
- Wear a wrist band and insulating gloves.
- Handle the equipment with care at all times. Hold the handles or bottom of the equipment when you move it.
- Place the equipment in a stable position.
- Be careful not to drop anything into the equipment.
- Do not bundle the signal wires and the strong current wires or high voltage wires together.
- Avoid stacking of equipment. It is suggested that you leave 1U space between equipment, keep the cooling vents open and maintain a minimum distance of 10 cm between the vents and other objects.
- Keep the equipment away from conductors that attract lightning to avoid strike.
- Do not operate the equipment with excessive force.
- Do not make the boards contact with each other.
- Do not touch the board circuits, components, connectors or slots with bare hands.
- Do not repair the equipment by yourself. Please contact NovaStar for repair at any time.
- Only replace faulty parts with NovaStar-authorized replacement parts.

### 1.3 Personal Safety

- Ensure that the equipment is well grounded. Make sure that the PE wire is in good condition and grounded. If the equipment has a grounding connector, connect it to the ground.
- Place the equipment in a stable position to prevent personal injury caused by dropping.
- Ensure that the wires are not exposed. Please repair or replace the wires in a timely manner if they are broken.
- Do not perform any equipment operation or cable connection outdoors in a thunderstorm.
- Do not wear watches, rings, or other metal jewelry when replacing faulty parts or repairing the equipment.

### 1.4 Electrical Safety Labels

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

## 2 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 4Kx2K@60Hz and 8Kx1K@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 using the mouse, keyboard and monitor.

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

# 3 Appearance

## 3.1 Front Panel



Button	Function
ON/OFF button	The device power button <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	<ul style="list-style-type: none"> <li>• Layer operations:                             <ul style="list-style-type: none"> <li>- Press a button to quickly add a layer.</li> <li>- Hold down an added-layer button to close the layer.</li> </ul> </li> <li>• Indicator descriptions:                             <ul style="list-style-type: none"> <li>- On and blue: The layer is open, and the input source is accessed normally.</li> <li>- Blue and flashing: The layer is being edited, and the input source is accessed normally.</li> <li>- On and white: The layer is open, but the input source is not accessed.</li> <li>- White and flashing: The layer is being edited, but no input source is accessed or the input source is abnormal.</li> <li>- Off: The layer is not added.</li> </ul> </li> </ul>
Input source buttons	<ul style="list-style-type: none"> <li>• Input source operations:                             <ul style="list-style-type: none"> <li>- Press a button to quickly access the input menu screen or switch the input source for the selected layer.</li> </ul> </li> <li>• Indicator descriptions:                             <ul style="list-style-type: none"> <li>- On and blue for numbered buttons: The number input function is enabled.</li> <li>- On and blue: The input source is accessed and in normal use.</li> <li>- On and white: The input source is accessed but not in use.</li> <li>- Off: The input source is not accessed or the input source is abnormal.</li> </ul> </li> </ul>
TFT screen	Displays current device status, menus, submenus and messages.
Knob	<ul style="list-style-type: none"> <li>• Press the knob to confirm the settings or enter the submenu.</li> <li>• Rotate the knob to select a menu item or adjust a parameter.</li> </ul>

Button	Function
Function buttons	<ul style="list-style-type: none"> <li>• Navigation button: Hold it down to enter or exit the quick navigation screen.</li> <li>• FTB: Make the LED screen to fade to black.</li> <li>• LOGO: Enter the LOGO menu screen.</li> <li>• PRESET: Enter the preset menu screen.</li> <li>• FREEZE: Freeze the output image displayed on LED screen.</li> <li>• OSD: Enter the OSD menu screen.</li> <li>• FN: Custom function button. Press it to enter the function menu screen and hold it down to customize the function for the button.</li> <li>• TEST: Enter the test pattern menu screen.</li> <li>• BKG: Enter the BKG menu screen.</li> <li>• TAKE: Send the PVW to PGM with a transition effect. A total of 16 transition effects are supported.</li> <li>• CUT: Send the PVW directly to PGM without a transition effect.</li> </ul>
ESC button	Press the button to exit the current menu or cancel the operation.
USB ports	2 × USB ports <ul style="list-style-type: none"> <li>• Insert a USB drive to perform system update.</li> <li>• Connect a mouse or keyboard.</li> </ul>

### 3.2 Rear Panel



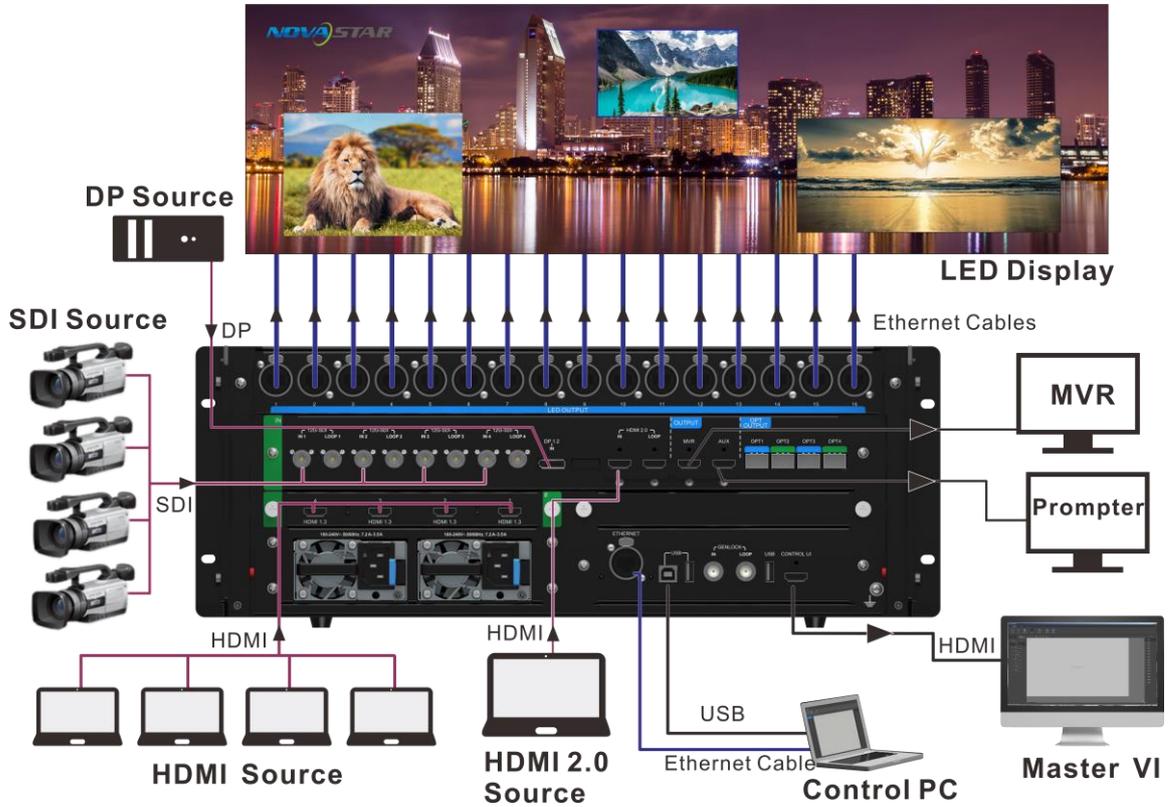
**Note:**

The NovaPro UHD supports replacement of an input card. D\_4xHDMI 1.3 input card is the default configuration, which can be replaced by a D\_4xDVI input card.

Input		
Connector	Quantity	Description
12G-SDI	4	Supports ST-2082-1 (12G), ST-2081-1 (6G), ST-424 (3G) and ST-292 (HD) standard video inputs. Input resolutions up to 4Kx2K@60Hz and downward compatible Supports 12G-SDI output with loop-through. <b>Note:</b> When the input source is a 12G-SDI signal, you must use CANARE / L-4.5CHD+ / UHDTV-SDI SDI cables and the cable length should be less

		<p>than 50 m.</p> <p>12G-SDI connectors 1, 2 and 3 DO NOT support the deinterlaced function, but connector 4 supports the function.</p>
DP 1.2	1	<p>Input resolutions up to 4Kx2K@60Hz (8Kx1K@60Hz) and downward compatible</p> <p>Supports HDCP 1.3.</p> <p>DOES NOT support interlaced signal inputs.</p>
HDMI 2.0	1	<p>Input resolutions up to 4Kx2K@60Hz (8Kx1K@60Hz) and downward compatible</p> <p>Supports HDCP 1.4 and HDCP 2.2.</p> <p>DOES NOT support interlaced signal inputs.</p> <p>Supports HDMI 2.0 output with loop-through.</p>
HDMI 1.3	4	<p>D_4xHDMI 1.3 input card by default</p> <p>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 replaced by a D_4xDVI input card.</p>
<b>Output</b>		
Ethernet port	16	<p>Gigabit Ethernet output ports</p> <ul style="list-style-type: none"> <li>• Maximum loading capacity: 8.8 million pixels</li> <li>• Maximum width: 8192 pixels</li> <li>• Maximum height: 8192 pixels</li> </ul>
OPT 1–4	4	<p>10G fiber optical output ports (copy and hot backup)</p> <ul style="list-style-type: none"> <li>• OPT 1 transmits data on Ethernet ports 1–8.</li> <li>• OPT 2 transmits data on Ethernet ports 9–16.</li> <li>• OPT 3 is the copy/hot backup channel for OPT 1.</li> <li>• OPT 4 is the copy/hot backup channel for OPT 2.</li> </ul>
MVR	1	<p>HDMI 1.3 connector</p> <p>A Multiviewer connector to monitor the input source, PVM, PGM or perform mixed monitoring</p>
AUX	1	<p>HDMI 1.3 connector</p> <p>An auxiliary output connector for connecting an auxiliary device, such as a teleprompter</p>
<b>Control</b>		
ETHERNET	1	For PC communication or network connection
USB	3	<ul style="list-style-type: none"> <li>• 1 x USB (Type-B): Connect to the PC for device debugging.</li> <li>• 2 x USB (Type-A): <ul style="list-style-type: none"> <li>- Insert a USB drive to perform system update.</li> <li>- Connect a mouse or keyboard.</li> <li>- Output connector for device cascading</li> </ul> </li> </ul>
GENLOCK IN-LOOP	1	Connect a synchronization signal source to synchronize the cascaded devices.
CONTROL UI	1	Connect to a monitor for displaying the user interface of the embedded Master VI software.

# 4 Applications



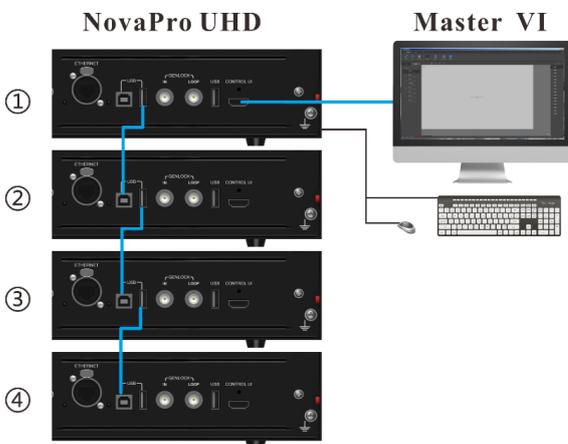
**Note:**

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. In cascading control mode, 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 cascade control connections are shown as follows.



# 5 Menu Operations

**Button descriptions:**

Knob:

- On the home screen, press the knob to enter the main menu screen.
- On the main 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, 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.

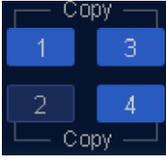
On the navigation screen, hold it down to exit the screen.

## 5.1 Home Screen

Figure 5-1 Home Screen



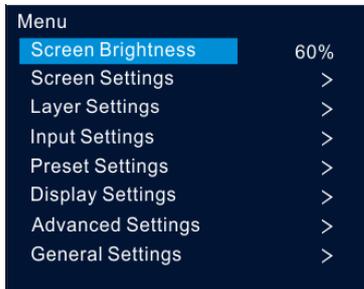
Area	Icon	Description
A		Display the layer status, number and input source. <ul style="list-style-type: none"> <li>• Status: Open or closed</li> <li>• Number: 6</li> <li>• Input source: SDI</li> </ul>
B		Display the resolution of the configured screen.
C		Display the screen brightness.
D		Display the device working mode and Ethernet port status. <ul style="list-style-type: none"> <li>• Working mode: Primary</li> <li>• Ethernet port: Connected/Disconnected</li> </ul>
		Display the device working mode and Ethernet port status. <ul style="list-style-type: none"> <li>• Working mode: Backup</li> <li>• Ethernet port: Connected/Disconnected</li> <li>-  flashing: The backup port is enabled.</li> <li>-  not flashing: The backup port is disabled.</li> </ul>

Area	Icon	Description	
		The corresponding Ethernet port of the fiber converter connected to the NovaPro UHD is connected to the LED screen.	
E		<p>Display the OPT mode and OPT port status.</p> <ul style="list-style-type: none"> <li>Hot Backup:                             <ul style="list-style-type: none"> <li>OPT mode: Hot backup</li> <li>OPT ports 3 and 4 back up the data on OPT ports 1 and 2.</li> </ul> </li> <li>Copy:                             <ul style="list-style-type: none"> <li>OPT mode: Copy</li> <li>OPT ports 3 and 4 copy the data on OPT ports 1 and 2.</li> </ul> </li> </ul> <ul style="list-style-type: none"> <li>: The OPT port is connected.</li> <li>: The OPT port is disconnected.</li> </ul>	
			
F		AUX function is turned on and AUX source is displayed.	
		AUX function is turned off.	
G	Synchronization	 <ul style="list-style-type: none"> <li>Bottom right <b>green</b>: The Genlock connector is connected.</li> <li><b>White</b> GEN text: The Genlock function is turned on.</li> </ul>	
		 <ul style="list-style-type: none"> <li>Bottom right <b>green</b>: The Genlock connector is connected.</li> <li><b>Yellow</b> GEN text: The Genlock function is waiting to be turned on.</li> </ul>	
		 <ul style="list-style-type: none"> <li>Bottom right <b>green</b>: The Genlock connector is connected.</li> <li>The Genlock function is turned off.</li> </ul>	
		 <ul style="list-style-type: none"> <li>Bottom right <b>gray</b>: The Genlock connector is disconnected.</li> <li>The Genlock function is turned on.</li> </ul>	
		 <ul style="list-style-type: none"> <li>Bottom right <b>gray</b>: The Genlock connector is disconnected.</li> <li>The Genlock function is waiting to be turned on.</li> </ul>	
		 <ul style="list-style-type: none"> <li>Bottom right <b>gray</b>: The Genlock connector is disconnected.</li> <li>The Genlock function is turned off.</li> </ul>	
	HDR		HDR function is turned on.
			HDR function is turned off.
	USB drive		The device has detected a USB drive inserted.
			No USB drive is detected.
	Communication		The current communication mode is USB Preferred.
			The current communication mode is LAN Preferred.
		The device is not connected to the control PC.	

## 5.2 Screen Brightness

Adjust the screen brightness in an eye-friendly way according to the current ambient brightness. The appropriate adjustment of screen brightness can also extend the service life of the LED screen.

Figure 5-2 Screen brightness



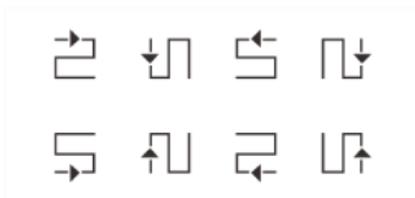
- Step 1 Press the knob to enter the main menu screen.
- Step 2 Select **Screen Brightness** and press the knob to confirm the selection.
- Step 3 Rotate the knob to adjust the brightness value, and the LED screen will display the effect in real-time. Then press the knob to apply the brightness when you are satisfied with it.

## 5.3 Screen Settings

### 5.3.1 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.

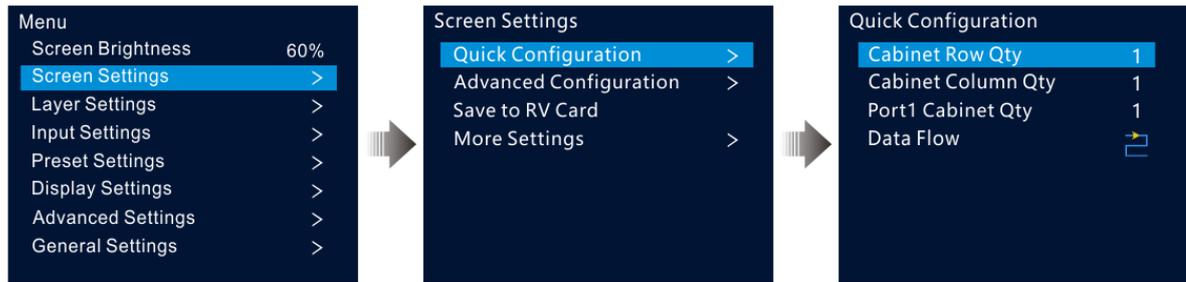


- During data flow settings, you must ensure that the Ethernet Port 1 is at the beginning position of the whole physical connection.

#### Procedure

- Step 1 Power on the LED screen.
- Step 2 Go to **Screen Settings > Quick Configuration**, and press the knob to enter the quick configuration screen.

Figure 5-3 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** Select **Port 1 Cabinet Qty** to set the quantity of the cabinets loaded by Ethernet port 1.

**Step 5** Select **Data Flow** and press the knob, 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.

### 5.3.2 Advanced Configuration

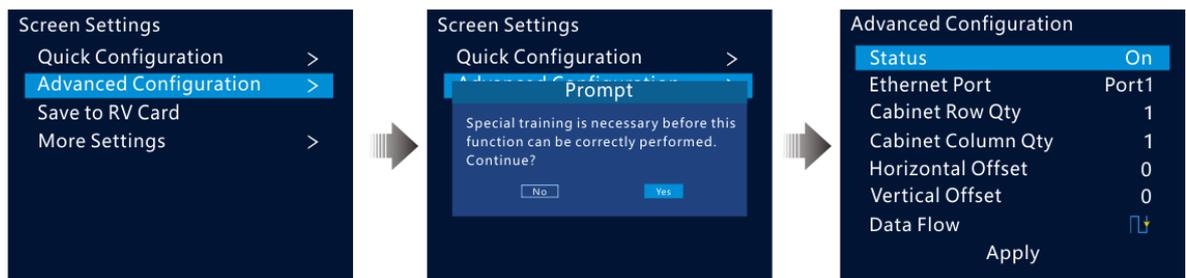
Set the cabinet row and column quantities, horizontal offset, vertical offset and data flow of the cabinets loaded by a single Ethernet port.

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

**Step 2** Go to **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 5-4 Advanced configuration



### 5.3.3 Save to RV Card

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

### 5.3.4 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 between the cabinets.

### Note:

This function is only applicable to the receiving cards that are connected to the NovaPro UHD support the mapping function. For the related receiving card information, please visit our official website [www.novastar.tech](http://www.novastar.tech).

Figure 5-5 Mapping



**P:05** indicates the Ethernet port number of the sending device.  
**#001** indicates 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 5-6 Loading RCFGx files



**Note:**

The NovaPro UHD **DOES NOT** support importing the configuration files by directly connecting to NovaLCT.

### LED Screen Color

Adjust the color temperature and Gamma value of LED screen to make the images displayed on the screen more clearer and vivid.

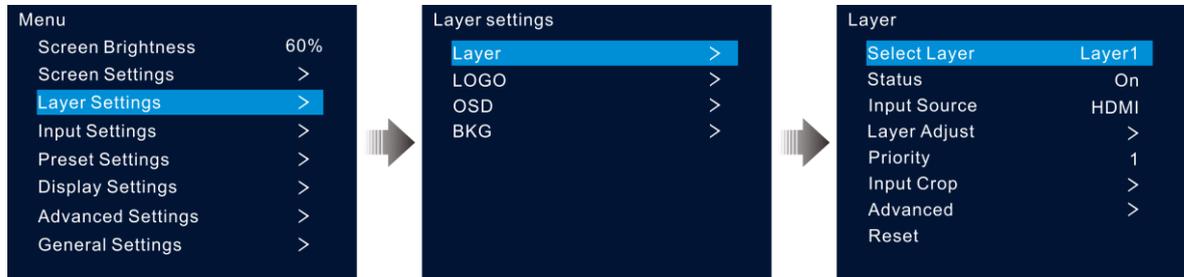
- **Color Temperature:** Adjust the cool or warm degree of images displayed on LED screen.
- **Gamma:** Adjust the image distortion degree from the input to output. The greater the value is, the more distorted the image will be. The range is 0.25 - 4.00.

## 5.4 Layer Settings

### 5.4.1 Layer

#### 5.4.1.1 Layer Properties

Figure 5-7 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	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's width and height.</li> <li>● The options are <b>1:1</b>, <b>5:4</b>, <b>4:3</b>, <b>3:2</b>, <b>16:9</b>, <b>16:10</b> and Custom.</li> <li>● Keep Ratio: Keep the aspect ratio.</li> <li>● H Width: The range is 64 - 8192 and the default value is <b>800</b>.</li> <li>● V Height: The range is 64 - 8192 and the default value is <b>600</b>.</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 display 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 the part after cropping display 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 part after cropping upon</li> </ul>

Menu	Description
	the current input source. The default value is <b>0</b> . <ul style="list-style-type: none"> <li>Initial Y: The vertical initial coordinate of the part after cropping upon the current input source. The default value is <b>0</b>.</li> </ul>
Advanced	Set the copying, flipping and other properties of the layer. For details, please see <a href="#">5.4.1.2 Advanced</a> .
Reset	Reset all the layer settings to defaults.

Figure 5-8 Layer parameter descriptions

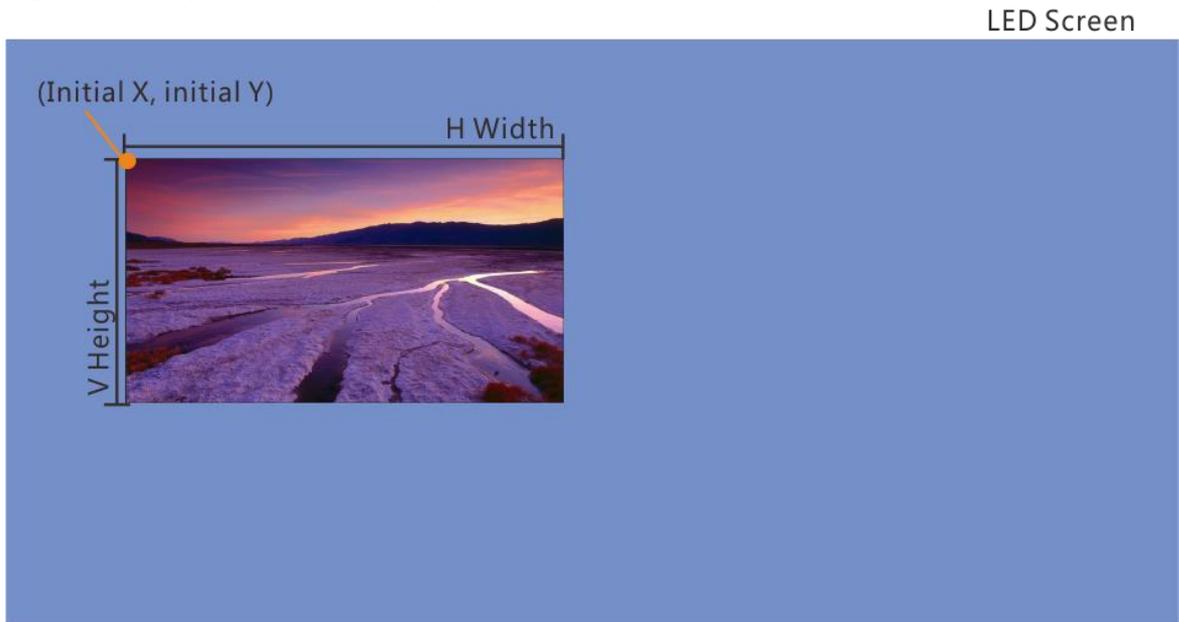


Figure 5-9 Input crop



### 5.4.1.2 Advanced

#### Copy

Add a new layer displaying the cloned or mirrored image.

Menu	Description
Status	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.

Menu	Description
	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 5-10 Clone

LED Screen



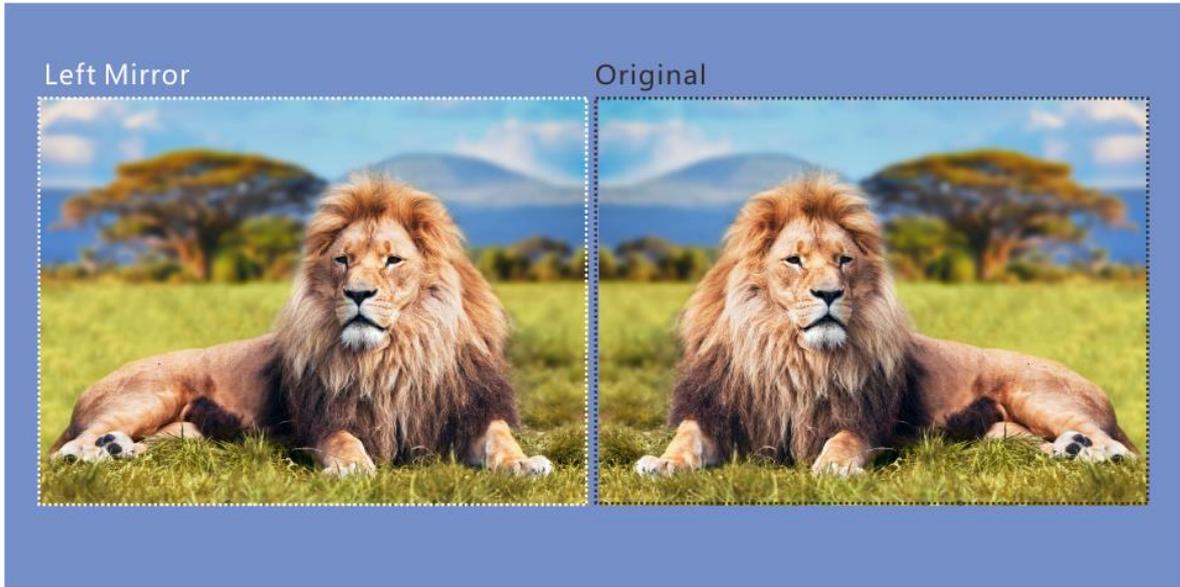
Figure 5-11 Right mirror

LED Screen



Figure 5-12 Left mirror

LED Screen



### Mask

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	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 5-13 Mask (mask top, bottom, left and right)

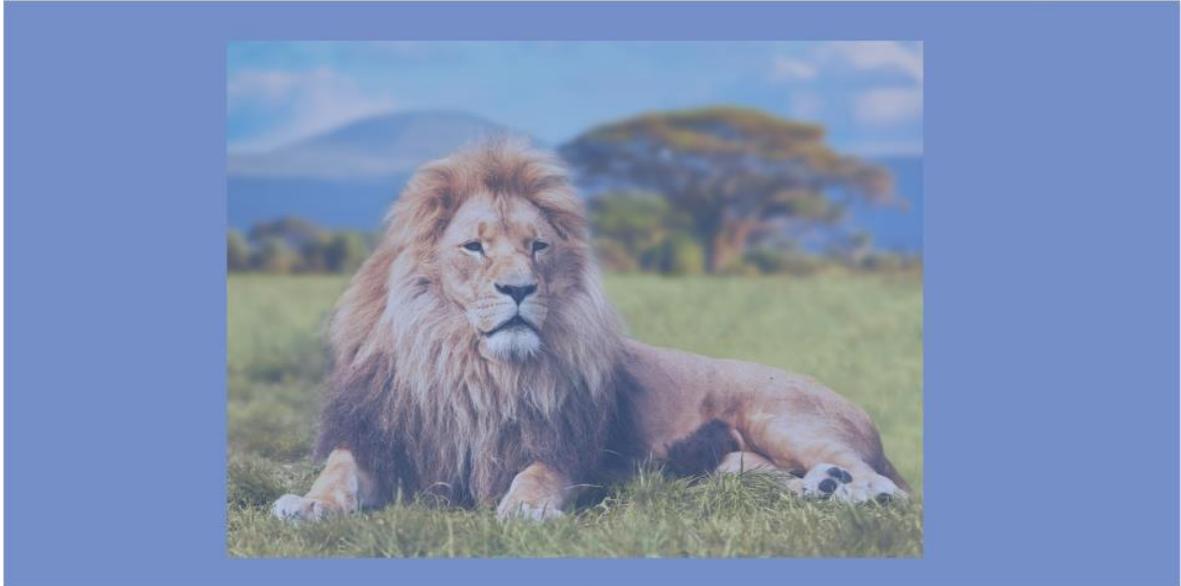


### Opacity

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 5-14 50% opacity

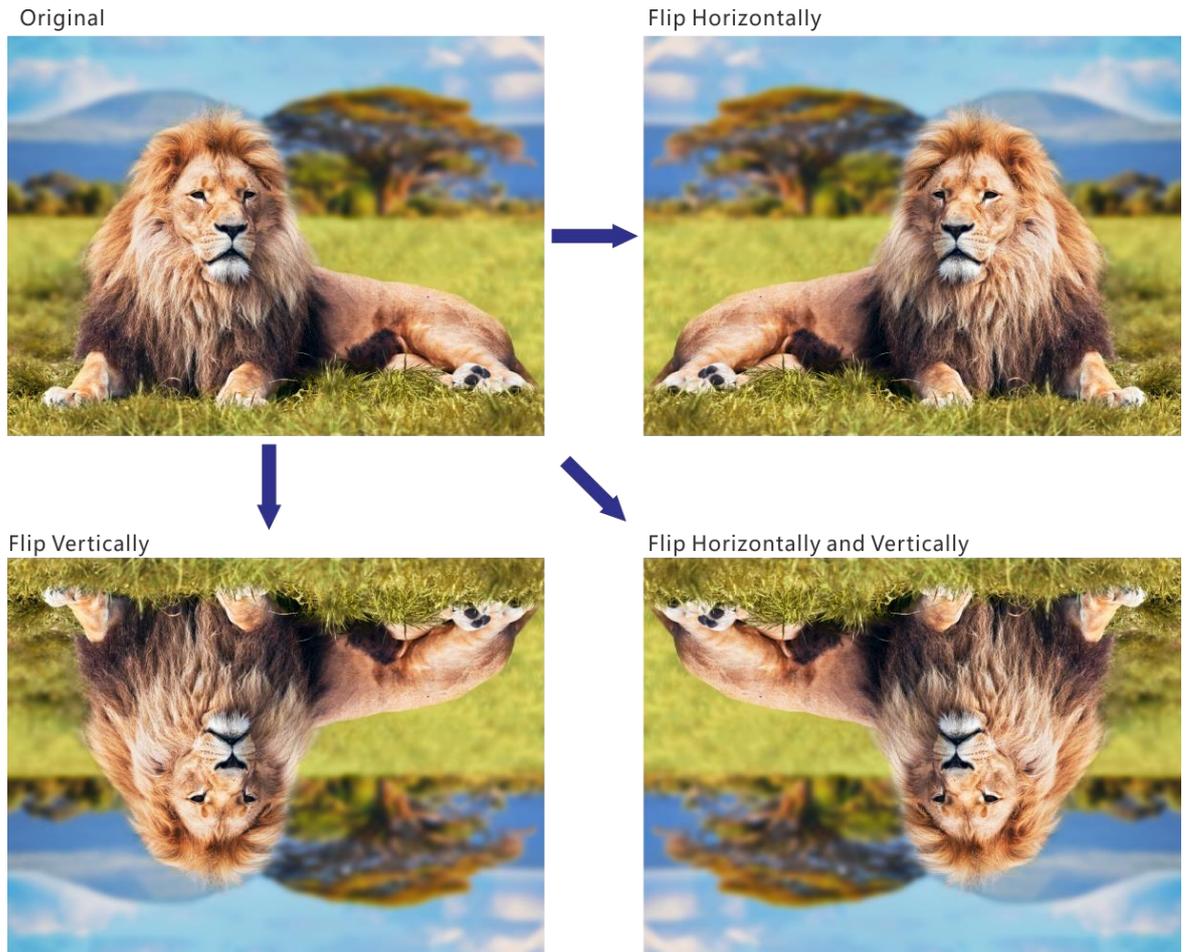
LED Screen



## Flip

Flip the layer image. The options are **None**, **H**, **V** and **H/V**. **None** indicates not flipping.

Figure 5-15 Layer flipping



## Color

Adjust the layer color parameters, 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> .
Hue	Adjust the hue of the layer image. The range is -180 to +180 and the default value is <b>0</b> .
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 5-16 Monochrome

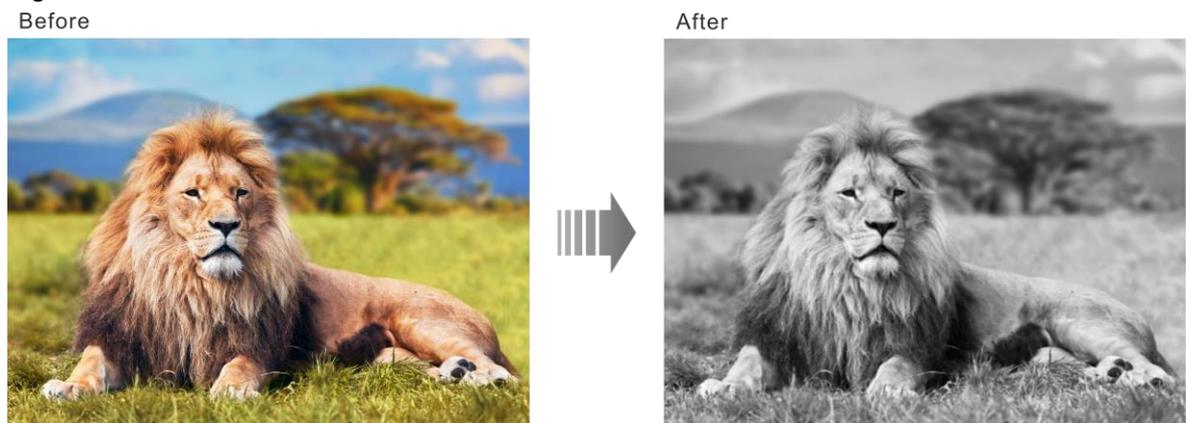
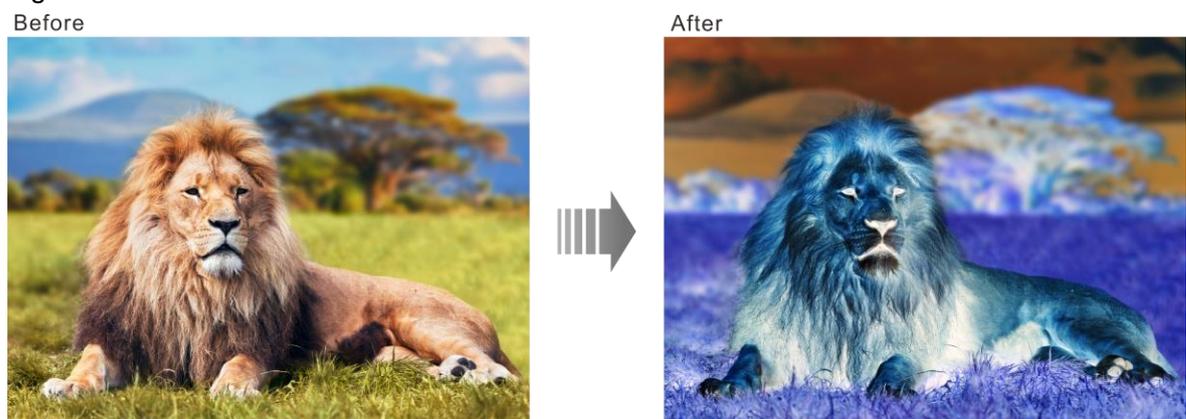


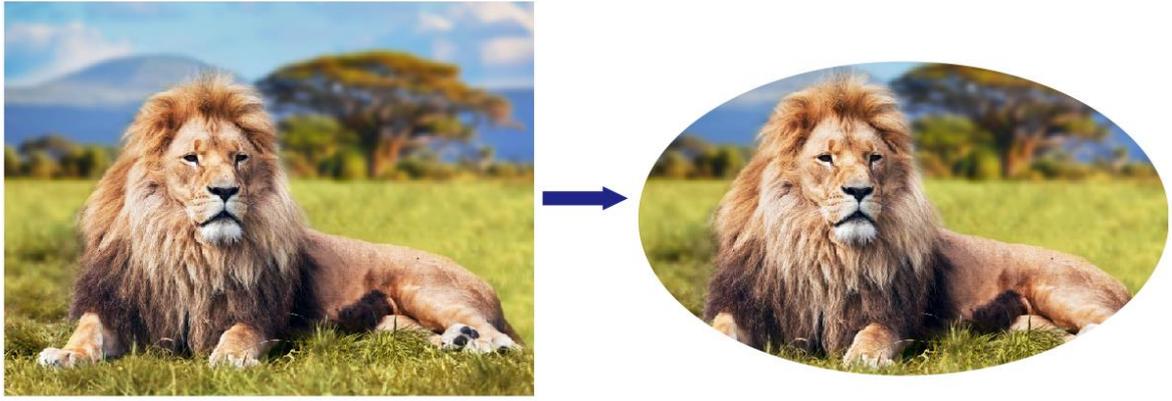
Figure 5-17 Invert colors



## Shape

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

Figure 5-18 Oval layer



### 5.4.2 LOGO

Display the company Logo.

Menu	Description
Status	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 turned on.
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>• <b>Status:</b> Turn on or turn off the LOGO cropping function. The default option is <b>Off</b>.</li> <li>• <b>H Width:</b> Set the horizontal width of the LOGO file after cropping.</li> <li>• <b>V Height:</b> Set the vertical height of the LOGO file after cropping.</li> <li>• <b>Initial X:</b> Set the horizontal initial coordinate of the part after cropping upon the LOGO file.</li> <li>• <b>Initial Y:</b> Set the vertical initial coordinate of the part after cropping upon the LOGO file.</li> <li>• <b>Reset:</b> 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 5-19 LOGO cropping



### 5.4.3 OSD

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

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

### 5.4.4 BKG

Set the background image that has the lowest priority.

Menu	Description
Status	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>• <b>BKG Image</b>: You can capture the input source as a BKG image or import the BKG image from Master VI.</li> <li>• <b>Pure Color BKG</b>: 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>• <b>Source</b>: Select an input source to be captured.</li> <li>• <b>Save To</b>: 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>

Menu	Description
	<p>The location name consists of two parts: BKG and a number.</p> <p>At most 16 BKG images can be saved.</p> <ul style="list-style-type: none"> <li>● <b>Capture:</b> 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 5-20 Capturing



## 5.5 Input Settings

### 5.5.1 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 5-21 Single link mode

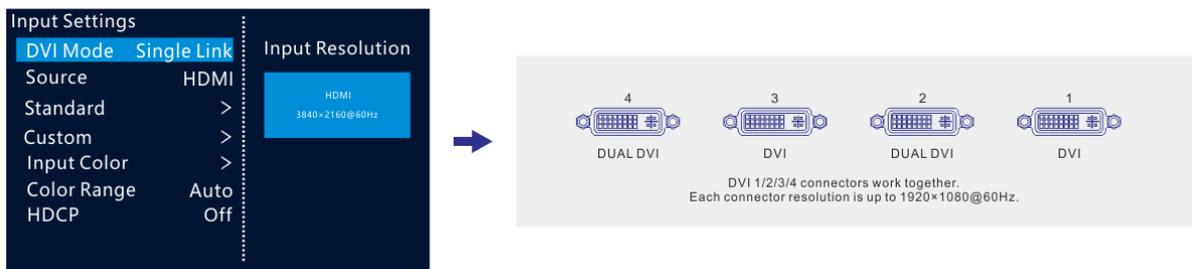
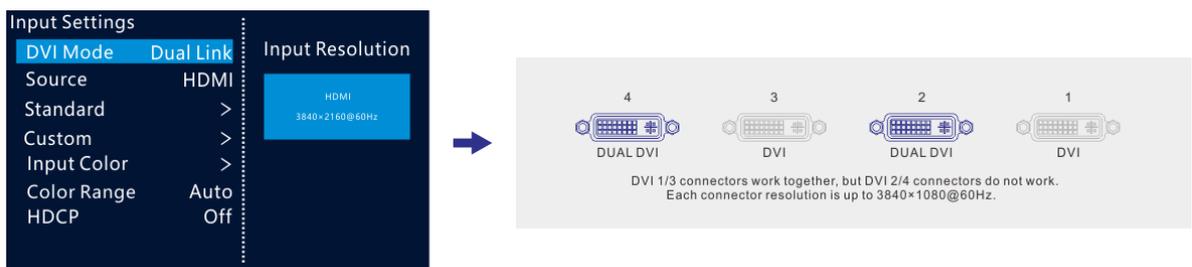


Figure 5-22 Dual link mode



### 5.5.2 Input Source

The NovaPro UHD offers 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:**

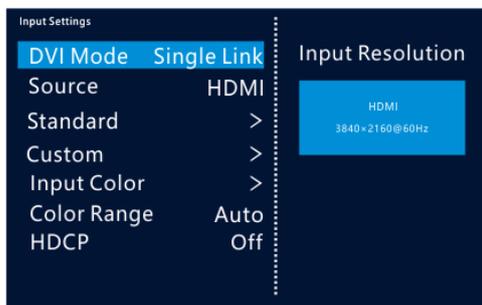
When DP is selected as the input source and the DP source is from the VIO 4K from ANALOG WAY, hold down the **ESC** button on the device front panel to enter the **Parameter Settings** screen and turn on **SWING Configuration**.

### 5.5.3 Input Source Resolution

Adjust the resolution and frame rate of the input source through the following two ways.

- Standard resolution
- Custom resolution

Figure 5-23 Setting input source resolution



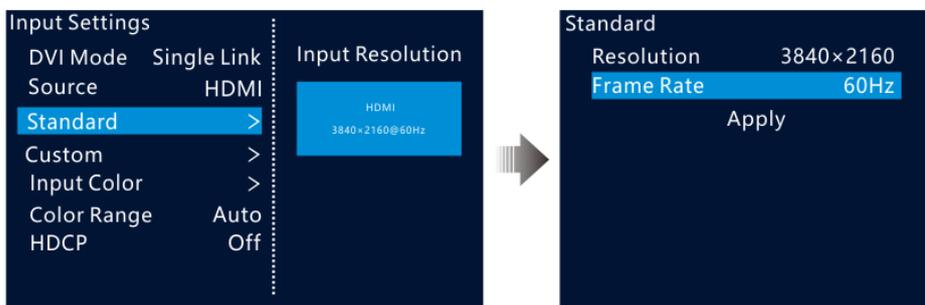
**Note:**

The SDI does not support the input resolution settings.

### Standard Resolution

Select a standard resolution and frame rate. 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.

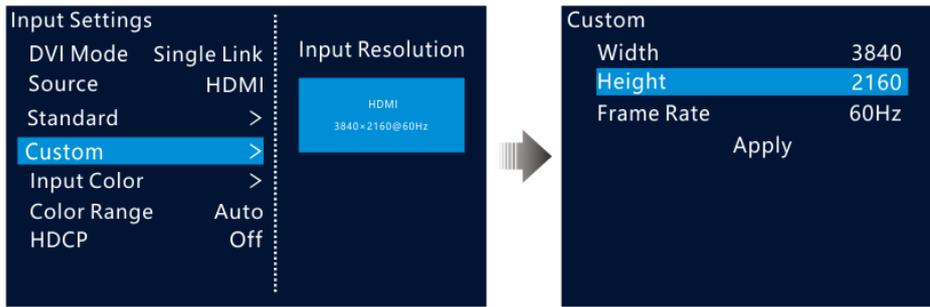
Figure 5-24 Standard resolution



### Custom Resolution

Set a custom width, height 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 5-25 Custom resolution



### 5.5.4 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.

### 5.5.5 Color Range

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

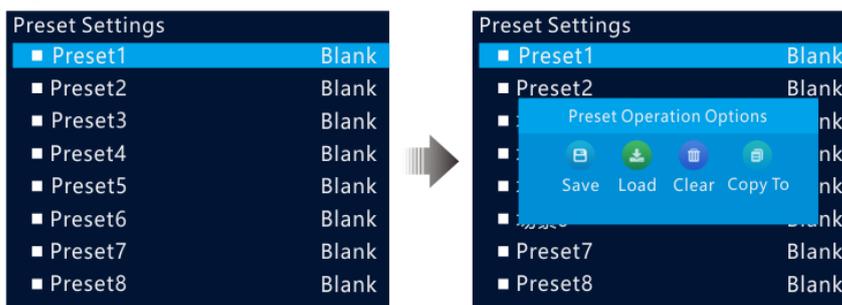
- Auto (default): The device identifies the input source color range automatically.
- Full: The grayscale range is 0 - 255.
- Limited: The grayscale range is 16 - 255.

## 5.6 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 a desired preset and press the knob to pop up a dialog box. In the displayed box, four preset operations are provided: **Save, Load, Clear or Copy To**.

Figure 5-26 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.

## 5.7 Display Control

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

Menu	Description
Normal	Display the 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 output image quality and the LED screen will display the effect in real-time. <ul style="list-style-type: none"> <li>● <b>Brightness</b>: The range is 0 - 100 and the default value is <b>50</b>. The stepping is 1.</li> <li>● <b>Contrast</b>: The range is 0 - 100 and the default value is <b>50</b>. The stepping is 1.</li> <li>● <b>Saturation</b>: The range is 0 - 100 and the default value is <b>50</b>. The stepping is 1.</li> <li>● <b>Gamma</b>: The range is 0.25 - 4.00 and the default value is <b>1.00</b>. The stepping is 0.01.</li> <li>● <b>Reset</b>: 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>● <b>COPY</b>: Send the images displayed on PVW to PGM.</li> <li>● <b>SWAP</b>: 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> .

## 5.8 Advanced Functions

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

### 5.8.1 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 / A10s Plus receiving cards.

Figure 5-27 System architecture

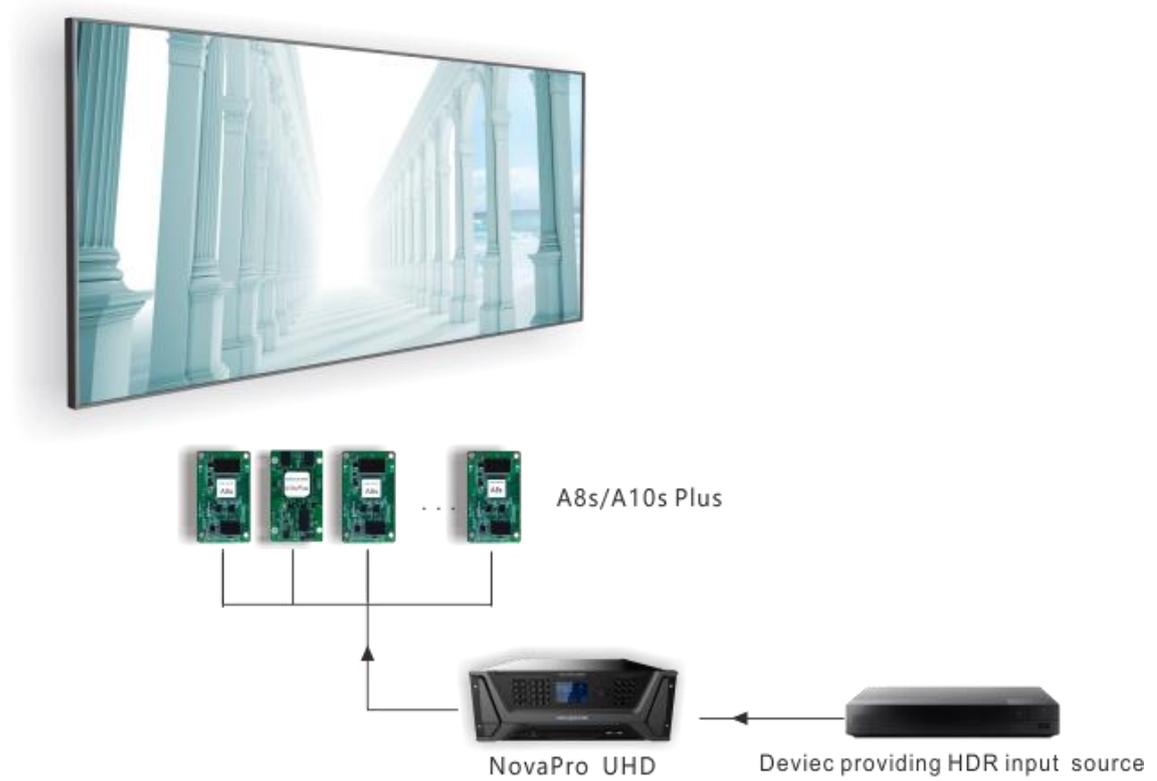


Figure 5-28 HDR effect

Before



After



Step 2 Go to **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 - 10000 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.

When the HDR function is enabled, you must use the receiving cards that support HDR function. For the related receiving card information, you can obtain from our technical support staff or official website [www.novastar.tech](http://www.novastar.tech).

### 5.8.2 Low Latency

Low latency reduces the input source signal latency from input to output of the NovaPro UHD. This function can reduce the latency from the input source to receiving card to 1 frame when the device works with NovaStar A5 or later receiving cards.

**Note:**

Before you use the low latency function, make sure you have turned on the synchronization function and the data runs vertically on the screen.

### 5.8.3 OPT Mode

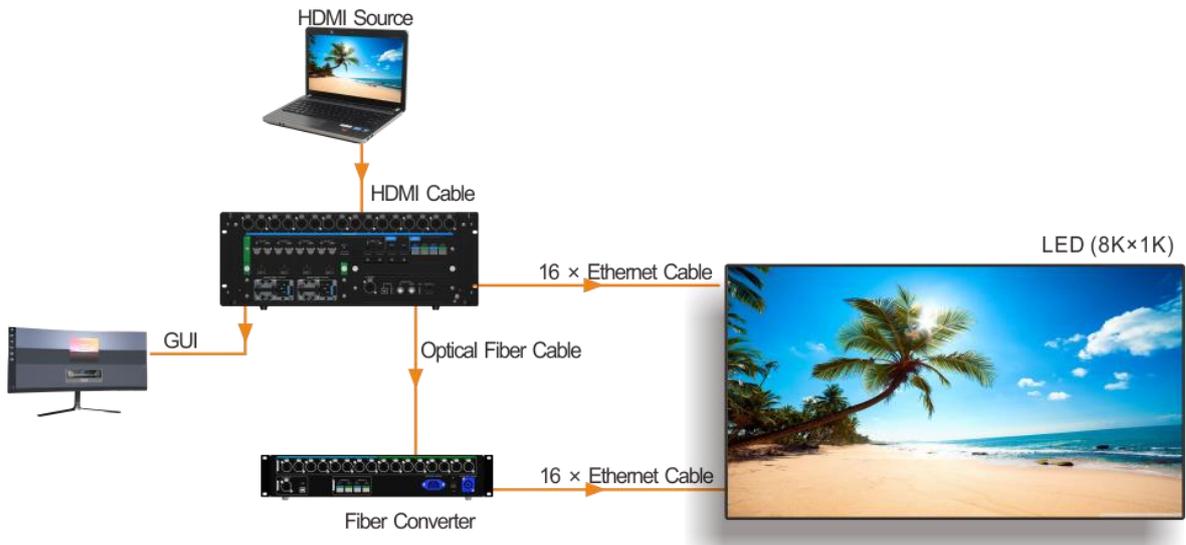
The NovaPro UHD supports two OPT modes: **Hot Backup** (default) and **Copy**.

Menu	Description
Hot Backup	OPT ports 3 and 4 back up the data on OPT ports 1 and 2.
Copy	OPT ports 3 and 4 copy the data on OPT ports 1 and 2.

### Hot Backup

Step 1 Perform the hardware connections for hot backup mode.

Figure 5-29 Connections for hot backup mode



**Note:**

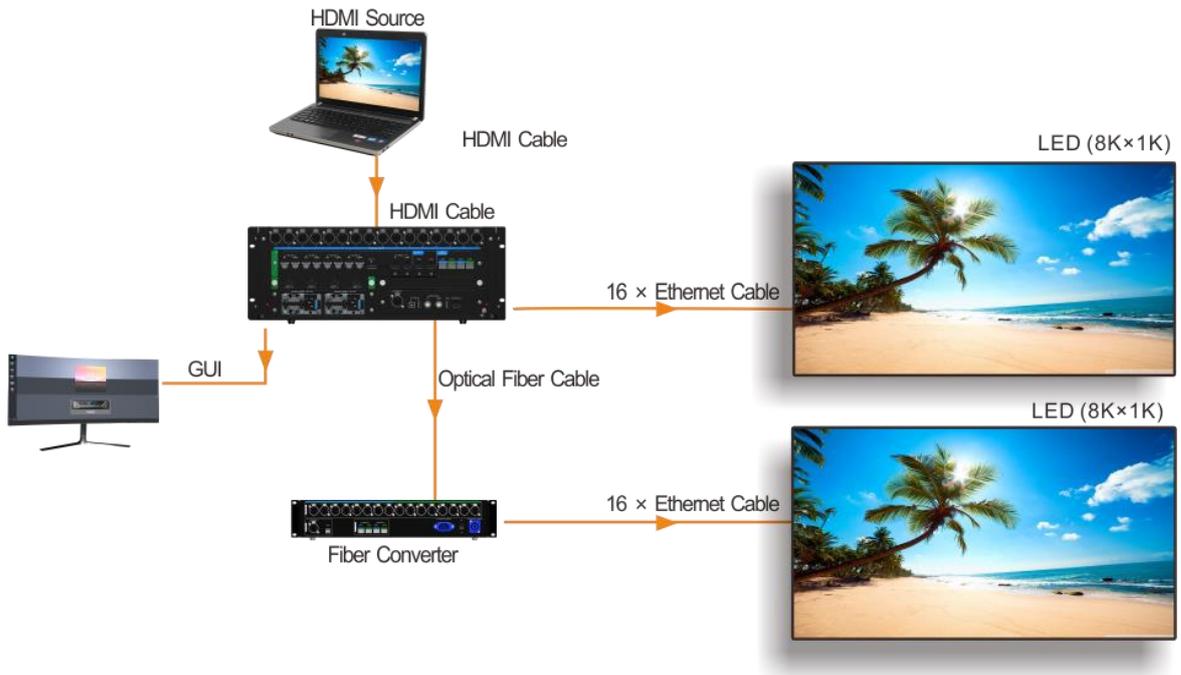
If the Ethernet cable of the NovaPro UHD or fiber converter fails, the LED screen can still work normally.

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

### Copy

Step 1 Perform the hardware connections for copy mode.

Figure 5-30 Connections for copy mode



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

#### 5.8.4 AUX

This function is used for auxiliary output of input sources, PVW or PGM. You can output the signal source without processing to the connected display device.

Menu	Description
Status	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>

#### Note:

Capturing PVW or PGM will cause transient abnormal display of AUX output image. After the capturing is completed, AUX displays normally.

## 5.9 General Settings

Figure 5-31 General settings



### 5.9.1 Synchronization

Select a synchronization signal to synchronize all 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.

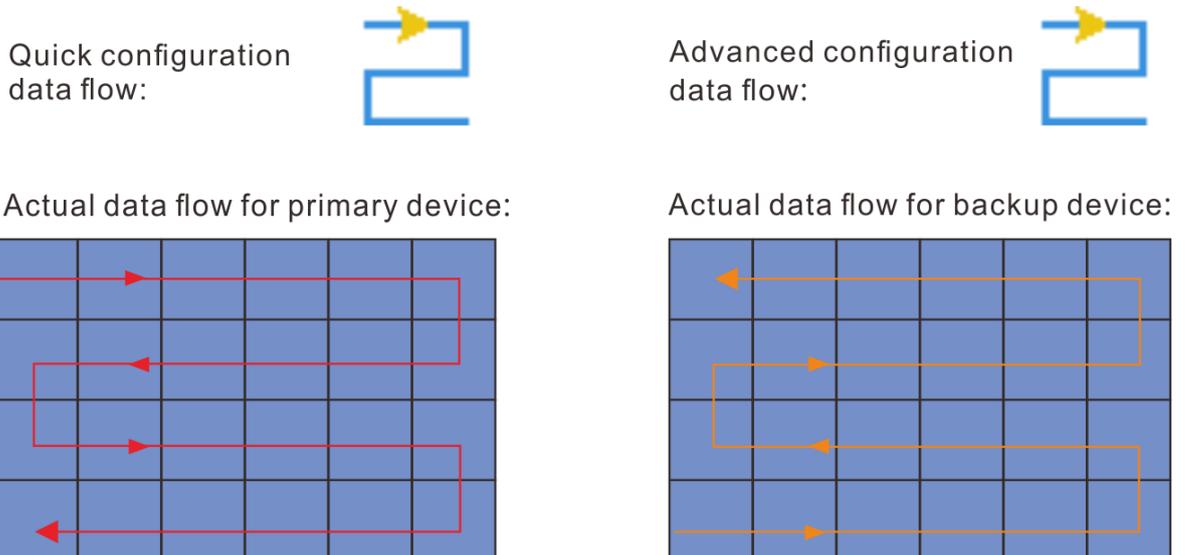
Menu	Description
Status	Turn on or turn off the synchronization function. The default option is <b>Off</b> .
Source	Select <b>Genlock</b> or other input sources as the sync source.

### 5.9.2 Hot Backup

The NovaPro UHD supports two hot backup modes: **Set as Primary** and **Set as Backup**.

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

Figure 5-32 Data flow for Primary and Backup modes



### 5.9.3 FN Button

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

- Press the button to enter the function menu screen.
- Hold down the button to customize the function for the button.

### 5.9.4 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.

### 5.9.5 Miscellaneous

#### Output Frame Rate

Set the output frame rate of the image output by Ethernet port. 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

Back up the data to a USB drive or restore the data from the USB drive.

Menu	Description
USB Backup	Back up the following information to a USB drive, including the configured presets, PVW and PGM data, LOGO, OSD, BKG, screen configuration, screen brightness, input source color, color range information, AUX data, synchronization settings, hot backup settings, output frame rate, HDR data, low latency settings, OPT mode, display control information and communication settings.
USB Restore	Restore the backup files from the USB drive.

Figure 5-33 USB backup/restore



#### Date and Time

Set the device date and time.

Menu	Description
Date	Display the device date.
Time	Display the device time.
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 operation logs.

### 5.9.6 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.

### 5.9.7 Firmware Update

Update the device firmware by using a USB drive.

Precondition:

The update program should be stored in the root directory of the USB drive.

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

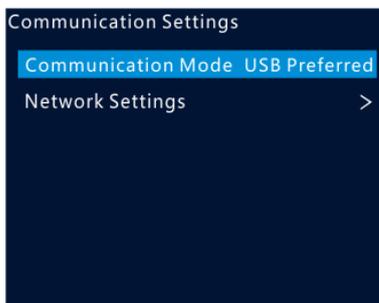
### 5.9.8 About Us

View the device hardware version, company website (www.novastar.tech) and email address (support@novastar.tech).

## 5.10 Communication Settings

### 5.10.1 Communication Mode

Figure 5-34 Communication mode



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

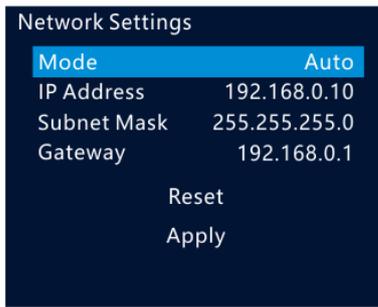
- When **USB Preferred** is selected, the device prefers the communication through USB port.
- When **LAN Preferred** is selected, the device prefers the communication through Ethernet port.

### 5.10.2 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 5-35 Network settings

**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.

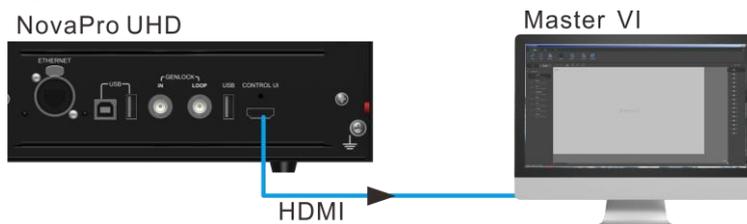
## 5.11 Language

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

# 6 Built-in Platform Master VI

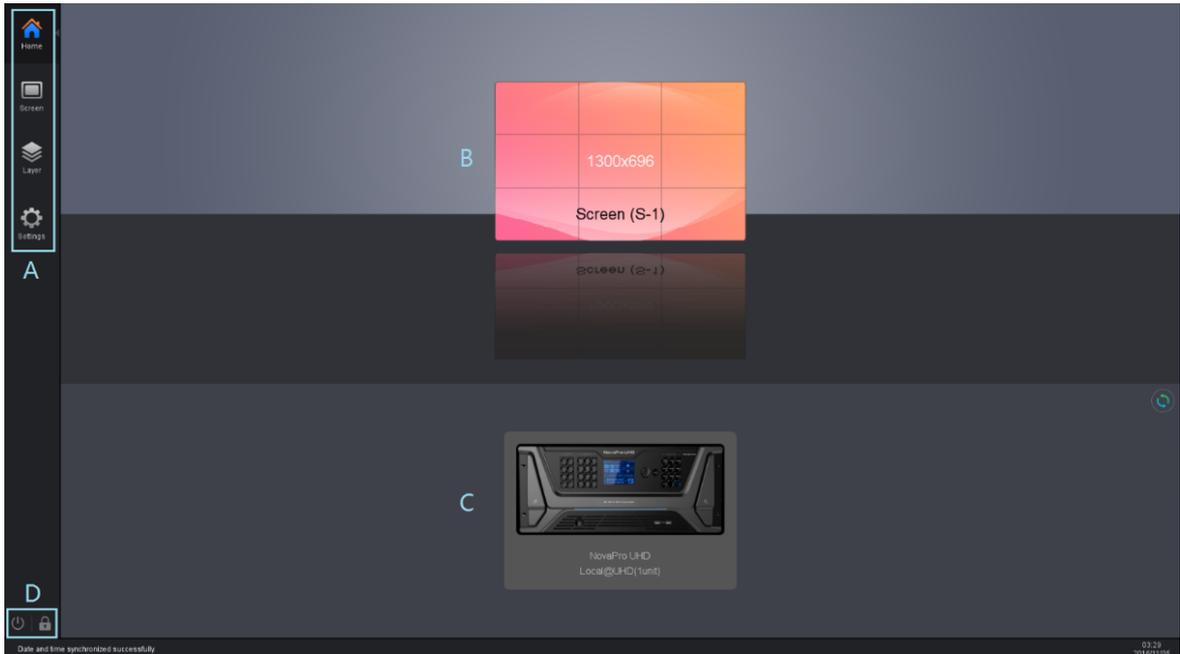
The NovaPro UHD has built in a smart control platform Master VI. The platform consists of four modules, including **Home**, **Screen**, **Layer** and **Settings**, which can help you easily perform screen and layer related configurations.

Figure 6-1 Hardware connection



## 6.1 Home Page

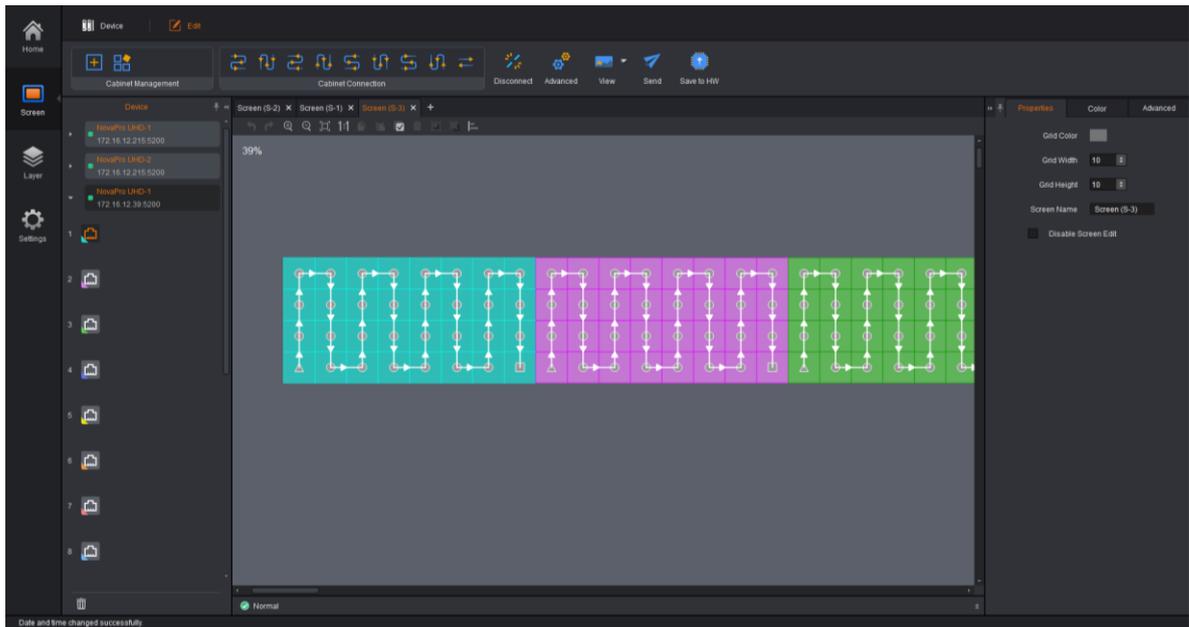
Figure 6-2 Master VI home page



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 screen to enter the <b>Screen</b> page.
C	Device	Display the names and serial port numbers of the connected devices. Click a device to enter the <b>Layer</b> page.  Click  at the top right corner of the device area to synchronize the device data.
D		Shut down the connected devices.
		Set the user permissions. Password is required for login. The default password is null.

## 6.2 Screen Configuration

Figure 6-3 Adding cabinets and setting cabinet connection type



Area	Function	Description
Device	Refresh	Refresh and read the hardware information again.
	Hot Backup	Backup between the devices or backup between the Ethernet ports
	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	Select 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 files to the hardware devices.

### 6.2.1 Adding Cabinets

Step 1 Select the device type and Ethernet port type.

Step 2 Go to **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.

## 6.2.2 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 Go to **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:

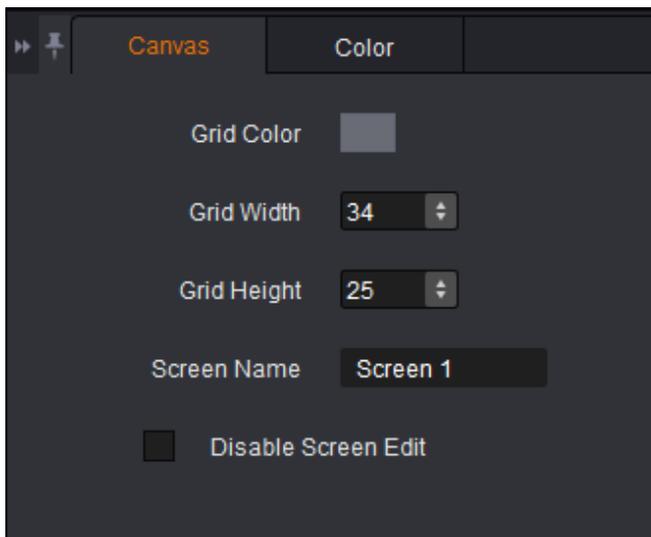
After the Ethernet port is selected, you can click the cabinets in turn according to the cabinet connection of LED screen to complete the whole connections.

## 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 6-4 Canvas settings



## Screen Color Settings

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

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

Figure 6-5 Color properties

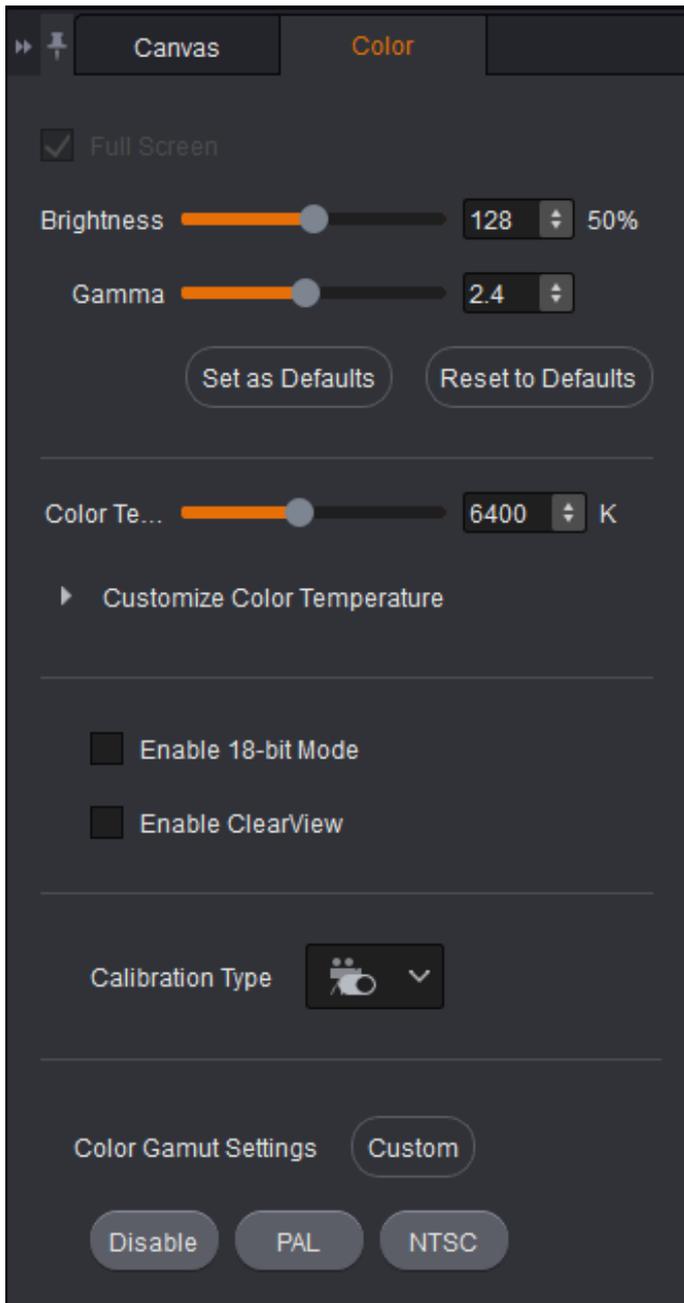


Figure 6-6 Color gamut

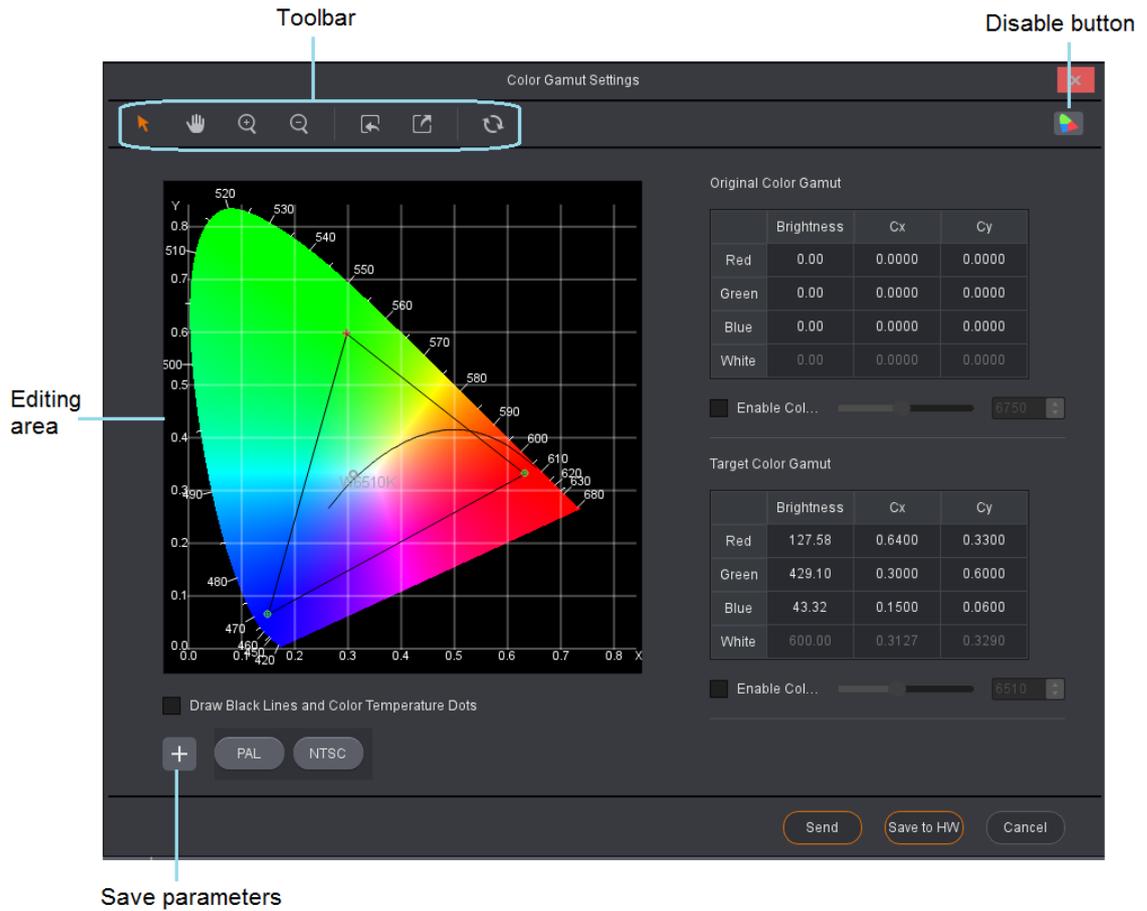


Table 6-1 Color gamut setting descriptions

Name	Description	
Toolbar		Enable the editing function.
		Disable the editing function.
		Zoom in the editing area.
		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.	
PAL/NTSC	Two standard broadcast formats	

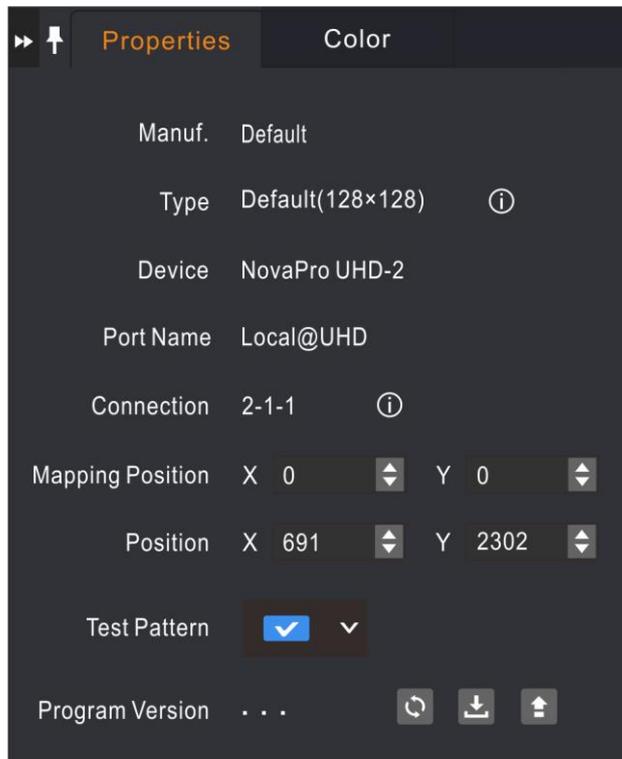
Name	Description
Send	Send the color gamut parameters to receiving card and these settings will be lost after power off.
Save	Send and save the color gamut parameters to receiving card and these settings will not be lost after power off.

## 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 6-7 Device properties



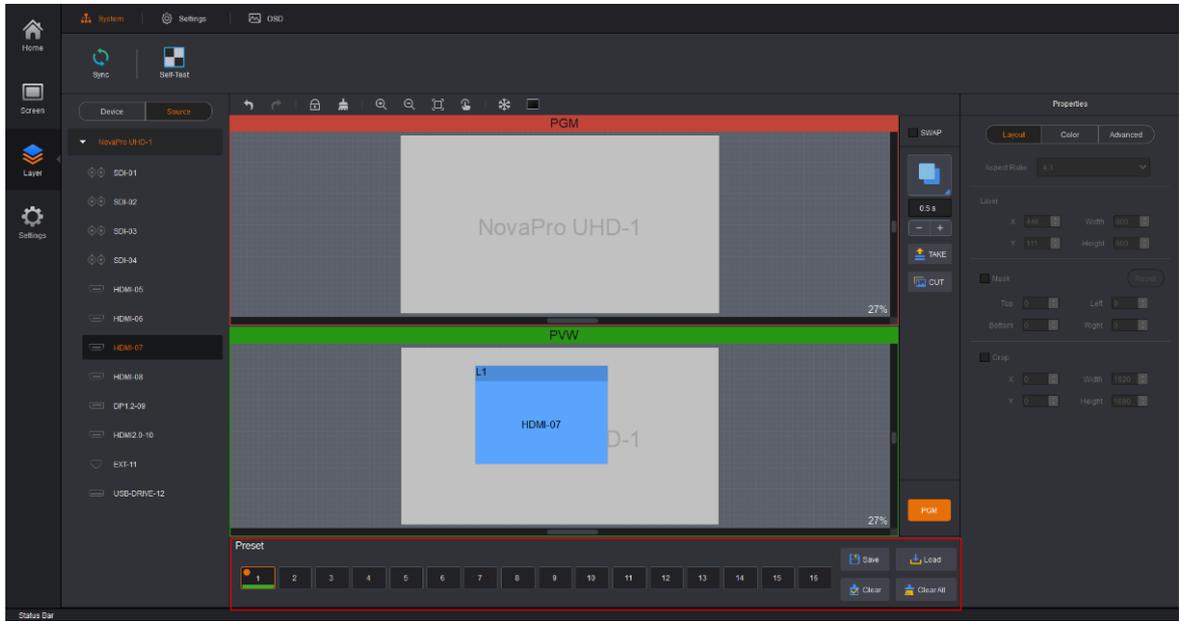
## 6.3 Layer Configuration

Add or delete the layers, OSD, LOGO and BKG, as well as set the layer properties and image quality.

Layer provides three function modules:

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

Figure 6-8 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 or turn off the AUX function, and set the AUX source, switching and display mode.
	HDR	Turn on or turn 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.

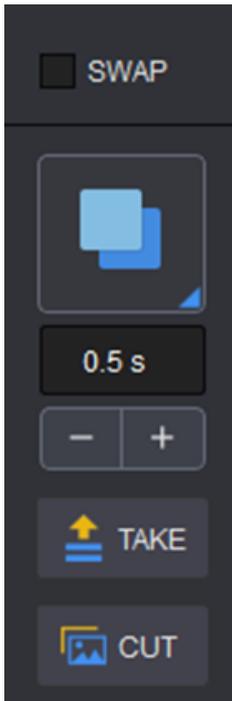
Figure 6-9 Toolbar introduction



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 6-10 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.

Area	Description
	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.

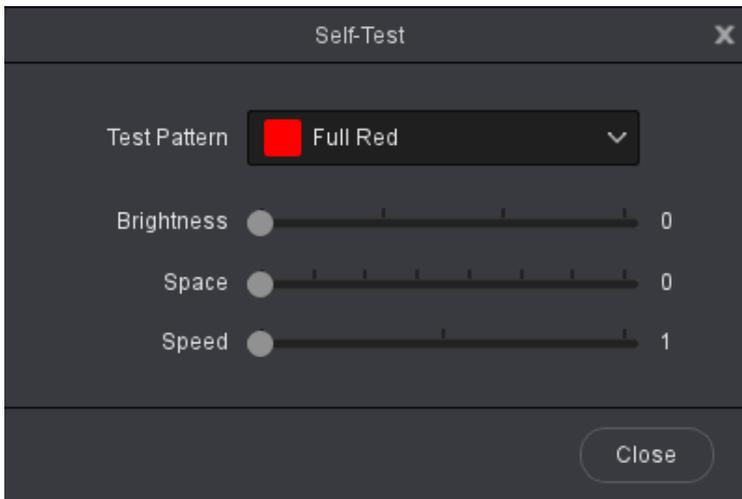
### 6.3.1 System

#### 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 screen 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.

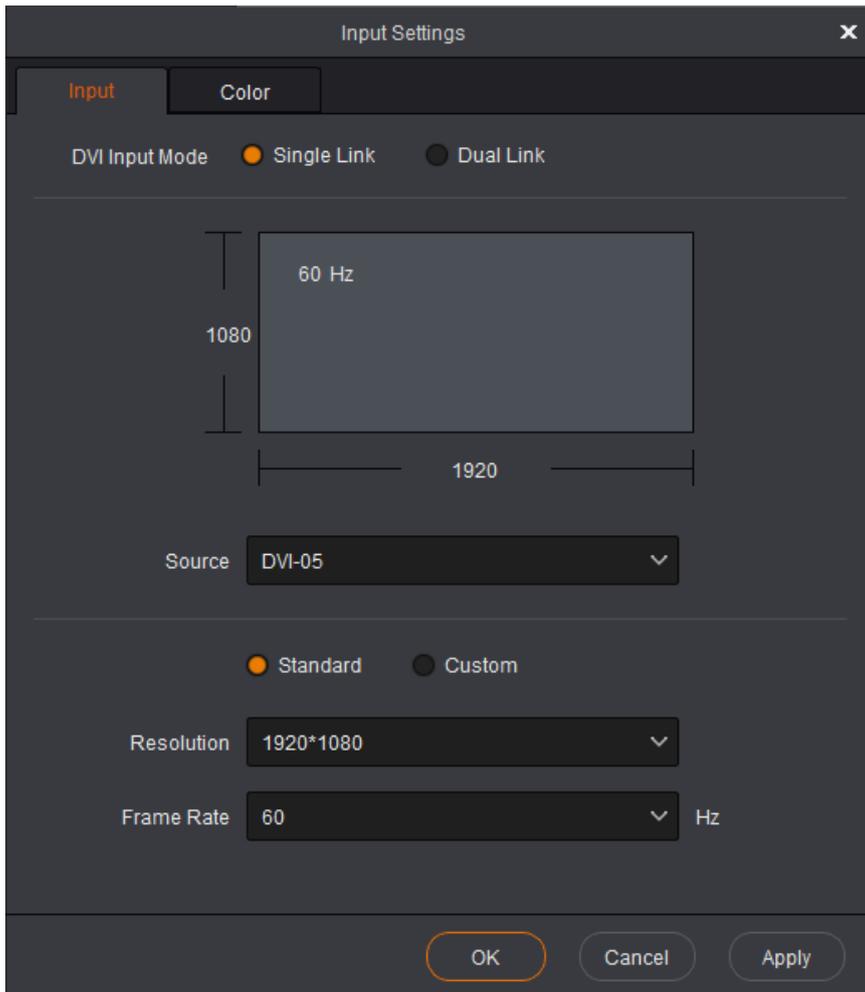
### 6.3.2 Settings

#### Input

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

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

Figure 6-11 Input

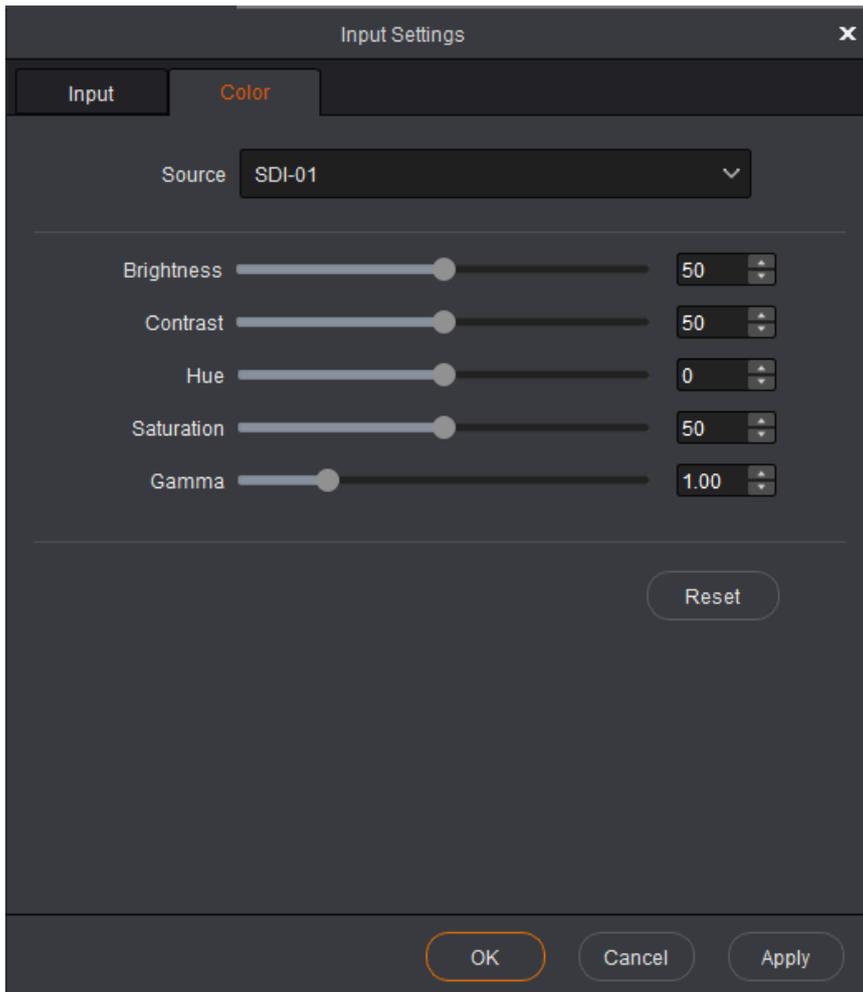


- DVI Input Mode:
  - Single Link: 4 × Single link DVI connectors, each with the resolutions up to 1920×1080@60Hz
  - Dual Link: 2 × Dual link DVI connectors (connectors 2 & 4), each with the resolutions up to 3840×1080@60Hz
- Select an input connector from the drop-down list of **Source**.
  - When **Standard** is selected, set the resolution and frame rate.
  - When **Custom** is selected, set the width, height and frame rate.

- Color

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

Figure 6-12 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.

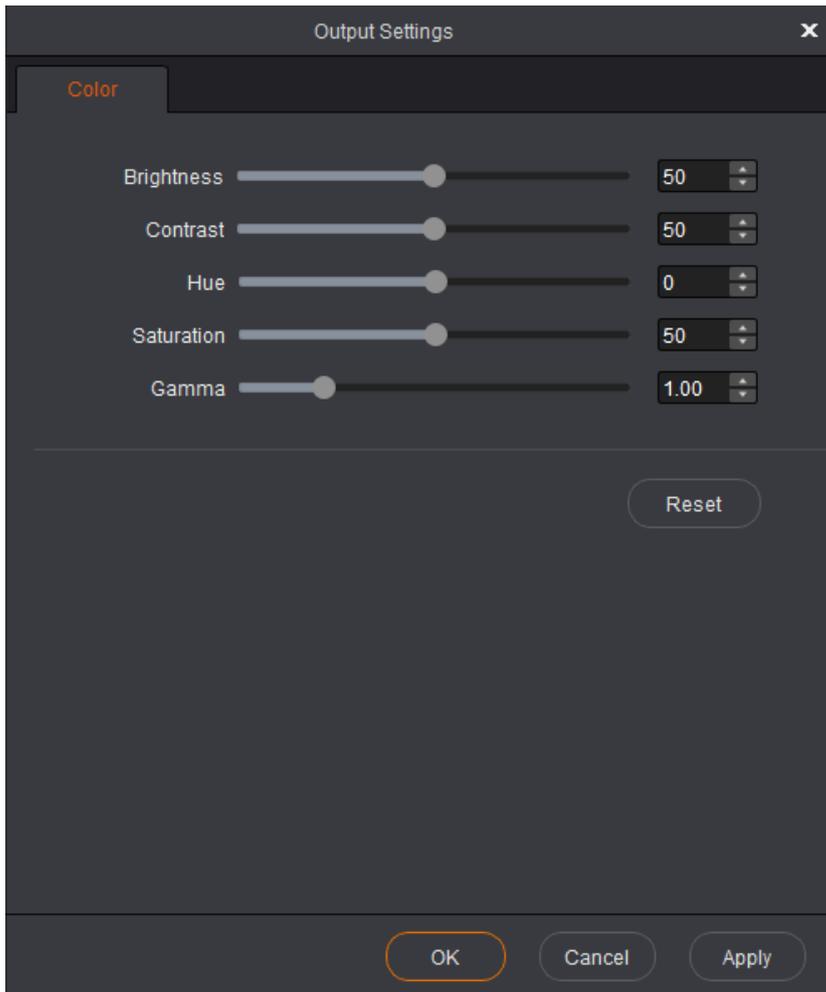
**Step 3** Click **OK** to complete the input settings.

## Output

Set the output image quality.

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

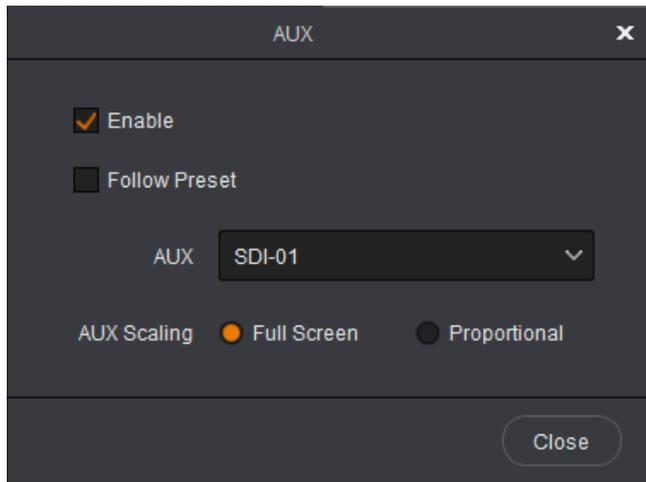
Figure 6-13 Output color



## AUX

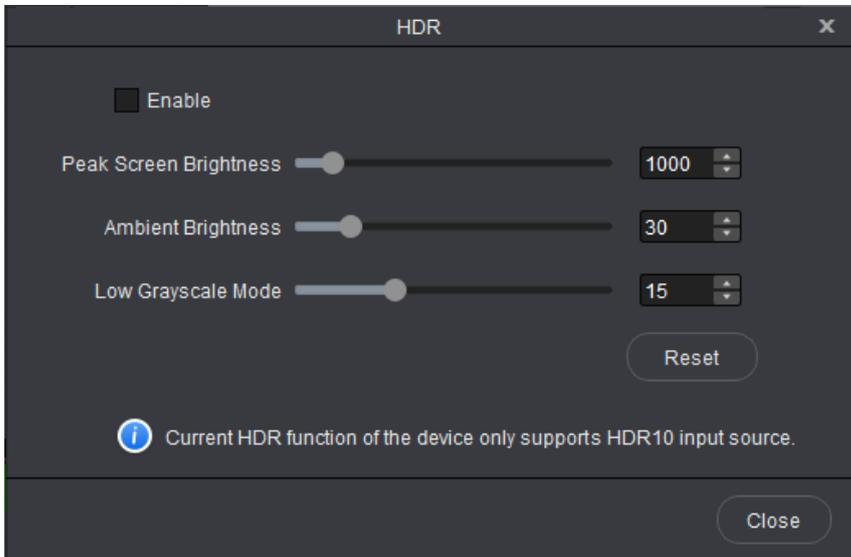
The NovaPro UHD supports one AUX. You can output any input source, PVW or PGM to the specified display device through the AUX connector.

- 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.
  - Selected: If the preset has AUX data, the AUX input source will be switched during preset switching.
  - Deselected: 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 display 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 / A10s Plus receiving cards.



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

Table 6-2 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> .

### 6.3.3 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 select 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 6-14 Adding OSD file - image

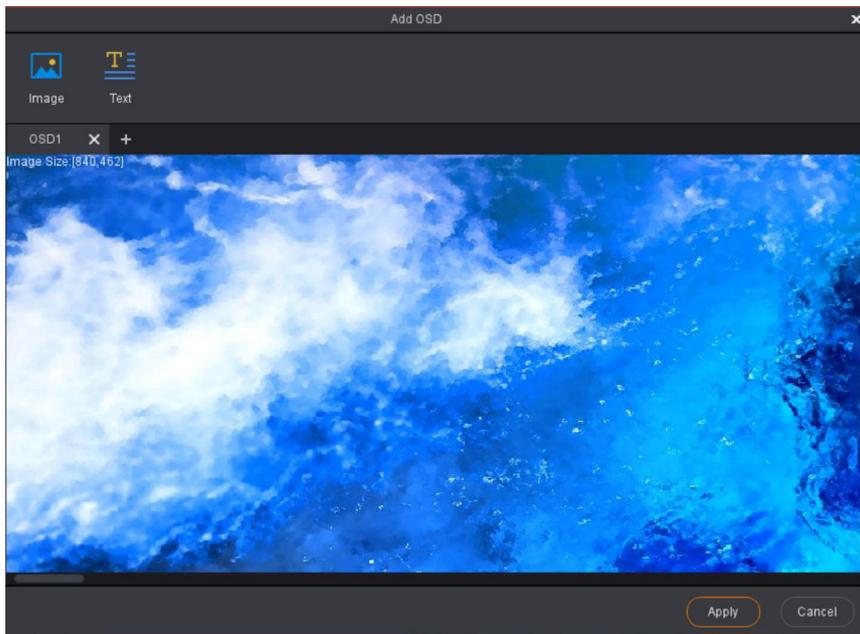
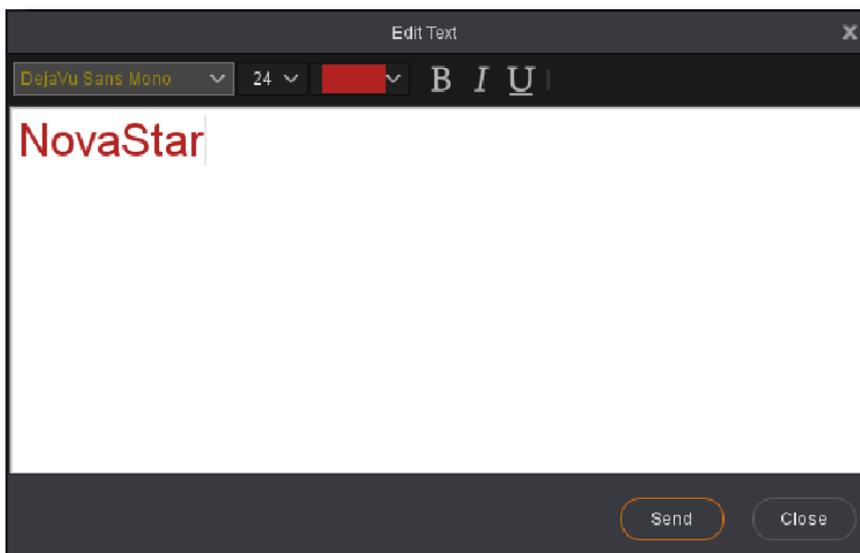


Figure 6-15 Adding OSD file - text



- 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 that is read back from 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 6-3](#).

Table 6-3 OSD parameter descriptions

Parameter	Description	Description
X	Set the horizontal position of the OSD file.	You can also simply use the mouse to drag the OSD file to the desired position.
Y	Set the vertical position of the OSD file.	
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 6-4](#).

Table 6-4 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

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

### 6.3.4 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** In the video editing area, click 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 6-5](#).

Table 6-5 Layer buttons

Icon	Description
	Fill the layer to the screen loaded by the current connector.
	Fill 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

Configure the layer properties in the property setting area on the right where you can configure the layer layout, color and other advanced properties.

- Layout

Parameter	Description
<b>Aspect Ratio</b>	
Aspect Ratio	Set the proportional relationship between the layer width and 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 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 to+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 the **Advanced** tab, you can set the layer shape, layer flipping and copying.

- 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.

### 6.3.5 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 the preset.

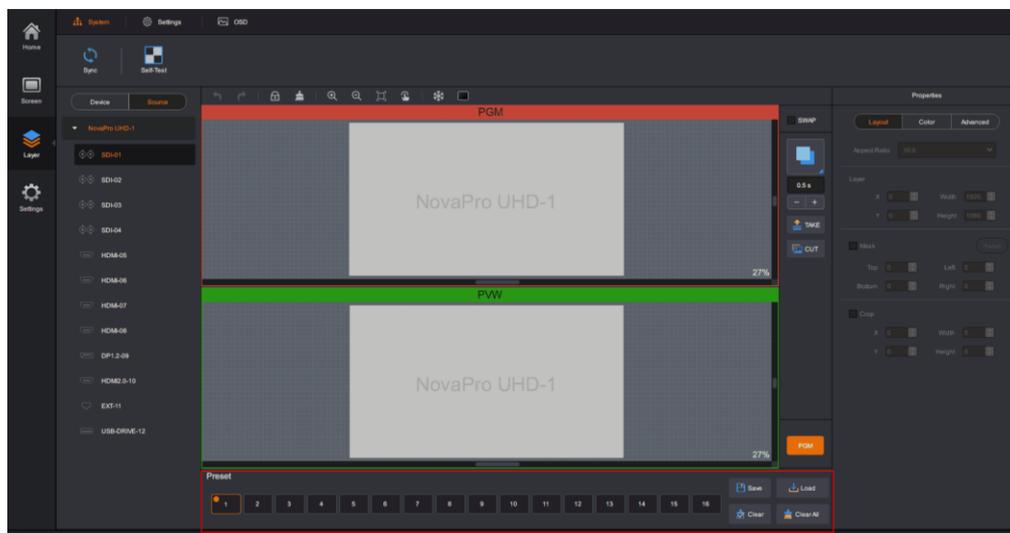
- : The preset with no data
- : The preset with data
- : The preset being edited currently
- : The preset loaded currently

- 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.

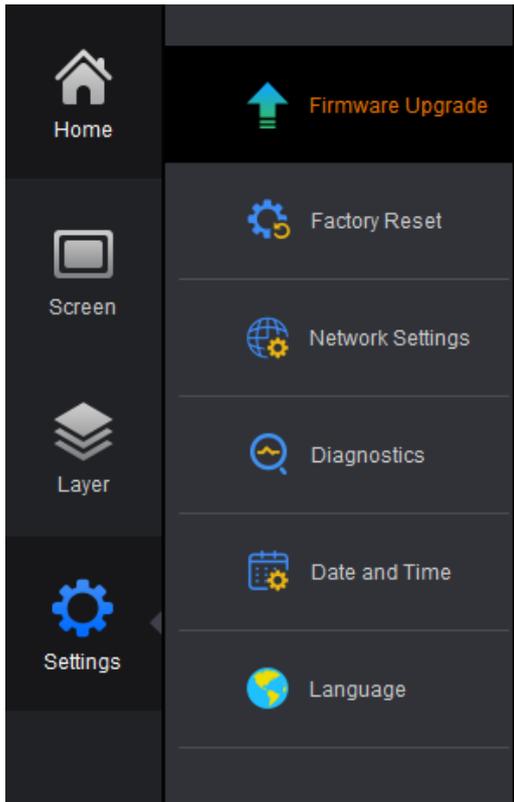
**Note:**

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 6-16 Preset settings



## 6.4 Settings



- **Firmware Upgrade:** Upgrade the firmware through a 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: 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.

# 7

## Specifications

Overall Specifications		
Electrical Specifications	Power connector	100-240V~,50/60Hz, 7.2A-3.5A Dual power connector design
	Power consumption	180 W
Operating Environment	Operating temperature	-10°C to +60°C

Overall Specifications		
	Operating humidity	0% RH to 80% RH
	Storage humidity	0% RH to 95% RH
Physical Specifications	Dimensions	482.6 mm × 177 mm × 497.5 mm 4U standard chassis
	Net weight	21 kg
	Gross weight	42 kg
Packing Information	Accessories	<ul style="list-style-type: none"> <li>• 2 × Power cords</li> <li>• 1 × USB drive (16GB)</li> <li>• 1 × DVI cable</li> <li>• 1 × USB cable</li> <li>• 1 × Ethernet cable</li> <li>• 1 × HDMI cable</li> <li>• 1 × DP cable</li> <li>• 1 × Mini DP to DP cable</li> <li>• 1 × Custom Letter</li> <li>• 1 × Quick Start Guide</li> <li>• 1 × Certificate of Approval</li> <li>• 1 × Safety Manual</li> <li>• 46 × Silicone dustproof plugs</li> </ul>
	Flight case	523 mm × 265 mm × 700 mm
Certifications		FCC, IC, EMC, UL/CUL, CB, CE, ROHS 10, EAC and KC
Noise Level (typical at 25°C/77°F)		57 dB(A)

# 8

## 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	3840×2160@60Hz
		YCbCr4:4:4	
		YCbCr4:2:2	
		YCbCr4:2:0	Unsupported
	10 bit	RGB4:4:4	1920×1080@60Hz
		YCbCr4:4:4	
		YCbCr4:2:2	3840×2160@60Hz
		YCbCr4:2:0	Unsupported
	12 bit	RGB4:4:4	1920×1080@60Hz
		YCbCr4:4:4	
		YCbCr4:2:2	3840×2160@60Hz
		YCbCr4:2:0	Unsupported

Input Connector	Color Depth		Max. Input Resolution	
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) video inputs.</li> </ul>			

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