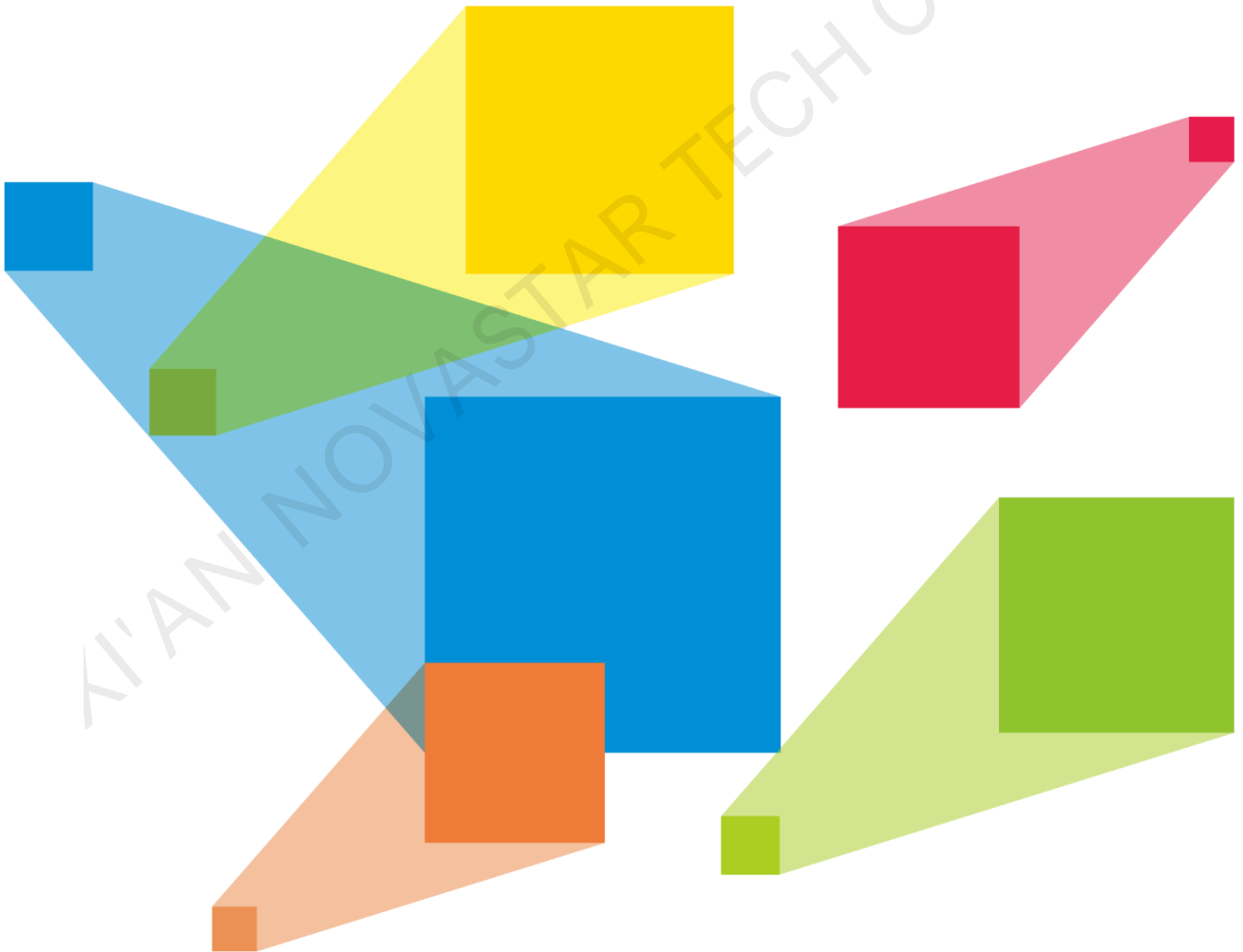


# N9

## Seamless Switcher

V2.3.1



User Manual

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# 1 Overview

The N9 is NovaStar's high-performance seamless switcher that integrates video processing, image mosaic, transition effects and multi-screen display capabilities. With invisible layer editing process, the N9 sends the images to LED screen smoothly by one button press, which is ideal for various applications, such as intermediate and high-end rental, stage control, media centers, big conference sites, exhibition sites, concerts and command centers.

The N9 features powerful video signal receiving and processing abilities, and supports up to 9 input sources at the same time. In addition, the N9 supports up to 4K×2K@60Hz input resolution and at most 7 layers. Four pairs of DVI output connectors can be used for mosaic output, and the connectors in each pair output the same content. What's more, a single N9 unit can load an up to 8KK screen, and multiple N9 units can be linked to load a super-large screen.

The N9 can work with NovaStar's C1 event controller and V-Can smart control software, allowing for richer screen mosaic effects and easier operation.

## 2 Appearance

### Front Panel



No.	Button	Function
1	Input source buttons	Indicate input source status or switch the layer input source. Status LEDs: <ul style="list-style-type: none"> <li>• On: The input source is accessed and in use.</li> <li>• Dim: The input source is accessed but not in use.</li> <li>• Off: The input source is not accessed or abnormal.</li> </ul>
2	LCD screen	Display current device status, menus, submenus and messages.
	Knob	<ul style="list-style-type: none"> <li>• On the home screen, press the knob to enter the main menu screen.</li> <li>• 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.</li> <li>• 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.</li> </ul>
	BACK button	Exit the current menu or cancel an operation.
	TAKE button	Send PVW to PGM with a transition effect.
	TEST button	Access the test pattern menu.
3	Layer buttons	Open or close a layer, and indicate the layer status. Status LEDs: <ul style="list-style-type: none"> <li>• On: The layer is open.</li> <li>• Flashing: The layer is being edited.</li> <li>• Off: The layer is closed.</li> </ul> BKG: Open or close the BKG.
4	Preset button	Access the preset menu.
	Fn button	A custom function button

**Note:**

Hold down the knob and **BACK** button simultaneously for 3s or longer to lock or unlock the device front panel.

## Rear Panel



Input	
INPUT-1	<p>1x DP 1.1</p> <ul style="list-style-type: none"> <li>Up to 3840×1080@60Hz input resolution</li> <li>For custom resolutions: <ul style="list-style-type: none"> <li>Max. width: 3840 pixels (3840×1211@60Hz)</li> <li>Max. height: 4000 pixels (1054×4000@60Hz)</li> </ul> </li> <li>HDCP 1.4 compliant</li> <li>Does not support interlaced signal inputs.</li> </ul>
INPUT-2	<p>1x HDMI 1.3</p> <ul style="list-style-type: none"> <li>Up to 1920×1200@60Hz input resolution</li> <li>For custom resolutions: <ul style="list-style-type: none"> <li>Max. width: 2046 pixels (2046×1207@60Hz)</li> <li>Max. height: 2784 pixels (800×2784@60Hz)</li> </ul> </li> <li>HDCP 1.4 compliant</li> <li>Does not support interlaced signal inputs.</li> </ul>
INPUT-3	
INPUT-4	
INPUT-5	<p>1x SL-DVI</p> <ul style="list-style-type: none"> <li>Up to 1920×1200@60Hz input resolution</li> <li>For custom resolutions: <ul style="list-style-type: none"> <li>Max. width: 2046 pixels (2046×1207@60Hz)</li> <li>Max. height: 2784 pixels (800×2784@60Hz)</li> </ul> </li> <li>HDCP 1.4 compliant</li> <li>Does not support interlaced signal inputs.</li> </ul>
INPUT-6	
INPUT-7	
INPUT-8	<p>1x DP 1.2</p> <ul style="list-style-type: none"> <li>Up to 3840×2160@60Hz/8192×1080@60Hz input resolution</li> <li>For custom resolutions: <ul style="list-style-type: none"> <li>Max. width: 8192 pixels (8192×1080@60Hz)</li> <li>Max. height: 8192 pixels (1024×8192@60Hz)</li> </ul> </li> <li>HDCP 1.3 compliant</li> <li>Does not support interlaced signal inputs.</li> </ul>
INPUT-9	<p>1x 3G-SDI IN</p> <ul style="list-style-type: none"> <li>Supports ST-424 (3G) and ST-292 (HD).</li> <li>Up to 1920×1080@60Hz input resolution</li> <li>Supports interlaced signal inputs and deinterlacing processing.</li> <li>Does not support input resolution and bit depth settings.</li> </ul> <p>1x SDI LOOP</p>

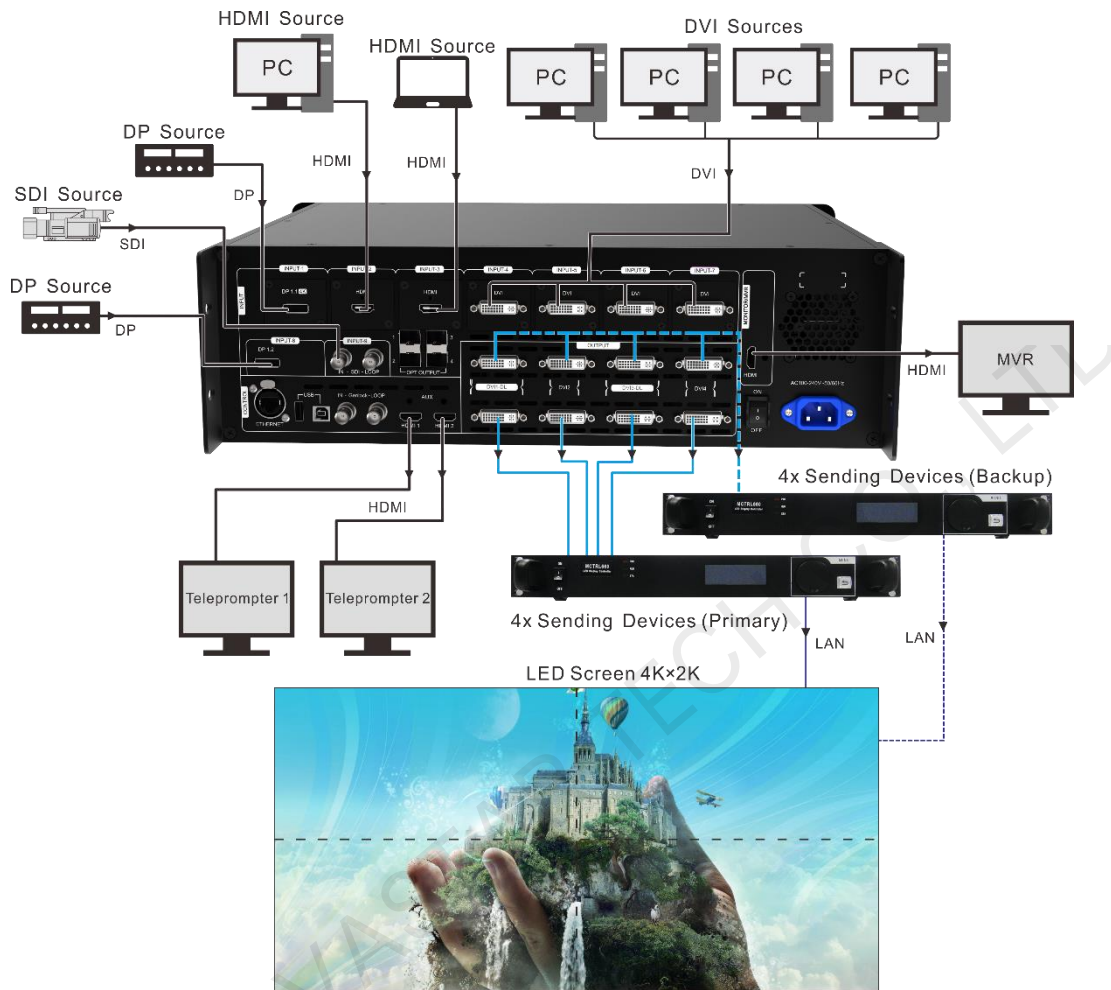
	<ul style="list-style-type: none"> <li>• Loop the 3G-SDI signal.</li> </ul>
<b>Output</b>	
DVI1-DL	2x DVI
DVI3-DL	<p>DVI 1 and DVI 3 serve as the backup for each other.</p> <p>SL mode:</p> <ul style="list-style-type: none"> <li>• Up to 1920x1080@60Hz output resolution of each connector</li> <li>• For custom resolutions: <ul style="list-style-type: none"> <li>Max. width: 3840 pixels (3840x611@60Hz)</li> <li>Max. height: 3326 pixels (600x3326@60Hz)</li> </ul> </li> </ul> <p>DL mode:</p> <ul style="list-style-type: none"> <li>• Up to 3840x1080@60Hz output resolution of each connector</li> <li>• For custom resolutions: <ul style="list-style-type: none"> <li>Max. width: 7680 pixels (7680x603@60Hz)</li> <li>Max. height: 3597 pixels (1200x3597@60Hz)</li> </ul> </li> </ul>
DVI2	2x DVI
DVI4	<p>DVI 2 and DVI 4 serve as the backup for each other.</p> <p>SL mode:</p> <ul style="list-style-type: none"> <li>• Up to 1920x1080@60Hz output resolution of each connector</li> <li>• For custom resolutions: <ul style="list-style-type: none"> <li>Max. width: 3840 pixels (3840x611@60Hz)</li> <li>Max. height: 3840 pixels (600x3326@60Hz)</li> </ul> </li> </ul> <p>DL mode: The connectors are unavailable.</p>
HDMI	<p>1x HDMI 1.3</p> <p>Monitor the N9 input sources, VE7 input sources, PVW and PGM.</p>
AUX	<p>2x HDMI 1.3</p> <p>Connect to auxiliary display devices, such as teleprompters.</p>
<b>Control</b>	
ETHERNET	Connect to the control PC or network.
USB	<ul style="list-style-type: none"> <li>• 1x USB 2.0 (Type-B): Connect to the control PC.</li> <li>• 1x USB 2.0 (Type-A): A reserved connector</li> </ul>
IN-Genlock-LOOP	<p>Connect a synchronization signal.</p> <ul style="list-style-type: none"> <li>• IN: Accept the sync signal.</li> <li>• LOOP: Loop the sync signal.</li> </ul>
OPT OUTPUT	<p>4x OPT</p> <p>Connect to the VE7 video input expander to offer 7 more input sources.</p>

**Notes:**

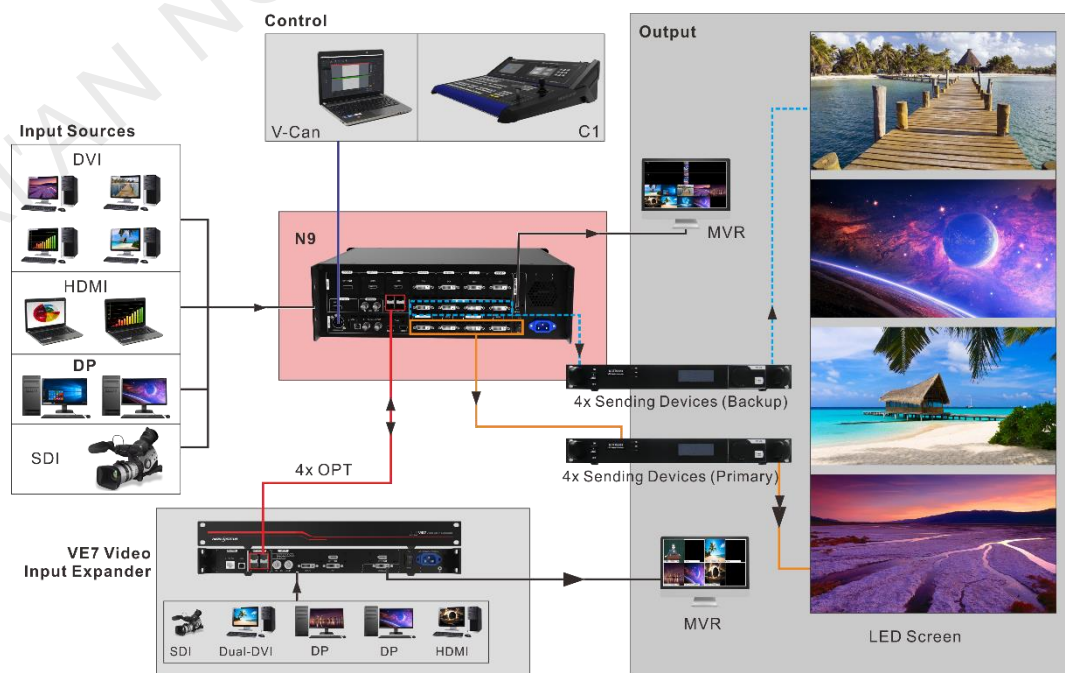
- DP 1.2 supports at most 1 layer.
- DP 1.1 (replaceable by HDMI 1.4 or DL-DVI) supports at most 4 layers.
- SL-DVI, HDMI 1.3 or 3G-SDI supports at most 7 layers.

# 3 Applications

## N9 works independently



## N9 works with V-Can/C1 and VE7
















## 4 Home Screen

Figure 4-1 Home screen



Area	Icon	Description
N9	-	Device name
Lock		Denotes the lock/unlock status of front panel buttons. <ul style="list-style-type: none"> <li>When the N9 is connected to the C1 or V-Can, the front panel buttons are locked automatically.</li> <li>Hold down the knob and ESC button to manually lock or unlock the front panel buttons.</li> </ul>
IP address	192.168.0.10	<ul style="list-style-type: none"> <li>Device IP address</li> </ul>
Layer		Layer status <ul style="list-style-type: none"> <li>Highlighted: Layer open</li> <li>1: Layer number</li> <li>1-DP1.1: Layer input source</li> </ul>
RES	1920x1080@60Hz	Output resolution
Screen	1920x1080	Output screen size and mosaic layout
AUX		<ul style="list-style-type: none"> <li>Highlighted: AUX enabled and AUX input source displayed</li> <li>Gray: AUX disabled</li> <li>Ex: MVR/AUX output function of the VE7 <ul style="list-style-type: none"> <li>MVR: MVR/AUX connector of the VE7 used for monitoring</li> <li>VE7 input source name: MVR/AUX connector of the VE7 used for loop output</li> </ul> </li> </ul>
OPT		OPT port status <ul style="list-style-type: none"> <li>Highlighted: The OPT port connected to the VE7</li> <li>Gray: The OPT port not connected to the VE7</li> </ul>
N9 connection		The device is connected to the control PC via USB port.



Area	Icon	Description
		The device is connected to the control PC via Ethernet port.
		The device is not connected to the control PC.
BKG		BKG enabled
		BKG disabled
Output		Test pattern
		FTB
		Freeze
		Normal
PGM edit		PGM edit enabled
		PGM edit disabled
Genlock		Genlock enabled and locked
		Genlock abnormal
		Genlock disabled

## 5 Menu Operations

### 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 access 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.

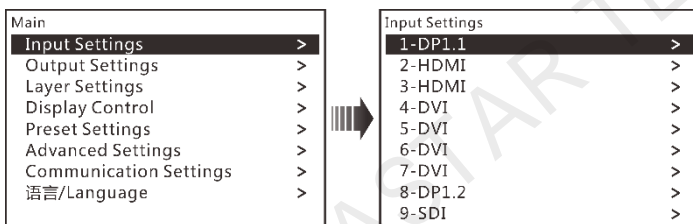
### ESC

- Press the button to exit the current menu or cancel the operation.
- Hold down the knob and **BACK** button simultaneously for 3s or longer to lock or unlock the device front panel.

### 5.1 Input Settings

On the home screen, press the knob to enter the main menu screen. Rotate the knob to select **Input Settings**, and press the knob to enter the submenu screen.

Figure 5-1 Input settings

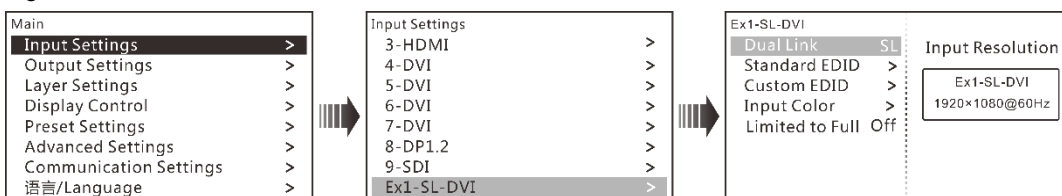


#### 5.1.1 Dual Link

When the input source is a DVI source from the VE7, dual link mode can be set.

- Step 1 On the **Input Settings** screen, rotate the knob to select a DVI source with an Ex in front of it.
- Step 2 Press the knob to enter the input source screen.
- Step 3 **Dual Link** is selected by default. Press the knob to confirm the selection.

Figure 5-2 Dual link

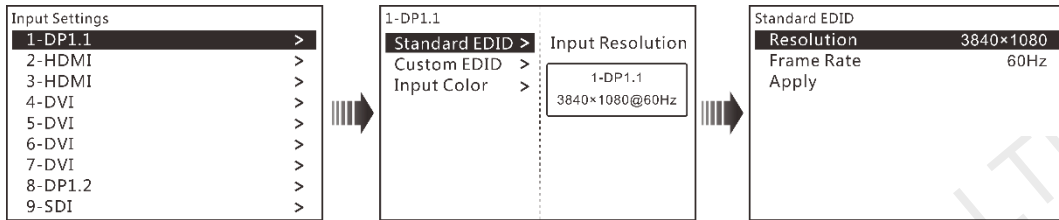


#### 5.1.2 Standard EDID

The N9 and VE7 support standard input resolution settings only.

- Step 1 On the **Input Settings** screen, rotate the knob to select an input source and press the knob to enter the input source screen.
- Step 2 Rotate the knob to select **Standard EDID** and press the knob to enter the standard EDID settings screen.
- Step 3 Rotate the knob to set **Resolution** and **Frame Rate**.
- Step 4 Rotate the knob to select **Apply** and press the knob to confirm the settings.

Figure 5-3 Standard EDID



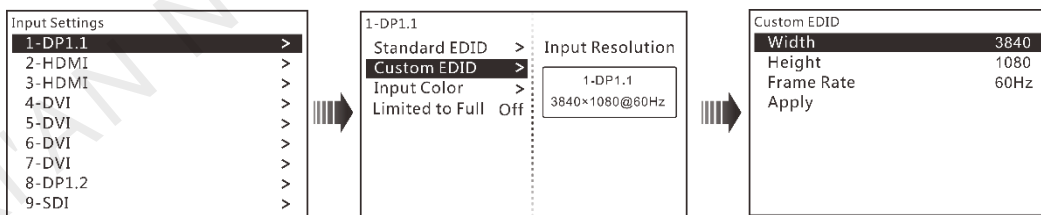
**Notes:**

- For different input sources, the supported EDIDs are different.
- If a custom EDID is required, you can set it on the control PC or C1 event controller.
- When the input source is SDI, EDID settings are not supported.

### 5.1.3 Custom EDID

- Step 1 On the **Input Settings** screen, rotate the knob to select an input source and press the knob to enter the input source screen.
- Step 2 Rotate the knob to select **Custom EDID** and press the knob to enter the custom EDID settings screen.
- Step 3 Rotate the knob to set **Width**, **Height** and **Frame Rate**.
- Step 4 Rotate the knob to select **Apply** and press the knob to confirm the settings.

Figure 5-4 Custom EDID



### 5.1.4 Input Color

- Step 1 On the **Input Settings** screen, rotate the knob to select an input source.
- Step 2 Press the knob to enter the input source screen.
- Step 3 Rotate the knob to select **Input Color** and press the knob to enter the input color settings screen.
- Step 4 Rotate the knob to adjust the input color parameters and press the knob to confirm the settings.

For the detailed input color parameter settings, please refer to [Table 5-1](#).

Figure 5-1 Input color

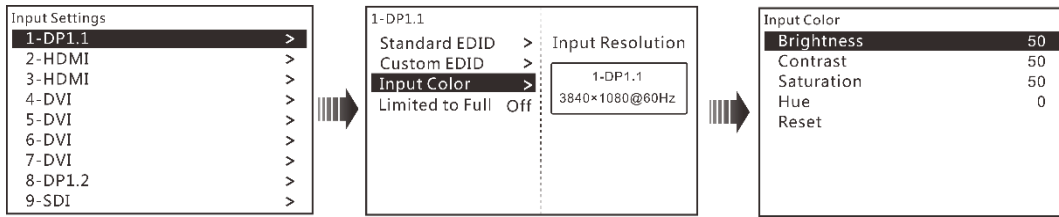


Table 5-1 Input color parameters

Name	Value Range	Default Value	Description
Brightness	0 to 100	50	Adjust the screen brightness. The larger this value is, the brighter the screen will be.
Contrast	0 to 100	50	Adjust the difference between the darkest and brightest areas of the image displayed on the screen. The larger this value is, the bigger this difference will be.
Saturation	0 to 100	50	Adjust the purity or vividness grade of the image color. The larger this value is, the purer the color will be.
Hue	-180 to +180	0	Adjust the gradation or variety of the image color. The larger this value is, the more intense the color will be.
Reset			Reset all the input color parameters to defaults.

### 5.1.5 Limited to Full

RGB full means the ability to show 0-255 which is the full color range, but RGB limited can only show a limited color range.

When the color range for the input source is RGB limited, turn on this function. The device will automatically perform the conversion calculation and convert the color range of the input source to RGB full.

## 5.2 Output Settings

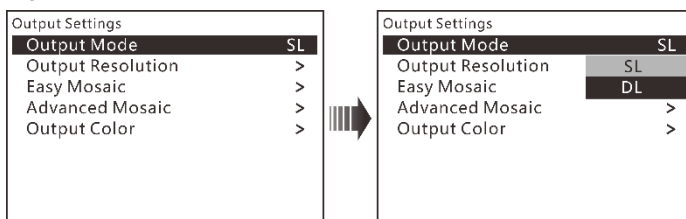
### 5.2.1 Output Mode

The N9 supports both single link and dual link output modes.

- SL mode:  
DVI1, DVI2, DVI3 and DVI4 are used as single link connectors for mosaic output.
- DL mode:  
DVI1 and DVI3 are used for output, but DVI2 and DVI4 are unavailable.

On the main menu screen, go to **Output Settings > Output Mode**, and then rotate the knob again to select **SL** or **DL**.

Figure 5-2 Output mode



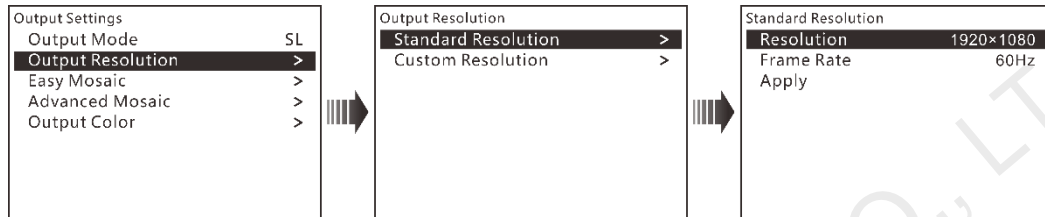
### 5.2.2 Output Resolution

Set the resolution of the output connector. The N9 supports standard and custom resolution settings. When you set the resolution for one output connector, the resolutions of all output connectors for mosaic output are the same.

- Standard Resolution

On the main menu screen, go to **Output Settings > Output Resolution > Standard Resolution** to enter the standard resolution settings screen. Then rotate the knob again to set **Resolution** and **Frame rate**, and press the knob to confirm the settings.

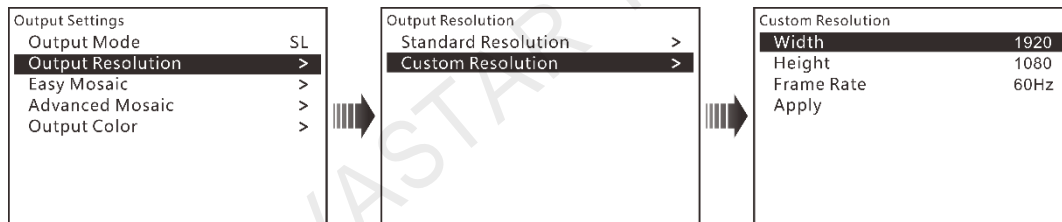
Figure 5-3 Output resolution - standard



- Custom Resolution

On the main menu screen, go to **Output Settings > Output Resolution > Custom Resolution** to enter the custom resolution settings screen. Then rotate the knob again to set **Width**, **Height** and **Frame rate**, and press the knob to confirm the settings.

Figure 5-4 Output resolution - custom



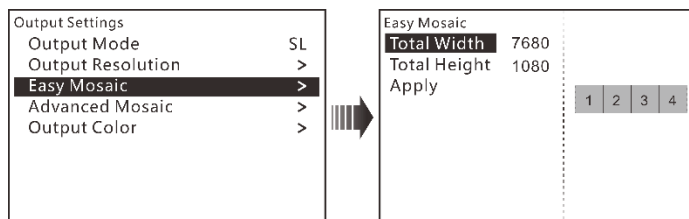
When you have completed the output resolution settings, rotate the knob to select **Apply** and press it to make the settings take effect.

### 5.2.3 Easy Mosaic

The N9 provides 4 pairs of DVI output connectors (4 main and 4 backup), and supports both single DVI connector output and multiple DVI connectors mosaic output.

Easy mosaic allows you to set **Total Width** and **Total Height** based on the screen size, and then the N9 will automatically calculate the width and height of each output connector and offers you a mosaic layout.

Figure 5-5 Easy mosaic

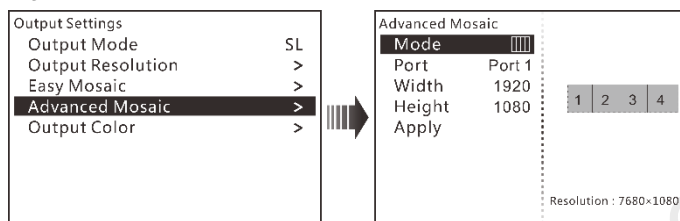


## 5.2.4 Advanced Mosaic

The supported mosaic layouts including 1×1, 1×2, 1×3, 1×4, 2×1, 3×1, 4×1 and 2×2. You can select different layouts based on the screen structure and resolution.

- Step 1 On the main menu screen, go to **Output Settings > Advanced Mosaic > Layout** to enter the advanced mosaic screen.
- Step 2 Press the knob to enter the mosaic layout screen, and rotate the knob to select a desired layout and press the knob to confirm the selection.
- Step 3 Rotate the knob to select **Connector** and press the knob to confirm the selection.
- Step 4 Rotate the knob to set **Width** and **Height** for the selected output connector.
- Step 5 Rotate the knob to select **Apply** and press the knob to confirm the settings.

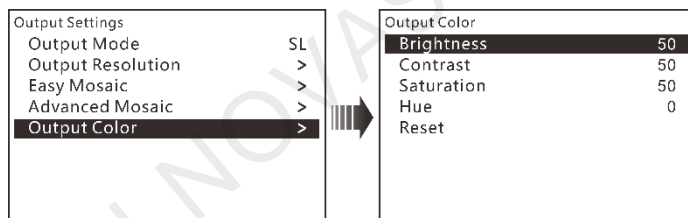
Figure 5-6 Advanced mosaic



## 5.2.5 Output Color

The N9 supports output color settings. When you adjust the output color parameters, the settings will take effect in real time.

Figure 5-7 Output color



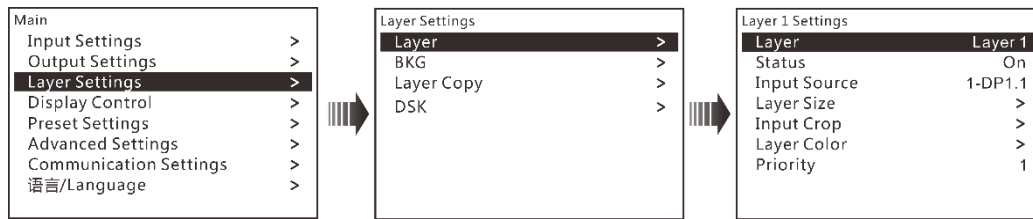
## 5.3 Layer Settings

The N9 supports at most 7 layers. Each layer supports cross connector output, BKG settings and layer cloning.

### 5.3.1 Layer

On the main menu screen, go to **Layer Settings > Layer** and press the knob to enter the layer settings screen.

Figure 5-8 Layer settings

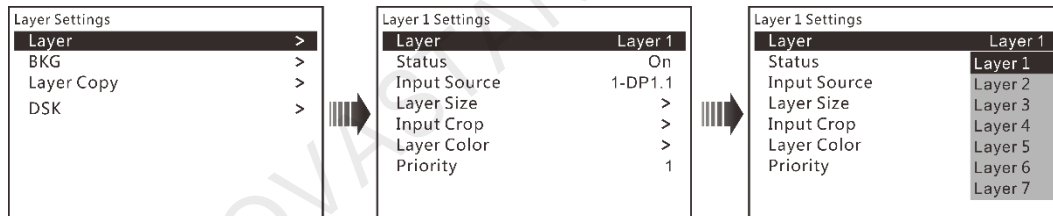


- **Layer:** Select a desired layer. Layer 1 is selected by default.
- **Status:** Open or close the layer. The options are **On** and **Off**.
- **Input Source:** Select an input source for the layer. Only when the layer status is set to **On**, this menu item is available.
- **Layer Size:** Set the width, height and position of the selected layer. Only when the layer status is set to **On**, this menu item is available.
- **Input Crop:** Crop the input source image of the layer and then make the cropped part full screen. Only when the layer status is set to **On**, this menu item is available.
- **Layer Color:** Set the color of the layer image. The color parameters include brightness, contrast, saturation and hue.
- **Priority:** Set the priority for the selected layer.

## Layer

Layer lists all the layers (Layer 1–Layer 7). You can select one layer each time from the list.

Figure 5-9 Selecting a layer



1. Rotate the knob to select **Layer**.
2. Press the knob to show the layer list.
3. Rotate the knob to select a layer and press it to confirm the selection.

## Status

Set the layer status to **On** or **Off**.

- **On:** Open the layer.
- **Off:** Close the layer.

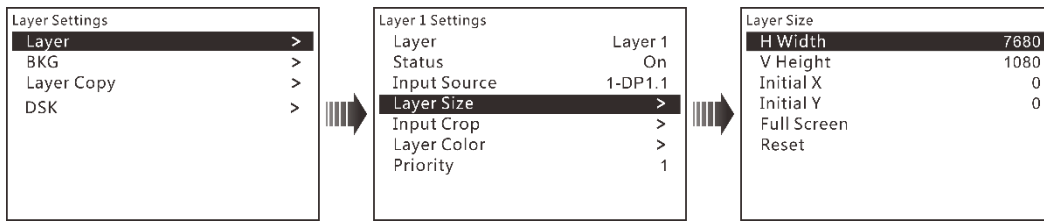
## Input Source

Select or change the input source for the selected layer. When the N9 works with the VE7, the input source with an Ex in front of it is the input source of the VE7.

## Size and Position

Set the layer size and position.

Figure 5-10 Layer size and position

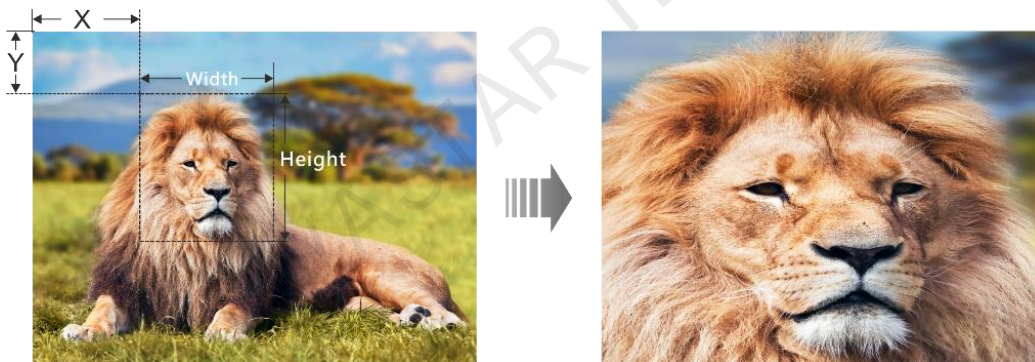


- **H Width:** Set the horizontal width of the layer. The default value is the half of the input source width.
- **V Height:** Set the vertical height of the layer. The default value is the half of the input source height.
- **Initial X:** Set the horizontal initial coordinate of the layer. The reference point is the top left corner of the layer. The default value is **0**.
- **Initial Y:** Set the vertical initial coordinate of the layer. The reference point is the top left corner of the layer. The default value is **0**.
- **Full Screen:** Make the current layer fill the whole screen.
- **Reset:** Reset all the layer size parameters to defaults.

### Input Crop

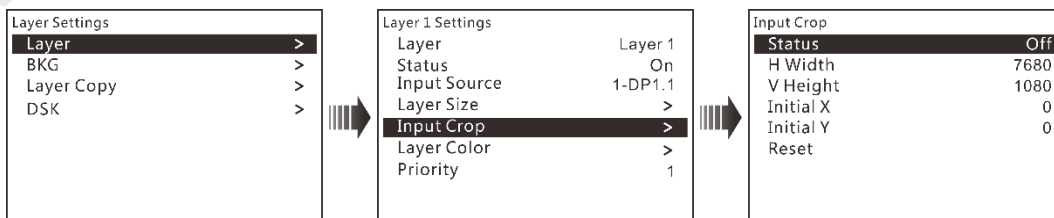
Crop the input source image of the current layer and display the cropped part in full layer as shown in Figure 5-11.

Figure 5-11 Input cropping



Step 1 On the **Layer Settings** screen, rotate the knob to select **Input Crop** and press the knob to enter the input cropping settings screen.

Figure 5-12 Input cropping



Step 2 **Status** is selected by default. Press the knob and rotate it to select **On** to enable the cropping function.

Step 3 Rotate the knob to set the parameters as required.

- **H Width:** Set the horizontal width of the cropped part.



- V Height: Set the vertical height of the cropped part.
- Initial X: Set the initial horizontal coordinate of the cropped part upon the whole image. The reference point is the top left corner of the layer.
- Initial Y: Set the initial vertical coordinate of the cropped part upon the whole image. The reference point is the top left corner of the layer.

## Layer Color

Adjust the layer image quality. For the detailed layer color parameter settings, please refer to [Table 5-2](#).

Figure 5-13 Layer color

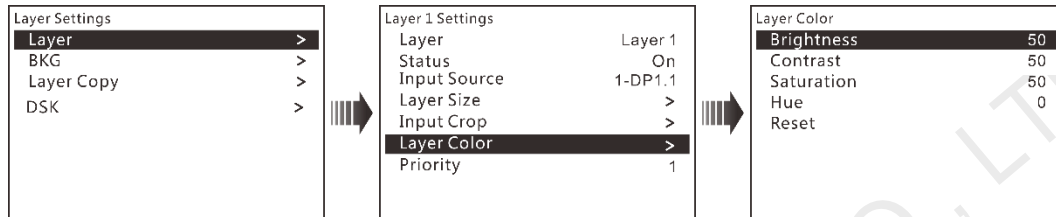


Table 5-2 Layer color

Name	Value Range	Default Value	Description
Brightness	0 to 100	50	Adjust the screen brightness. The larger this value is, the brighter the screen will be.
Contrast	0 to 100	50.	Adjust the difference between the darkest and brightest areas of the image displayed on the screen. The larger this value is, the bigger this difference will be.
Saturation	0 to 100	50	Adjust the purity or vividness grade of the image color. The larger this value is, the purer the color will be.
Hue	-180 to +180	0	Adjust the gradation or variety of the image color. The larger this value is, the more intense the color will be.
Reset	Reset all the layer color parameters to defaults.		

## Priority

Set the layer priority. Press the knob to enter the priority setting screen and then rotate the knob to adjust the layer priority and press it to confirm the selection.

The range is 1 to 7.

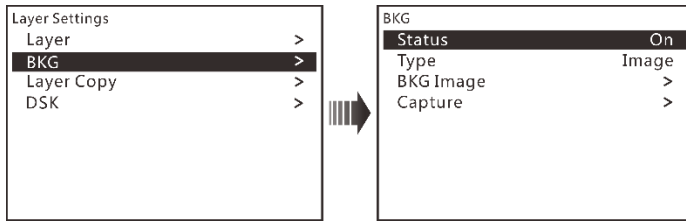
- 1: The highest priority (top layer)
- 7: The lowest priority (bottom layer)

### 5.3.2 BKG

The N9 supports pure color BKG and BKG image. At most 8 BKG images are supported.

On the main menu screen, go to **Layer Settings** > **BKG** and press the knob to enter the BKG settings screen.

Figure 5-14 BKG settings



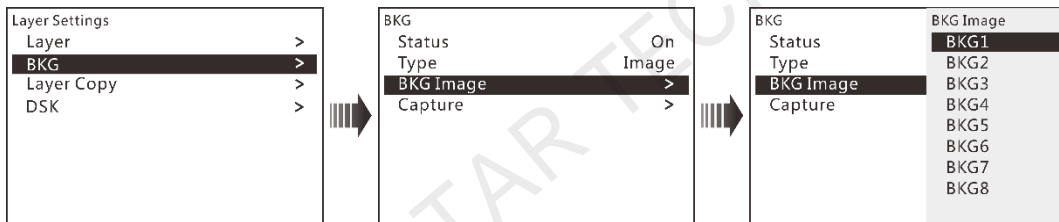
Rotate the knob to select **Status** and press the knob to confirm the selection. Rotate the knob again to set the status to **On** to enable the BKG.

### BKG Image

The N9 supports up to 8 BKG images. You can import the BKG image from the control PC or event controller, or capture an input source image as the BKG image.

- Step 1 Rotate the knob to select **Type** and press the knob to confirm the selection. Rotate the knob to select **Image**.
- Step 2 Rotate the knob to select **BKG Image** and press the knob to enter the BKG image selection screen.
- Step 3 Rotate the knob to select a BKG and press the knob to apply it to PVW.

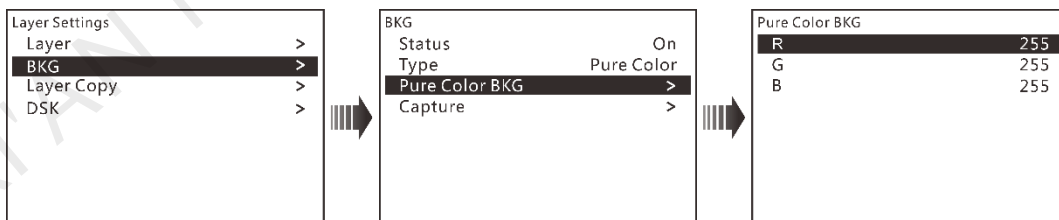
Figure 5-15 BKG image



### Pure Color BKG

The N9 also supports pure color BKG. You can set the individual R, G and B values to set a pure color as the BKG.

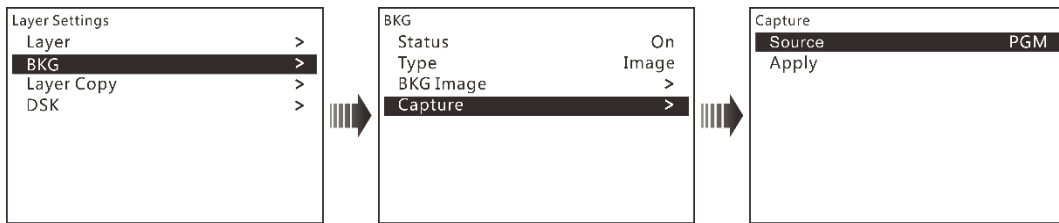
Figure 5-16 Pure color BKG



### Capture

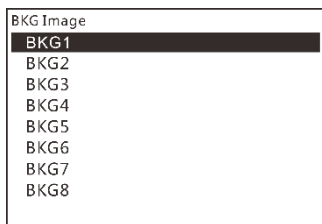
You can capture the displayed image on PGM or an input source image as the BKG.

Figure 5-17 BKG capturing



- Step 1 Select an input source to be captured from **Source**.
- Step 2 Rotate the knob to select **Apply** and press the knob. The system will automatically capture the current frame. After the capturing, a dialog box appears for you to select a save location.

Figure 5-18 BKG location



- Step 3 Rotate the knob to select a location and press the knob to save the captured image to the selected location. If a BKG image already exists in the selected location, the captured BKG image will overwrite the existing one. The BKG naming rules are BKG plus a number. At most 8 BKG images are supported.

**Note:**

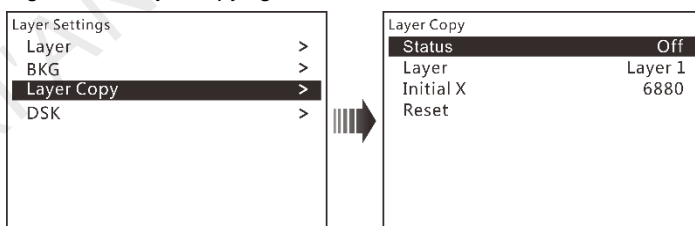
If the AUX signal source is set to PGM or PVW and the source for capturing is PVW or PGM, the AUX display will flicker during BKG capturing.

### 5.3.3 Layer Copy

The N9 supports the layer copying function.

On the main menu screen, go to **Layer Settings > Layer Copy** and press the knob to enter the layer copying screen.

Figure 5-19 Layer copying



- Step 2 Rotate the knob to select **Status** and set the status to **Clone** or **Mirror**.
  - Clone: Copy a layer. The images displayed on the original and copied layers are the same.
  - Mirror: Copy a layer. The images displayed on the original and copied layers are horizontally symmetric.
- Step 3 Rotate the knob to select **Layer** and press the knob to confirm the selection. Rotate the knob again to select a layer to be copied.
- Step 4 (Optional) Rotate the knob to select **Initial X** to set the horizontal initial coordinate of the copied layer.

**Notes:**

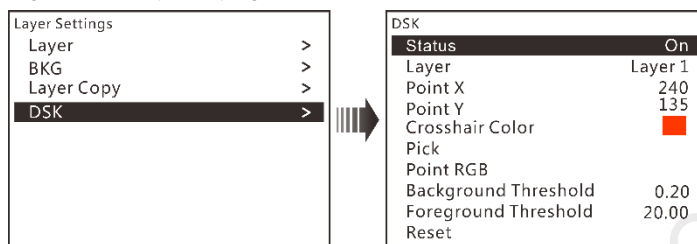
- The original and copied layers should not be on the screen loaded by the same connector. The layer copying function is available when the mosaic layout is 1×2, 1×3 or 1×4.
- The input source and color of the original and copied layers are the same.
- The original and copied layers are of the same size and horizontally symmetric.
- When you move the original or copied layer, the two layers will move together vertically.

### 5.3.4 DSK

The N9 supports the layer keying function (DSK).

On the main menu screen, go to **Layer Settings > DSK** and press the knob to enter the layer keying screen.

Figure 5-20 Layer keying



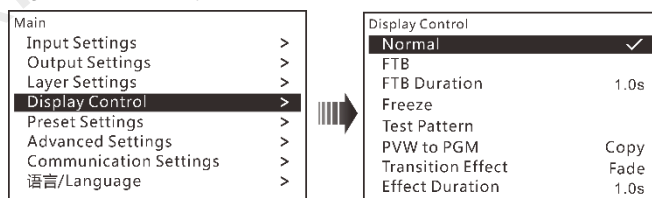
- Step 1 Rotate the knob to select **Status** and set the status to **On** to enable the layer keying function.
- Step 2 Select a desired layer.
- Step 3 Rotate the knob to set **Point X** and **Point Y** to locate a color.
- Step 4 Rotate the knob to select **Pick** and press the knob to start the keying.
- Step 5 (Optional) Adjust the **Background Threshold** and **Foreground Threshold** values to optimize the keying effect.

## 5.4 Display Control

This function is used to control the output display and set the transition effect.

On the main menu screen, rotate the knob to select **Display Control** and press the knob to enter the display control settings screen.

Figure 5-21 Display control



- Normal: Exit the frozen or FTB mode and display the current input source image normally.
- Freeze: Freeze the current frame of the output image.
- FTB: Make the output image fade to black.

- **FTB Duration:** Set how long the FTB process lasts. The value ranges from 0.0s to 2.0s and defaults to **1.0s**.
- **Test Pattern:** Test pattern is used to test the display effect and working status of the LED screen. The options include **Pure Color, Gradient, Grid, Brightness, Spacing** and **Speed**.
  - Pure Color: 8 pure color test patterns are provided.
  - Gradient: 8 gradient test patterns are provided.
  - Grid: 6 grid test patterns are provided.
  - Brightness: Set the brightness of the test pattern. The value ranges from 1 to 4, and defaults to **3**.
  - Spacing: When the test pattern is gradient or grid, the item is available. When the test pattern is pure color, the item is unavailable. The value ranges from 1 to 8, and defaults to **5**.
  - Speed: When the test pattern is grid, the item is available and is used to set the moving speed of the grid. When the test pattern is pure color or gradient, the item is unavailable. The value ranges from 1 to 4, and defaults to **3**.
- **PVW to PGM:** Set the switching mode between PVW and PGM. The options include **Swap** and **Copy**.
  - Copy: Send the PVW to PGM.
  - SWAP: Swap the display on PVW and PGM.
- **Transition Effect:** Set the transition effect when switching the input source. Cut and fade are supported.
- **Effect Duration:** Set how long the transition effect lasts. The value ranges from 0.50s to 2.00s and defaults to **1.0s**.

## 5.5 Preset Settings

The N9 supports up to 32 presets. User can save, load and clear the presets.

On the main menu screen, rotate the knob to select **Preset Settings** and press the knob to enter the preset settings screen.

Figure 5-22 Preset settings

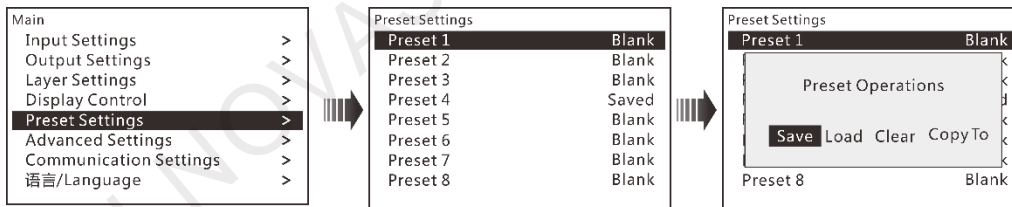


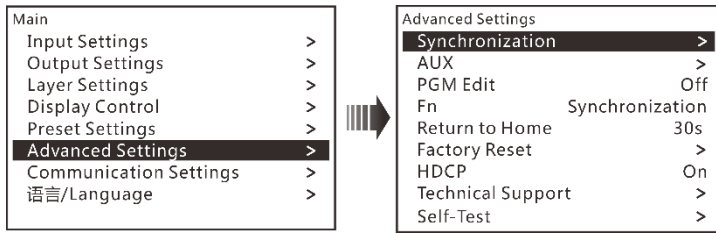
Table 5-3 Preset operations

Menu	Description
Save	Save the current layer layout as a preset.
Load	Load the selected preset.
Clear	Clear the selected preset.
Copy To	Copy the current preset to another preset.

## 5.6 Advanced Settings

On the main menu screen, rotate the knob to select **Advanced Settings** and press the knob to enter the advanced settings screen.

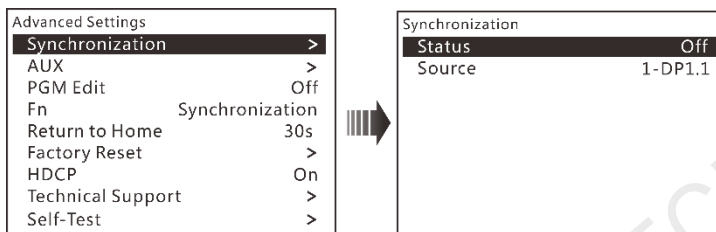
Figure 5-23 Advanced settings



### 5.6.1 Synchronization

- Status: Turn on or turn off (default) the synchronization function.
- Source: Select an input source or Genlock as the sync source.

Figure 5-24 Synchronization

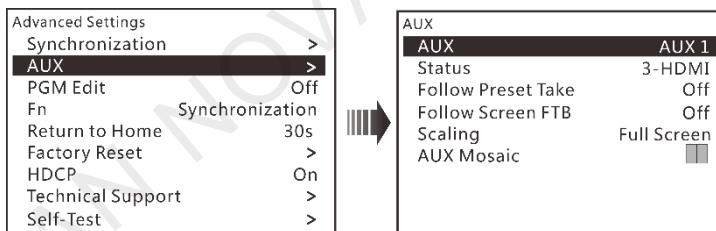


### 5.6.2 AUX

AUX function is used for auxiliary output of any input source signal, PVW or PGM. It can send the unprocessed signal source to the connected display device.

When the VE7 is connected to the N9, you can set the function of MVR/AUX connector of the VE7 via N9.

Figure 5-25 AUX



- Step 1 On the main menu screen, go to **Advanced Settings > AUX > AUX** to enter the AUX settings screen.
- Step 2 Select a desired AUX connector. The options include AUX1, AUX2 and AUX3. AUX3 is the MVR/AUX connector on the VE7.
  - When AUX3 is set to MVR, the MVR/AUX connector is used for monitoring.
  - When AUX3 is set to other input sources, the MVR/AUX connector is used for loop output of the selected input source.
- Step 3 Set the AUX status. The options include **Off**, input sources, PVW and PGM.
- Step 4 Set the AUX output mode.
  - Follow Preset Take:
    - On: If AUX data is saved in a preset, AUX display will be switched during preset switching.

- Off: AUX display will not be switched during preset switching.
- Follow Screen FTB:
  - On: When the LED screen fades to black, AUX screen will also fade to black.
  - Off: When the LED screen fades to black, AUX screen will display the image normally.
- Scaling:
  - Full Screen: The image will be displayed in full screen on the AUX screen.
  - Proportional: The image will be scaled proportionally on the AUX screen.
- AUX Mosaic: Set the output mosaic layout for AUX 1 and AUX 2. The options include 1x1, 1x2 and 2x1.

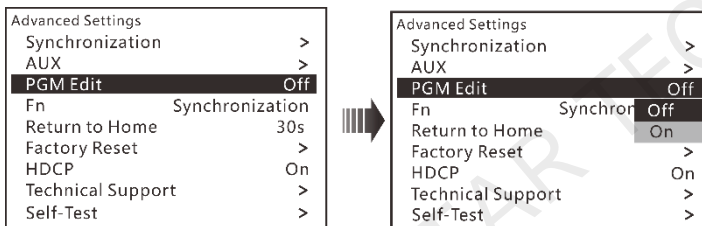
**Note:**

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.

### 5.6.3 PGM Edit

When this function is enabled, you can edit the PGM display, such as changing the output layer size, layer input source, color and adding layers.

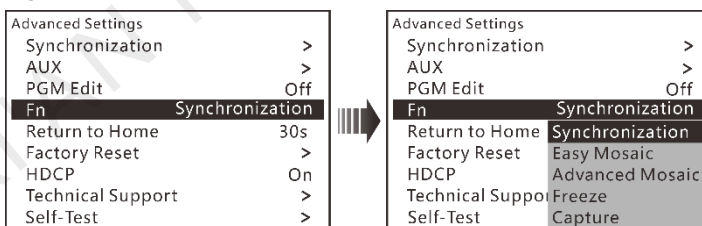
Figure 5-26 PGM edit



### 5.6.4 Fn

The Fn button can be customized to a shortcut button for a certain function. After the Fn button function is set successfully, press the Fn button to enter the corresponding menu screen.

Figure 5-27 Fn



### 5.6.5 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.

- Value range: 30s–3600s
- Default: 60s

### 5.6.6 Factory Reset

Reset the device settings to factory defaults.

- Factory Reset (Save IP): Reset all the settings to defaults, but save the IP address.
- Factory Reset: Reset all the settings to defaults.

### 5.6.7 HDCP Function

Turn on or turn off the HDCP function.

- On: The device can play and process the HDCP-encrypted video source.
- Off: The device cannot process the HDCP-encrypted video source.

### 5.6.8 Technical Support

View the device hardware version, company contact number and email address.

### 5.6.9 Self-Test

When problems occur on the device, you can use this function to automatically diagnose the device, and then troubleshoot the problems or send the test result to our technical support staff for more help.

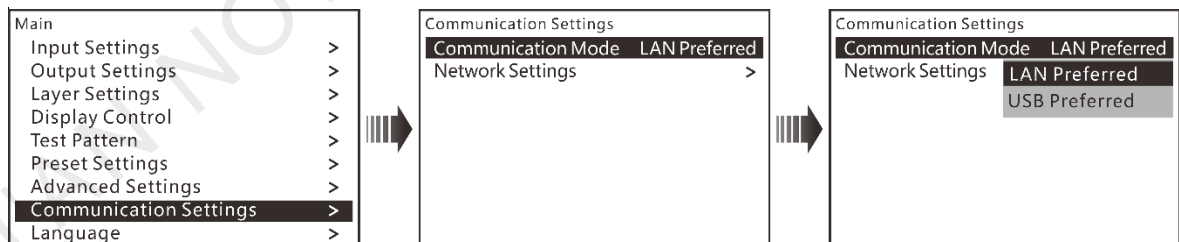
## 5.7 Communication Settings

On the main menu screen, rotate the knob to select **Communication Settings** and press the knob to enter the communication settings screen.

### Communication Mode

When the device is connected to the control PC via both USB and LAN cables, you can select **LAN Preferred** (default) or **USB Preferred**. When **LAN Preferred** is selected, the N9 is controlled by the control PC via the LAN cable. When **USB Preferred** is selected, the N9 is controlled by the control PC via the USB cable.

Figure 5-28 Communication mode

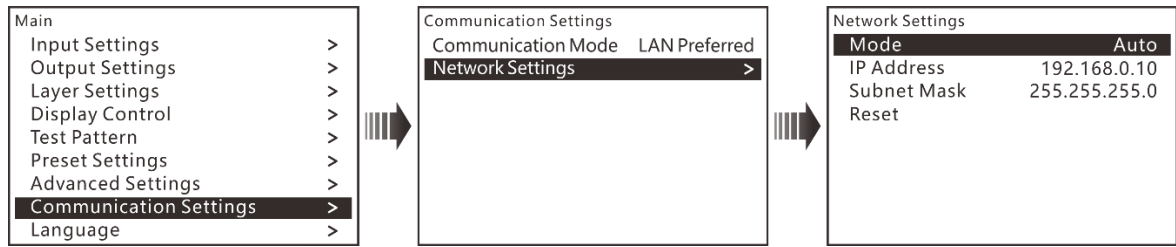


### Network Settings

When the device is connected to the control PC via a router, you need to set the **IP Address** and **Subnet Mask** to enable communication between the device and control PC.



Figure 5-29 Network settings



When **Mode** is set to **Auto**, the **IP Address** and **Subnet Mask** cannot be set, but will be assigned by the router.

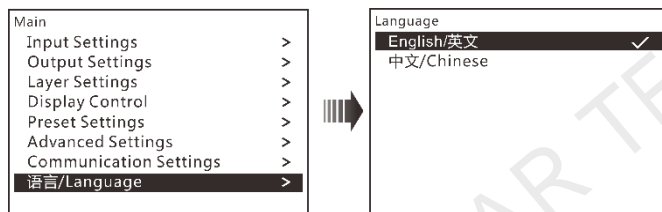
When **Mode** is set to **Manual**, you can set the **IP Address** and **Subnet Mask**. Please note that the device IP address cannot be the same as the IP addresses of other devices to avoid network conflict.

You can select **Reset** to reset the **IP Address** and **Subnet Mask** to the defaults.

## 5.8 Language

Currently the N9 supports English and Chinese. You can change the UI language as required.

Figure 5-30 Language



## 6 V-Can Control

V-Can is a smart control platform for video processors and all-in-one controllers. Thanks to its simplified UI design and easy operations, V-Can allows you to easily control and manage all the connected devices.

Step 1 Perform the device connections described in 3 Applications, then V-Can will automatically connect to the N9.

---

### Note:

When multiple N9 units are connected to V-Can, the control PC where V-Can is installed must be on the same LAN with the N9 units. V-Can will automatically search all the N9 units on this LAN and connect all of them.

---

Step 2 Set the N9 output connector mosaic layout according to the actual screen.

1. Click **Settings** to enter the settings screen.
2. Click **Mosaic Layout** to select a desired layout.
3. Click **Output** to enter the output settings screen.
4. Under the **Output** tab, set the output connector resolution and screen size according to the screen resolution.

Step 3 Set the input resolution and color.

1. Click **Settings** to enter the settings screen.
2. Click **Input** to enter the input settings screen.
3. Under the **Input** tab, click the drop-down arrow next to **Source** to select an input source, and then select **Standard** or **Custom** to set the input resolution.
4. Under the **Color** tab, set the input color.

Step 4 Add layers.

Click and drag a signal source to the PVW area and then release it to add a layer. Drag the layer to change its position, and drag the layer edge or corner to change its size.

Step 5 Click **TAKE** or **CUT**, or push T-Bar to send PVW to PGM.

---

### Note:

V-Can allows you to set the layer layout, size, color and crop the layer. For details, please refer to V-Can User Manual.

---

## 7 C1 Control

The C1 event controller is a hardware console specifically designed by NovaStar for terminal video processing products. The C1 offers two LCD screens. The left one performs the input and output monitoring for the N9. The right one, together with the front panel buttons, allow you to perform operations and control of the N9.

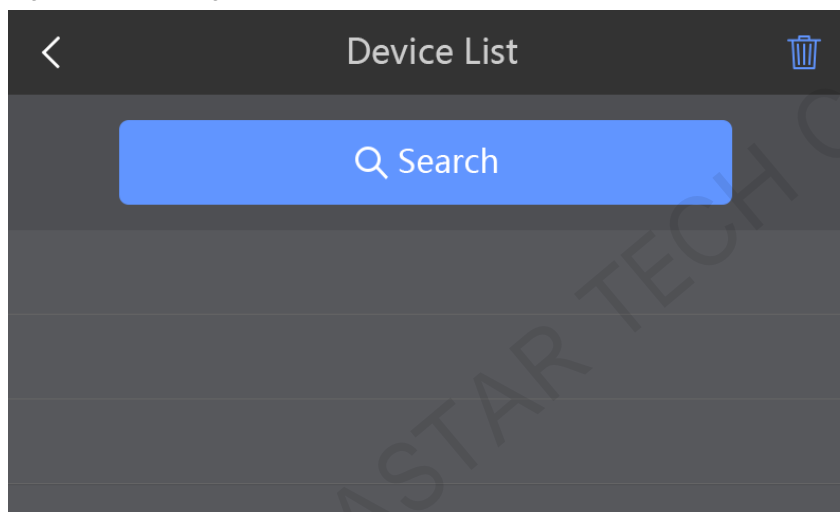
Step 1 Perform the device connections described in 3 Applications.

**Note:**

When multiple N9 units are connected to the C1, the C1 must be on the same LAN with the N9 units.

Step 2 On the home screen, click **Configuration** to enter the configuration page, and then click **Search**.

Figure 7-1 Searching for devices



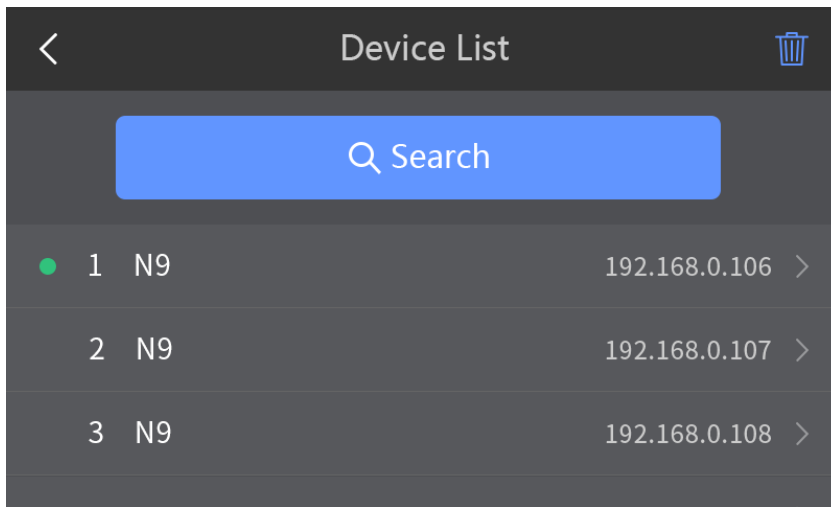
Step 3 On the right screen, select the devices to be added and then click **Add**.

Figure 7-2 Adding devices

Cancel	Add List	Add
<input checked="" type="radio"/>	1 N9	192.168.0.106
<input type="radio"/>	2 N9	192.168.0.107
<input type="radio"/>	3 N9	192.168.0.108
<input type="radio"/>	4 N9	192.168.0.109
<input type="radio"/>	5 N9	192.168.0.110

After the devices are added, you can view the information of those added devices on the **Device List** screen.

Figure 7-3 Device list




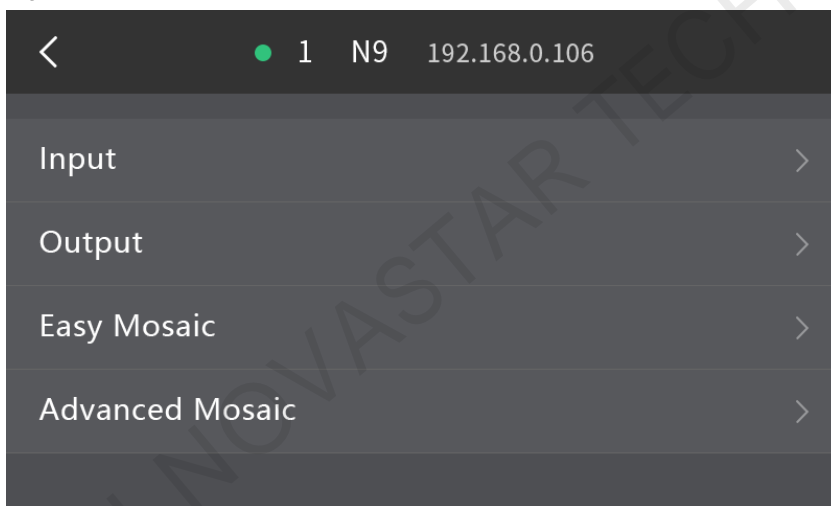
Step 4 Click  next to the device IP address to enter the device properties screen.

Figure 7-4 Device properties



- Input: Set the input resolution and input color.
- Output: Set the output resolution and output color.
- Easy Mosaic: By entering the screen width and height, the system will come up with a mosaic plan automatically. You can also press the **EASY MOSAIC** button in the **FUNCTION** area on the front panel to enter this screen.
- Advanced Mosaic: This mosaic mode allows you to select a proper mosaic mode and set the mosaic screen size according to the current screen size. You can also press the **MOSAIC** button in the **FUNCTION** area on the front panel to enter this screen.

Step 5 Add layers.

1. Click **Programming** to enter the programming screen.
2. Press the **ADD LAYER** button in the **LAYER** area on the front panel to add an 800×600 layer to the PVW.
3. Press an input source button in the **SOURCE** area on the front panel to add the input source for the added layer.

- Step 6 Select a layer by pressing a layer button in the **LAYER** area on the front panel. You can adjust the layer position, size and priority by using the joystick.
- Step 7 Press the **TAKE** or **CUT** button, or push T-Bar to send PVW to PGM.

---

**Note:**

For the detailed C1 operations, please refer to C1 User Manual.

---

XI'AN NOVASTAR TECH CO., LTD

## 8 Specifications

Connector Specifications		
Connector	Resolutions	
DP 1.1	800×600@50/60/75/120Hz 1024×768@50/60/75/120Hz 1280×720@50/60/75/120Hz 1280×768@50/60/75/120Hz 1280×800@50/60/75/120Hz 1280×1024@50/60/75/120Hz 1366×768@50/60/75/120Hz 1440×900@50/60/75/120Hz 1600×1200@50/60/75/120Hz 1680×1050@50/60/75/120Hz	1920×1080@50/60/75/120Hz 1920×1200@/50/60/75Hz 2048×640@50/60/75/120Hz 2048×1152@/50/60/75Hz 2048×1536@/50/60/75Hz 2304×1152@/50/60/75Hz 2560×816@50/60/75/120Hz 2560×960@/50/60/75Hz 2560×1600@/50/60Hz 3840×1080@/50/60Hz
DP 1.2	800×600@50/60/75/120Hz 1024×768@50/60/75/120Hz 1280×720@50/60/75/120Hz 1280×768@50/60/75/120Hz 1280×800@50/60/75/120Hz 1280×1024@50/60/75/120Hz 1364×768@50/60/75/120Hz 1440×900@50/60/75/120Hz 1600×1200@50/60/75/120Hz 1680×1050@50/60/75/120Hz 1920×1080@50/60/75/120Hz 1920×1200@50/60/75/120Hz	1920×2160@50/60/75/120Hz 2048×640@50/60/75/120Hz 2048×1152@50/60/75/120Hz 2048×1536@50/60/75/120Hz 2304×1152@50/60/75/120Hz 2560×816@50/60/75/120Hz 2560×960@50/60/75/120Hz 2560×1600@50/60/75/120Hz 3840×1080@50/60/75/120Hz 3840×2160p@50/60Hz 7680×1080@50/60Hz 8192×1080@50/60Hz
HDMI 1.3	800×600@50/60/75/120Hz 1024×768@50/60/75/120Hz 1280×720@50/60/75/120Hz 1280×768@50/60/75/120Hz 1280×800@50/60/75/120Hz 1280×1024@50/60/75/120Hz	1920×1080@50/60/75/120Hz 1920×1200@/50/60/75Hz 2048×640@50/60/75/120Hz 2048×1152@/50/60/75Hz 2048×1536@/50/60/75Hz 2304×1152@/50/60/75Hz
DVI	1366×768@50/60/75/120Hz 1440×900@50/60/75/120Hz 1600×1200@50/60/75/120Hz 1680×1050@50/60/75/120Hz	2560×816@50/60/75/120Hz 2560×960@/50/60/75Hz 2560×1600@/50/60Hz 3840×1080@/50/60Hz
SDI	3G-SDI, downward compatible with HD-SDI and SD-SDI Deinterlacing processing supported 576i@50Hz 480i@59.94Hz 1280×720p@23.98/24/25/29.97/30/50/59.94/60Hz 1920×1035i@59.94/60Hz 1920×1080i@50/59.94/60Hz 1920×1080p@23.98/24/25/29.97/30/50/59.94/60Hz	
Overall Specifications		
Electrical	Power connector	AC100V~240V~50/60Hz

Specifications	Power consumption	95 W
Operating Environment	Operating temperature	0°C to 50°C
	Operating humidity	20% to 90%, non-condensing
	Storage temperature	-20°C to +60°C
Physical Specifications	Dimensions	482.6 mm × 139 mm × 411.5 mm
	Net weight	6.5 kg
	Gross weight	20 kg
Packing Information	Accessories	1x Power cord 1x Ethernet cable 2x DVI cables 1x USB cable 1x HDMI cable 1x HDMI to DVI cable 1x Mini DP to DP cable
	Flight case	634.2 mm × 546.4 mm × 223.2 mm
Certifications		CE, RoHS, FCC, IC
Noise Level (typical at 25°C/77°F)		52 dB(A)

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