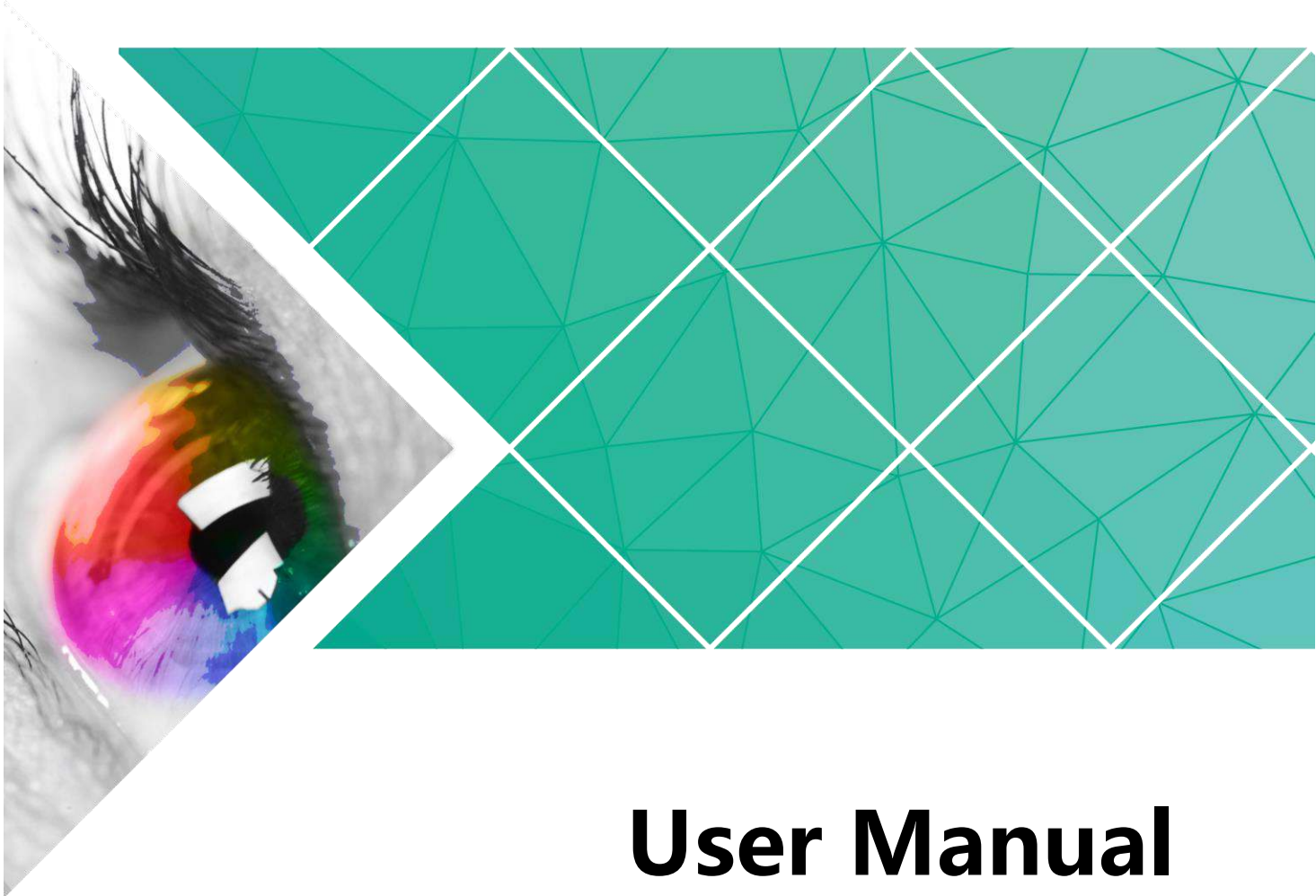




N9

Seamless Switcher



User Manual

Document Version: V1.0.0

Document Number: NS160000328

Copyright © 2019 Xi'an NovaStar Tech Co., Ltd. All Rights Reserved.

No part of this document may be copied, reproduced, extracted or transmitted in any form or by any means without the prior written consent of Xi'an NovaStar Tech Co., Ltd.

Trademark

 is a trademark of Xi'an NovaStar Tech Co., Ltd.

Statement

You are welcome to use the product of Xi'an NovaStar Tech Co., Ltd. (hereinafter referred to as NovaStar). This document is intended to help you understand and use the product. For accuracy and reliability, NovaStar may make improvements and/or changes to this document at any time and without notice. If you experience any problems in use or have any suggestions, please contact us via contact information given in document. We will do our best to solve any issues, as well as evaluate and implement any suggestions.

Contents

1 Overview	1
1.1 Introduction	1
1.2 Features	1
2 Appearance	3
2.1 Front Panel	3
2.2 Rear Panel	4
2.3 Dimensions	6
3 Applications	7
4 Operations	9
4.1 Operation Instructions	9
4.2 Home Screen	9
4.3 Input Settings	11
4.3.1 Dual Link	11
4.3.2 Standard EDID	11
4.3.3 Custom EDID	12
4.3.4 Input Color	12
4.4 Output Settings	13
4.4.1 Output Mode	13
4.4.2 Output Resolution	13
4.4.3 Easy Mosaic	14
4.4.4 Advanced Mosaic	14
4.4.5 Output Color	15
4.5 Layer Settings	15
4.5.1 Layer	15
4.5.2 BKG	18
4.5.3 Layer Copy	20
4.6 Display Control	21
4.7 Test Pattern	21
4.8 Preset Settings	22
4.9 Advanced Settings	22
4.9.1 Synchronization	23
4.9.2 AUX	23
4.9.3 PGM Edit	23

4.9.4 Fn	24
4.9.5 Return to Home	24
4.9.6 Factory Reset	24
4.9.7 HDCP Function.....	24
4.9.8 Technical Support.....	25
4.10 Communication Settings.....	25
4.11 Language	25
5 V-Can Control.....	26
6 C1 Control.....	27
7 Specifications	30

1 Overview

1.1 Introduction

The N9 is a high-performance seamless switcher that integrates video processing, screen mosaic, transition effects and multi-screen display capabilities. With powerful video signal receiving and processing abilities, the N9 supports up to 4K×2K@60Hz video input. Using high-performance video processing technologies, it is capable of processing and outputting ultra-high quality images. The N9 supports 9 video inputs, 7 layers and up to 4 group of DVI connectors for mosaic output. A single N9 unit can load an up to 8KK screen, and multiple N9 units can be cascaded for output.

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

Thanks to the powerful capabilities of receiving and processing a variety of video signals, the N9 can be widely used in various scenarios, such as intermediate and high-end rental, stage control, media centers, big conference sites, exhibition sites and concert control centers.

1.2 Features

- Compatible with industry-standard video input connectors in the market
 - DP 1.2 connector: 4K×2K@60Hz
 - DP 1.1 connector: 4K×2K@30Hz
 - HDMI 1.3 connector: 1920×1080@60Hz
 - DVI connector: 1920×1080@60Hz
 - 3G-SDI connector: 1920×1080@60Hz
 - HDMI 1.4 connector: 4K×2K@30Hz
 - Dual-Link DVI connector: 4K×2K@30Hz
 - VGA connector: 1920×1080@60Hz
- 4 groups (2 connectors in each group) of DVI connectors for mosaic output
Each group includes a main connector and a backup connector. A maximum of 4 connectors can be used for mosaic output. The mosaic layout can be 4×1, 1×4 or 2×2. The maximum loading capacity can reach 8,800,000 pixels and the maximum mosaic width can be up to 8192 pixels.

- Supports 4 single-link connectors or 2 dual-link connectors for mosaic output.
- Multiple layer display
 - Up to 7 layers supported at the same time. Max. resolution of each layer can be up to 4K×2K. Cross connector output is supported.
 - Layer cloning, layer mirroring and Z-order layer sorting are supported.
- Customized BKG settings

You can load an image file from the control computer or C1 event controller, or you can also capture an input source image displayed on the screen as the BKG image.
- Input source cropping supported
- Easy mosaic and custom mosaic
- EDID management supported

Supports input resolution management for DVI, HDMI and DP connectors.
- Display control and transition effects
 - Allows you to black out or freeze the screen by simply clicking one button.
 - Supports setting of transition effect and effect duration.
 - HDMI connector for output monitoring
 - Supports monitoring of all input sources, PVW and PGM.
 - Supports displaying of input resolution and frame rate.
- 2 × Aux output
- 32 × preset

A total of 32 user presets can be created and saved as templates which can be used directly and conveniently.
- Multiple operation modes

You can operate the N9 via its front panel, the V-Can smart control software or C1 event controller.
- Visualized color LCD screen and distinct button indicators on front panel, simplifying system control operations
- Genlock synchronization or synchronization with any input source, achieving output vertical synchronization

2 Appearance

2.1 Front Panel



No.	Button	Function
1	Input source buttons	Indicate input source status. <ul style="list-style-type: none"> • On: The input source is accessed but not in use. • Dim: The input source is accessed and in normal use. • Off: The input source is not accessed or abnormal.
2	LCD screen	Display the current device status and settings menu.
	Knob	<ul style="list-style-type: none"> • On the home screen, press the knob to enter the operation menu screen. • On the operation menu screen, rotate the knob to select a menu item, and press the knob to confirm the selection or enter the submenu. • When a menu item with parameters is selected, you can rotate the knob to adjust the parameters. Please note that after adjustment, you need to press the knob again to confirm the adjustment.
	BACK button	Press the button to exit the current menu or cancel the operation.
	TAKE button	Send PVW to PGM.

No.	Button	Function
	TEST button	Enter the test patterns menu.
3	Layer buttons	<p>Press a layer button to open the corresponding layer and enter the layer settings menu</p> <ul style="list-style-type: none"> • On: Layer is open. • Flashing: Settings menu of the corresponding layer is opened and being edited. • Off: Layer is closed. • On the home screen, hold down a layer button to close the layer. • BKG: Open or close the BKG.
4	Preset button	Press it to enter the preset menu. A total of 32 presets can be loaded, saved and cleared, etc.
	Fn button	A custom function button

2.2 Rear Panel



Note:

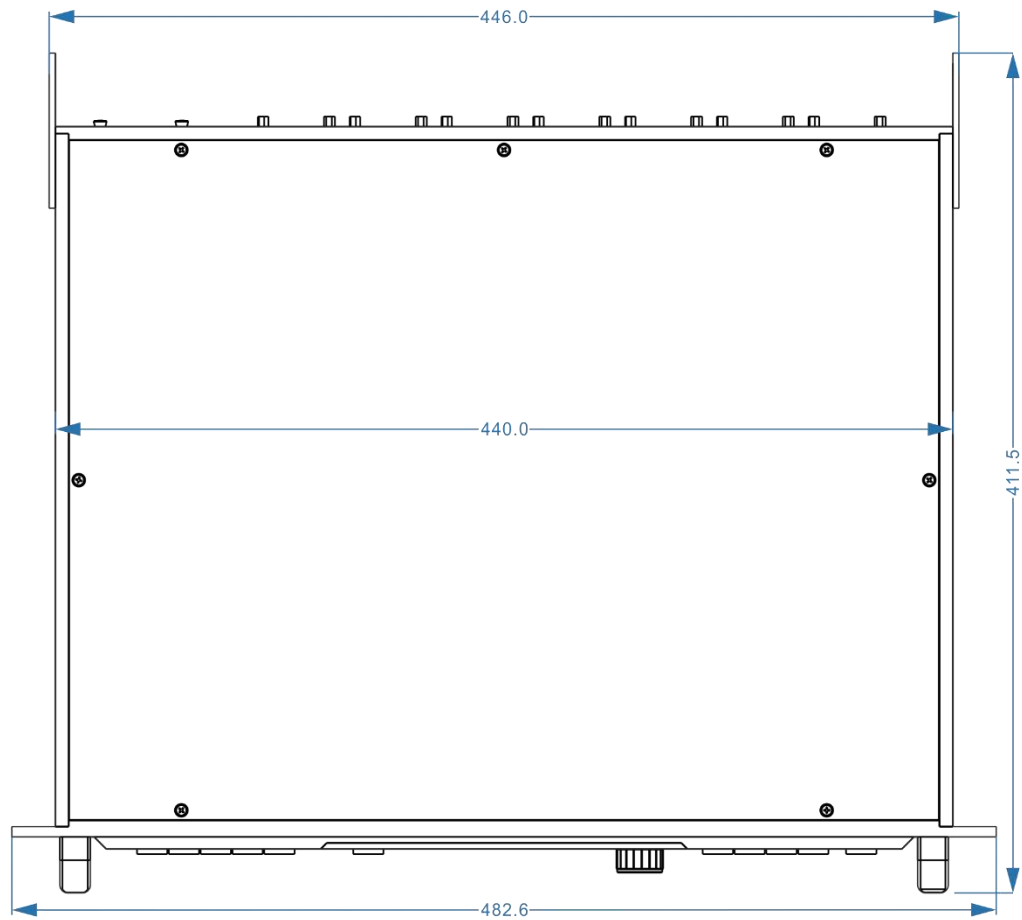
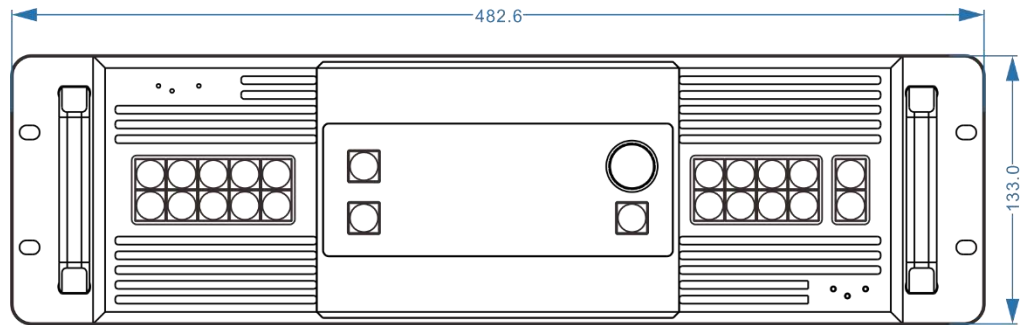
The above figure shows the delivery configuration. If you need to change the input card, please purchase and replace the input card yourself.

INPUT-2 to INPUT-7 support replacement of input card.

Input	
INPUT-1	<p>DP 1.1 connector</p> <p>Supports 3840×2160@30Hz video source input (downward compatible) and custom resolutions.</p>
INPUT-2	<p>HDMI 1.3 connectors</p> <p>Support 1920×1080@60Hz video source input, any input resolution that conforms to VESA standard and custom resolutions.</p>
INPUT-3	
INPUT-4	DVI connectors

INPUT-5	Supports 1920×1080@60Hz video source input (downward compatible), any input resolution that conforms to VESA standard and custom resolutions.
INPUT-6	
INPUT-7	
INPUT-8	DP 1.2 connector Supports 3840×2160@30Hz video source input (downward compatible) and custom resolutions.
INPUT-9	3G-SDI connector Supports 1920×1080@60Hz video source input (downward compatible). Supports de-interlacing processing.
	SDI LOOP for SDI signal loop output
Output	
HDMI	HDMI output connector, capable of monitoring 9 input sources, PVW and PGM
DVI1-DL/PGM1	DVI 1 output If the output mode is set to dual link, this connector is DuallinkOut1.
DVI2/PGM2	DVI 2 output If the output mode is set to dual link, this connector is invalid.
DVI3-DL/PVW1	DVI 3 output If the output mode is set to dual link, this connector is DuallinkOut2.
DVI4/PVW2	DVI 4 output If the output mode is set to dual link, this connector is invalid.
HDMI1/HDMI2	2 Aux output connectors
Control	
ETHERNET (RJ45)	A control connector
USB (Type-B)	For the connection with control computer
USB (Type-A)	For cascading N9 units
IN-Genlock-LOOP	For synchronizing cascaded devices
OPT OUTPUT	4 optical fiber connectors for controlling the VE7 video input expander
Power	
AC100V-240V~50/60Hz	AC power connector

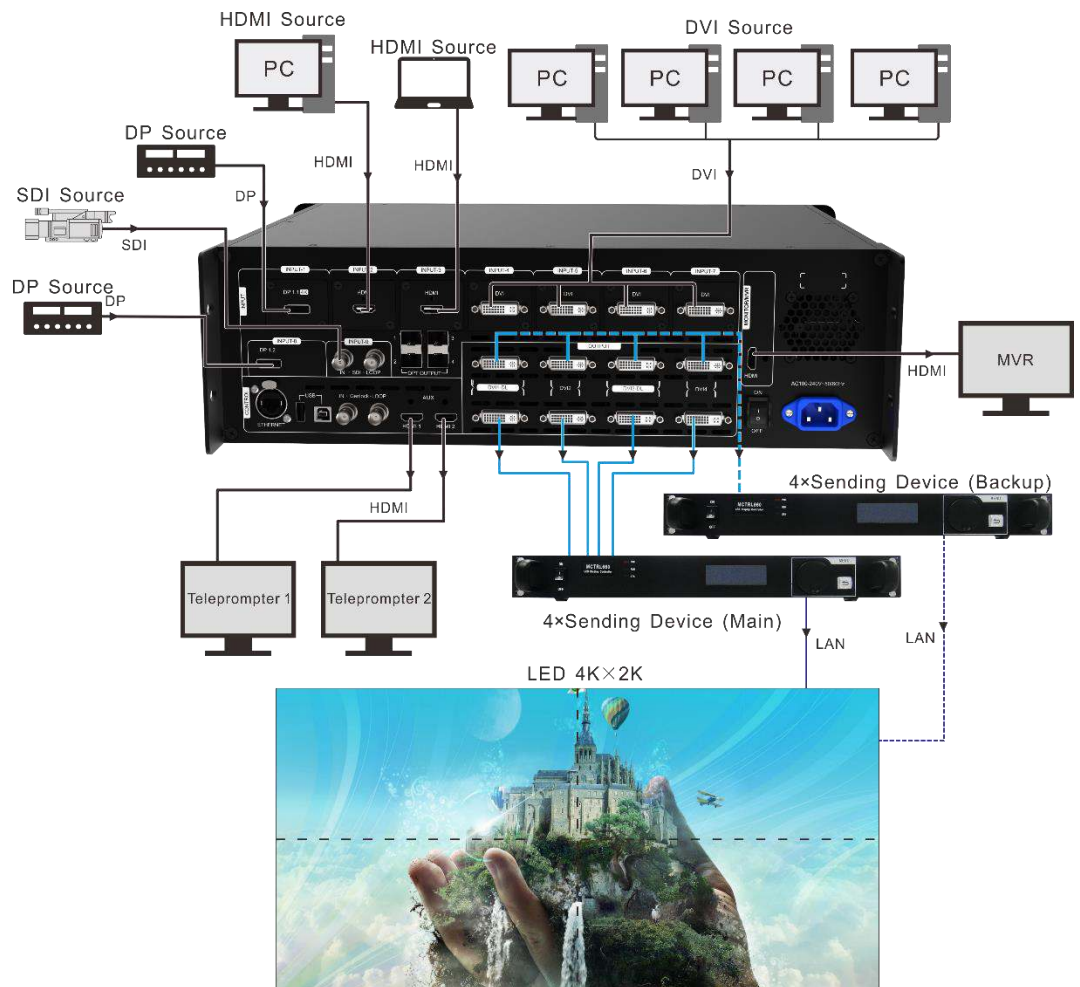
2.3 Dimensions



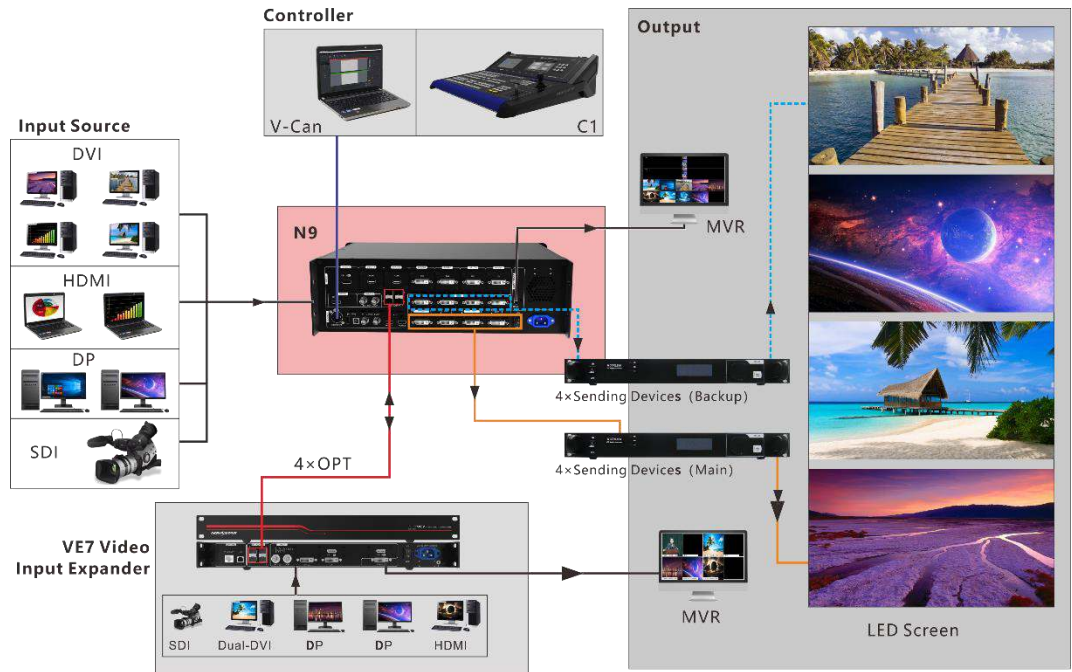
Unit: mm

3 Applications

N9 works independently



N9 works with V-Can/C1/VE7



4 Operations

4.1 Operation Instructions

Knob

- On the home screen, press the knob to enter the operation menu screen.
- On the operation menu screen, rotate the knob to select a menu item, and press the knob to confirm the selection or enter the submenu.
- When a menu item with parameters is selected, 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.

Lock/Unlock

Hold down the knob and **ESC** button simultaneously to lock or unlock the buttons.

4.2 Home Screen

















After the device is powered on, the home screen is shown as below.

Figure 4-1 Home screen



User interface description:

Area	Icon	Description
N9	-	Device name

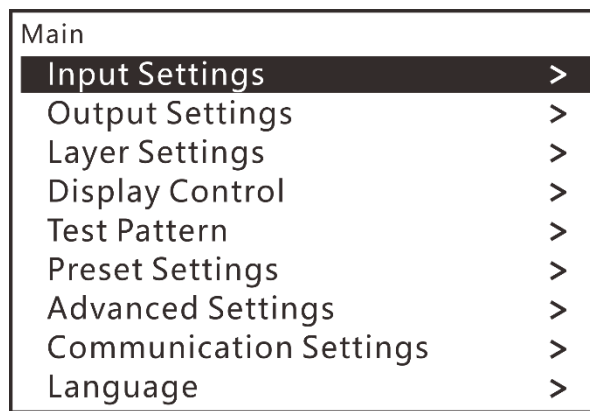
Area	Icon	Description
Lock or unlock		Denotes the lock/unlock status of front panel buttons. <ul style="list-style-type: none"> When the N9 is connected to the C1 or V-Can, the front panel buttons are locked. Hold down the knob and ESC button to manually lock or unlock the front panel buttons.
IP address	192.168.0.10	Device IP address
Layer		Layer status <ul style="list-style-type: none"> Highlighted: Layer enabled 1: Layer number 1-DP1.1: Layer input source
RES	1920×1080@60Hz	Output resolution
Screen	1920×1080 	Output screen size and mosaic layout
AUX		<ul style="list-style-type: none"> Highlighted: AUX enabled and AUX input source displayed Gray: AUX disabled Ex: MVR/AUX output function of the VE7 <ul style="list-style-type: none"> MVR: MVR/AUX connector of the VE7 used for monitoring VE7 input source name: MVR/AUX connector of the VE7 used for loop output
OPT		Optical fiber port status <ul style="list-style-type: none"> Highlighted: The optical fiber port connected to the VE7 Gray: The optical fiber port not connected to the VE7
N9 connection		The device connected to the control PC via USB
		The device connected to the control PC via Ethernet port
		The device not connected to the control PC
BKG		BKG enabled
		BKG disabled
Output display		Test pattern
		FTB
		Freeze
		Normal
PGM edit		PGM edit enabled
		PGM edit disabled

Area	Icon	Description
Genlock		Genlock enabled and locked
		Genlock abnormal
		Genlock disabled

4.3 Input Settings

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

Figure 4-2 Input settings

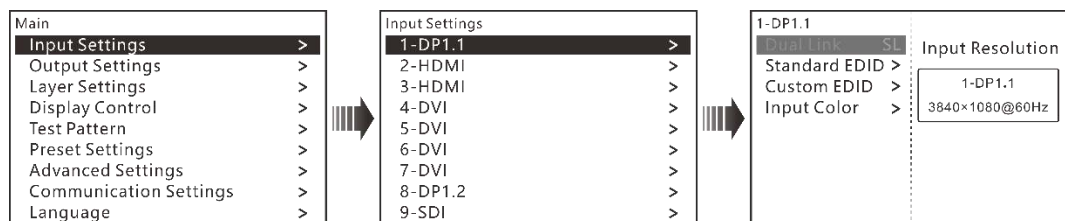


4.3.1 Dual Link

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

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

Figure 4-3 Dual link



4.3.2 Standard EDID

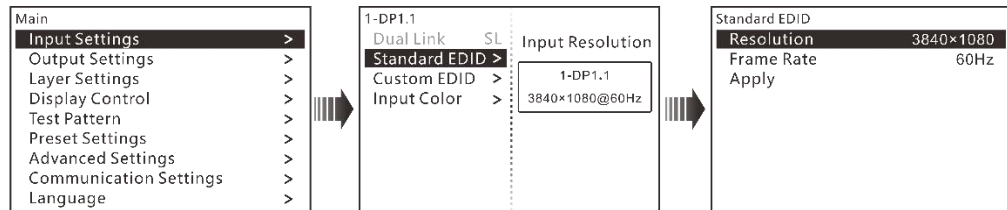
The N9 and VE7 allow for standard input resolution settings.

- Step 1 On the **Input Settings** screen, rotate the knob to select an input source and press the knob to enter the input source settings 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 4-4 Standard input EDID settings



Note:

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, setting EDID is not supported.

4.3.3 Custom EDID

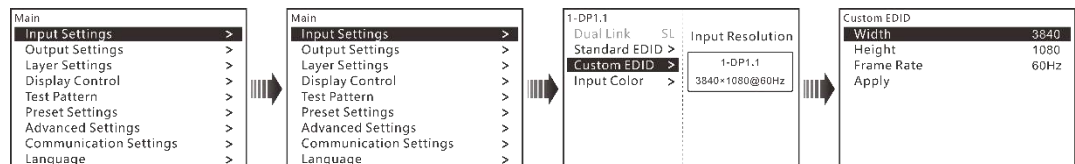
Step 1 On the **Input Settings** screen, rotate the knob to select an input source and press the knob to enter the input source settings screen.

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 4-5 Custom EDID



4.3.4 Input Color

Step 1 Rotate the knob to select **Input Settings**, and then press the knob to enter the input source settings screen.

Step 2 On the **Input Settings** screen, rotate the knob to select an input source.

Step 3 Press the knob to enter the input source settings screen.

Step 4 Rotate the knob to select **Input Color** and press the knob to enter the input color settings screen.

Step 5 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 4-1.

Figure 4-6 Input color settings

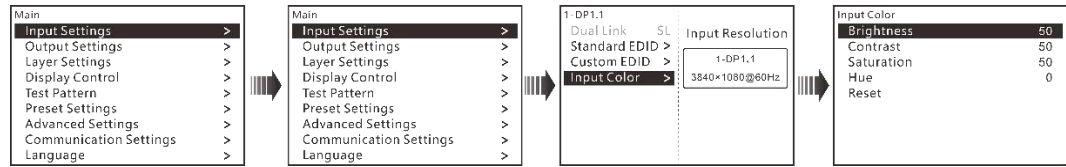


Table 4-1 Input color parameter settings

Name	Value Range	Default Value	Description
Brightness	0–100	50	Adjust the screen brightness. The larger this value is, the brighter the screen will be.
Contrast	0–100	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	0–100	50	Adjust the purity or vividness grade of the image color. The larger this value is, the purer the color will be.
Hue	-180–180	0	Adjust the gradation or variety of the image color. The larger this value is, the intenser the color will be.
Reset			Reset all the input color parameters to defaults.

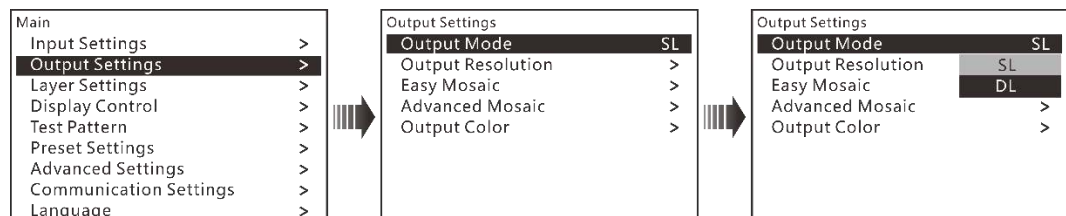
4.4 Output Settings

4.4.1 Output Mode

The N9 supports both single link and dual link output modes. When it is set to single link mode, DVI1, DVI2, DVI3 and DVI4 are used as single link connectors for mosaic output. When it is set to dual link mode, DVI1 and DVI3 are used for output, while DVI2 and DVI4 are unavailable.

On the main menu screen, rotate the knob to choose **Output Settings > Output Mode**, and then rotate the knob again to select **Single Link** or **Dual Link**.

Figure 4-7 Output mode settings



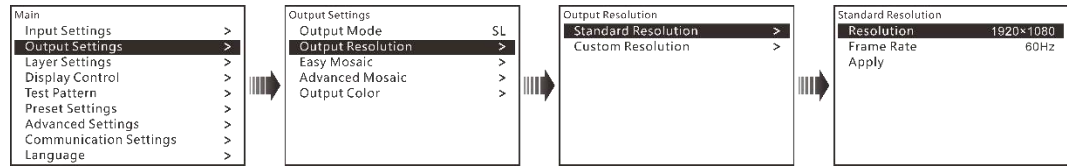
4.4.2 Output Resolution

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

- Standard Resolution

On the main menu screen, rotate the knob to choose **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.

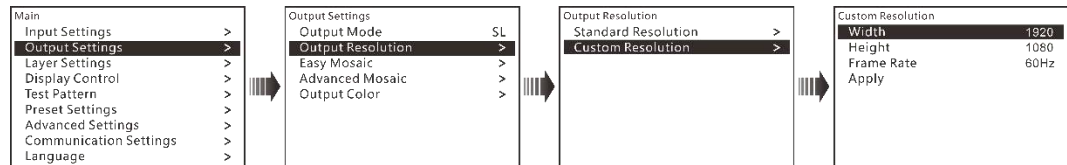
Figure 4-8 Output resolution - standard



- Custom Resolution

On the main menu screen, rotate the knob to choose **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 4-9 Output resolution - custom



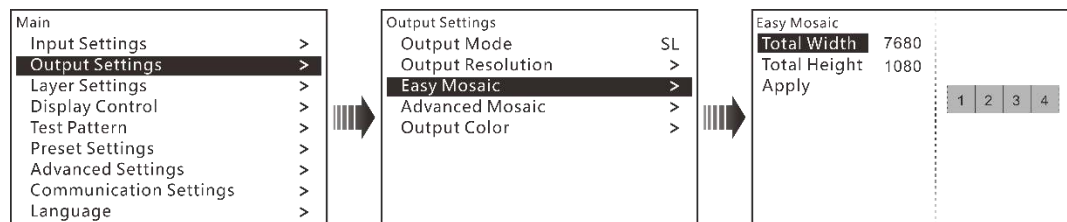
When you have completed the output resolution settings, rotate the knob to select **Apply** and press it to make the settings take effect.

4.4.3 Easy Mosaic

The N9 provides 8 DVI output connectors (4 main and 4 backup). It supports both single DVI connector output and multiple DVI connectors mosaic output.

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

Figure 4-10 Easy mosaic



4.4.4 Advanced Mosaic

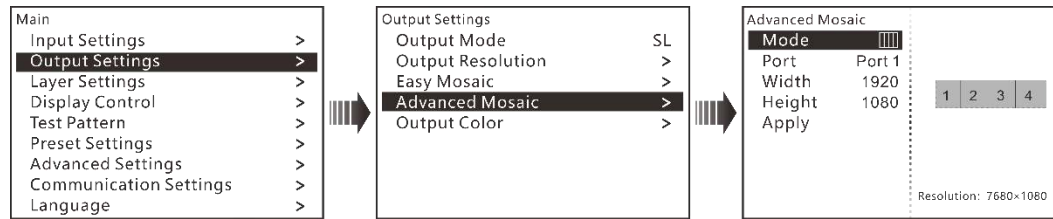
The supported mosaic layouts including 1x1, 1x2, 1x3, 1x4, 2x1, 3x1, 4x1 and 2x2. You can select different layouts based on the screen structure and resolution.

- Step 1 On the main menu screen, rotate the knob to choose **Output Settings > Advanced Mosaic > Layout** to enter the advanced mosaic screen.
- Step 2 Press the knob to enter the mosaic layout screen. Then rotate the knob to select the 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.

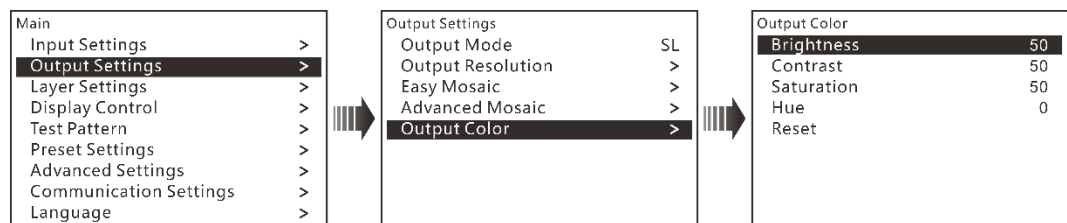
Figure 4-11 Advanced mosaic



4.4.5 Output Color

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

Figure 4-12 Output color



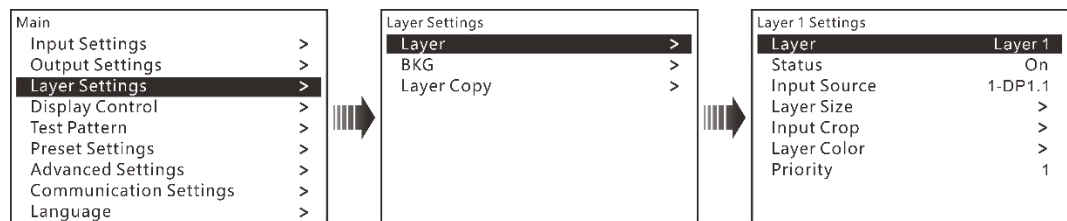
4.5 Layer Settings

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

4.5.1 Layer

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

Figure 4-13 Layer settings



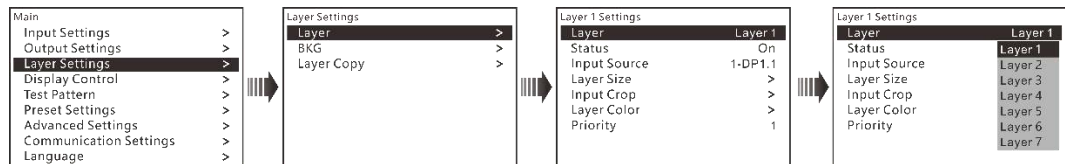
- **Layer:** Select a layer.
Layer is selected by default. Press the knob and rotate it to select a layer.
- **Status:** Set to open or close the layer. The options are **On** and **Off**.
Rotate the knob to select **Layer Status**, and press the knob and rotate it again to select **On** to enable the selected layer.
- **Input Source:** Select the input source for the layer. Only when the layer status is set to **On**, this menu item is available.
Rotate the knob to select **Input Source**, and press the knob the rotate it again to select an input source for the selected layer.

- 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.
 Rotate the knob to select **Layer Size**, and press the knob to enter the layer size settings screen. You can set **H Width**, **V Height**, **Initial X** and **Initial Y** of the layer.
- 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.
 Rotate the knob to select **Input Crop**, and press the knob to enter the input crop settings screen. You can set the input crop status as **On** or **Off**, and set **H Width**, **V Height**, **Initial X** and **Initial Y** of the cropped part.
- Layer Color:** Set the color of the output image.

Selecting Layer

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

Figure 4-14 Selecting layer



1. Rotate the knob to select **Layer**.
2. Press the knob to enter the layer selecting screen.
3. Rotate the knob to select a layer and press it to confirm the selection.

Layer Status

Set the layer status as **On** or **Off**. When the status is **On**, the layer is visible. When the status is **Off**, the layer is invisible.

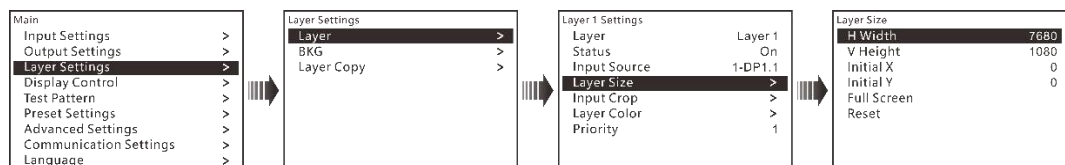
Input Source

Set 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.

Layer Size

Set the size and position of the selected layer.

Figure 4-15 Setting layer size



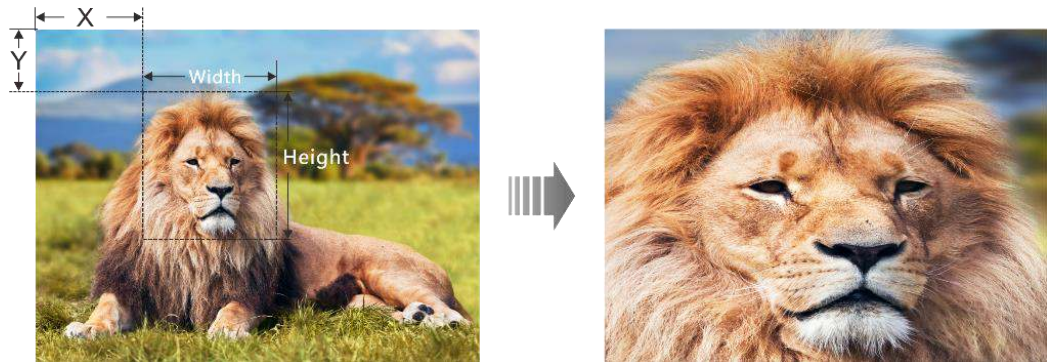
- H Width:** Set the horizontal width of the layer. The default value is the half of the input source width.
- V Height:** Set the vertical height of the layer. The default value is the half of the input source height.

- **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 Cropping

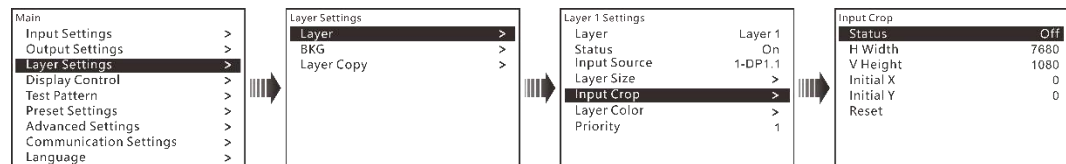
Crop the input source image and display it in full screen.

Figure 4-16 Input cropping



Step 2 On the **Layer Settings** screen, rotate the knob to select **Input Crop** and press the knob to enter the input cropping settings screen.

Figure 4-17 Input cropping



Step 3 **Status** is selected by default. Press the knob and rotate it to select **On** to enable the cropping function.

Step 4 You can set the related parameters by rotating the knob. The related parameters are shown in the above figure.

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

Adjusting Layer Color

Adjust the layer color. The detailed color parameters are shown in the below table.

Figure 4-18 Adjusting layer color

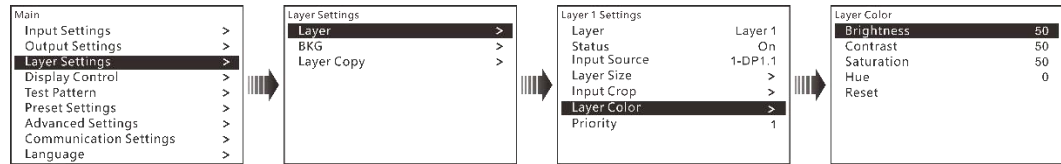


Table 4-2 Layer color parameter descriptions

Name	Value Range	Default Value	Description
Brightness	0–100	50	Adjust the screen brightness. The larger this value is, the brighter the screen will be.
Contrast	0–100	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	0–100	50	Adjust the purity or vividness grade of the image color. The larger this value is, the purer the color will be.
Hue	-180–180	0	Adjust the gradation or variety of the image color. The larger this value is, the intenser the color will be.
Reset			Reset all the layer color parameters to defaults.

Layer Priority

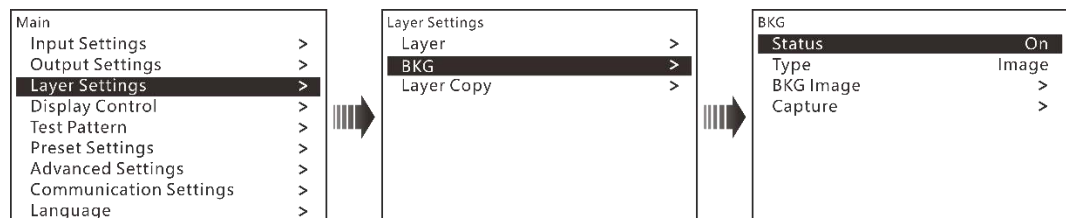
Set the layer priority. Press the knob to enter the priority setting screen. Then rotate the knob the set the layer priority and press it to confirm the selection.

4.5.2 BKG

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

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

Figure 4-19 BKG settings



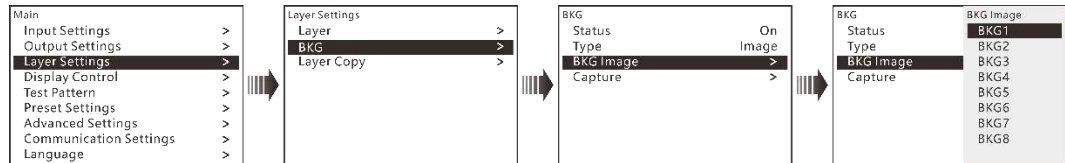
Rotate the knob to select **Status** and press the knob to confirm the selection. Then rotate the knob again to set the status to **On**.

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. Then 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.

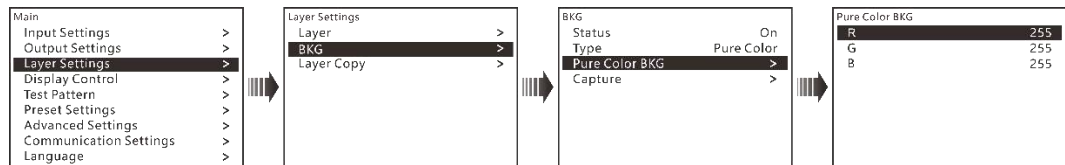
Figure 4-20 BKG image



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.

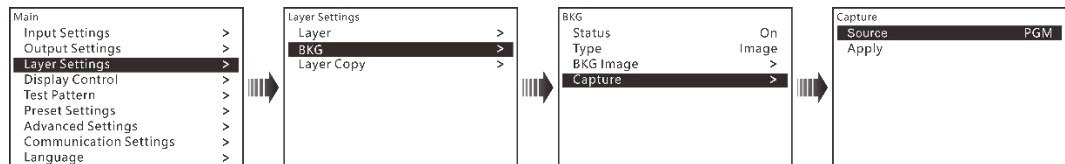
Figure 4-21 Pure color BKG



Capture

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

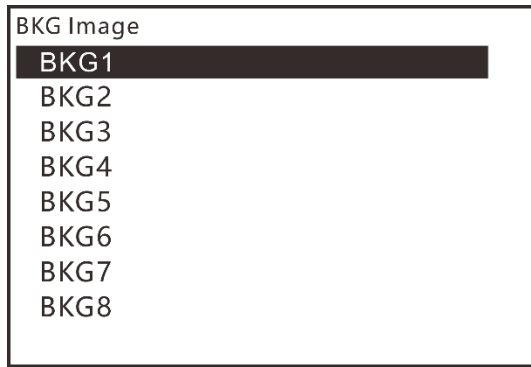
Figure 4-22 Capturing



- Step 2 Select an input source to be captured from **Source**.
- Step 3 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 4-23 Saving BKG



Step 4 Rotate the knob to select a location and press the knob to save the captured image to the selected location.

Note:

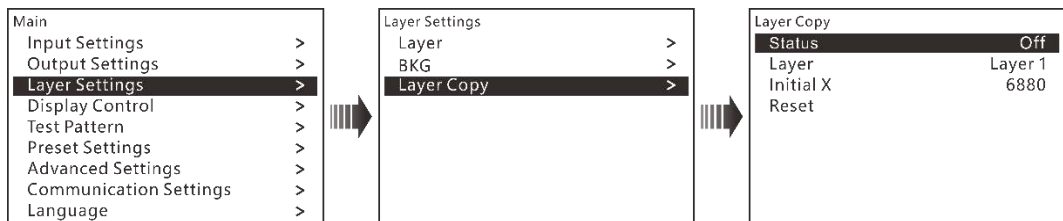
If a BKG image already exists in the selected location, the captured BKG image will overwrite the existing one.

4.5.3 Layer Copy

The N9 supports the layer copying function.

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

Figure 4-24 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. Then rotate the knob again to select a layer.

Step 4 (Optional) Rotate the knob to select **Initial X** to set the horizontal initial coordinate of the copied layer.

Note:

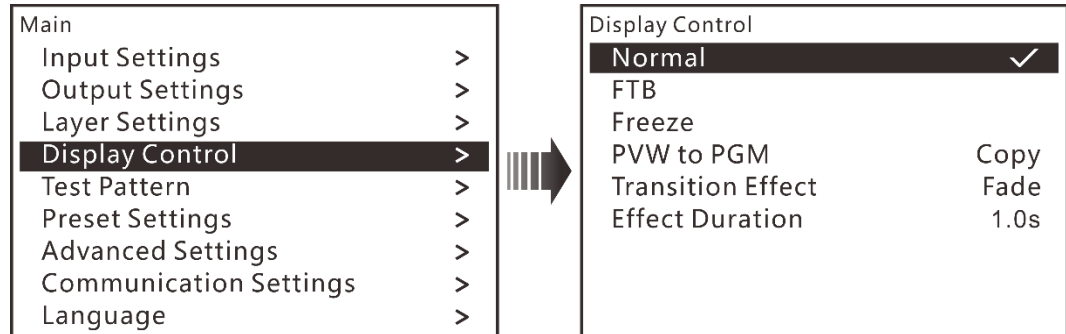
- The original and copied layers should not be on the screen loaded by the same connector. The layer copying function is available when the mosaic layout is 1×2, 1×3 or 1×4.
- The input source and color of the original and copied layers are the same.
- The original and copied layers are of the same size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

4.6 Display Control

This function is used to control the 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 4-25 Display control



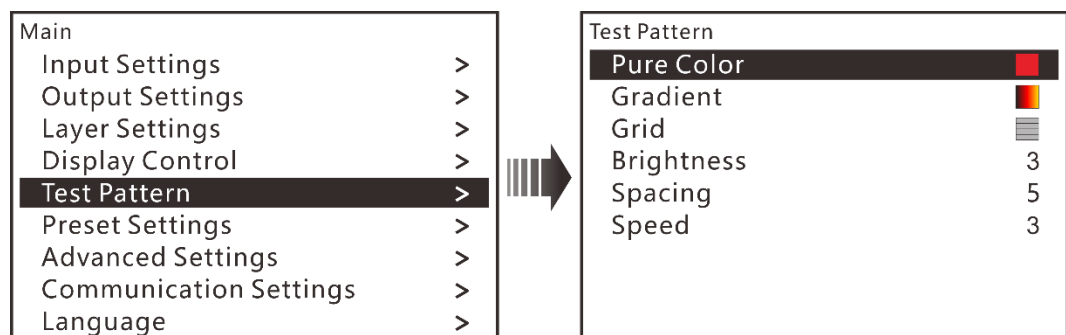
- Normal: Exit the frozen or FTB mode and display the current input source image normally.
- Freeze: Freeze the current frame of the output image.
- FTB: Make the output image fade to black.
- PVW to PGM: Set the display relationship between PVW and PGM. The options are COPY and SWAP.
 - COPY: Send the images displayed on PVW to PGM.
 - SWAP: Swap the images displayed on PVW and PGM.
- Transition Effect: Set the transition effect when switching the input source. Cut and fade are supported.
- Effect Duration: Set the duration of the transition effect. The range is 0.50s–2.00s and the default setting is **1.0s**.

4.7 Test Pattern

You can test whether the screen can display the output image color normally by comparing the displayed image with the test pattern.

On the main menu screen, rotate the knob to select **Test Pattern** and press the knob to enter the test pattern settings screen.

Figure 4-26 Test pattern



- Pure Color

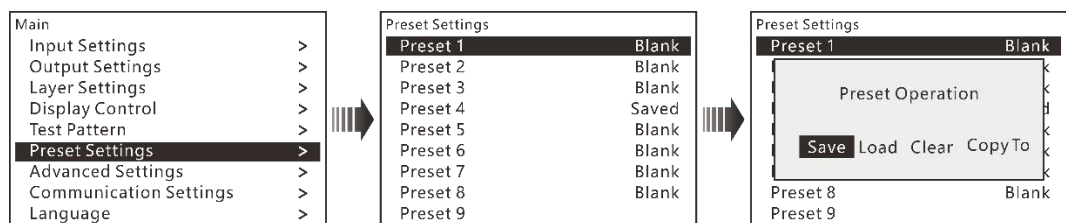
- Use pure color to test whether the screen can display the color normally. The N9 provides 8 pure colors.
- Gradient
Use gradient to test whether the screen can display the image normally. The N9 provides 8 gradients.
- Grid
Use grid to test whether there are uncontrollable pixels on the screen. The N9 provides 6 grids.
- Brightness
Set the brightness of the test pattern. The range is 1–4 and the default value is **3**.
- Spacing
When the test pattern is **Gradient** or **Grid**, you can set the spacing. When the test pattern is **Pure Color**, this item is unavailable. The range is 1–8 and the default value is **5**.
- Speed
When the test pattern is Grid, you can set the moving speed. When the test pattern is **Pure Color** or **Gradient**, this item is unavailable. The range is 1–4 and the default value is **3**.

4.8 Preset Settings

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

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

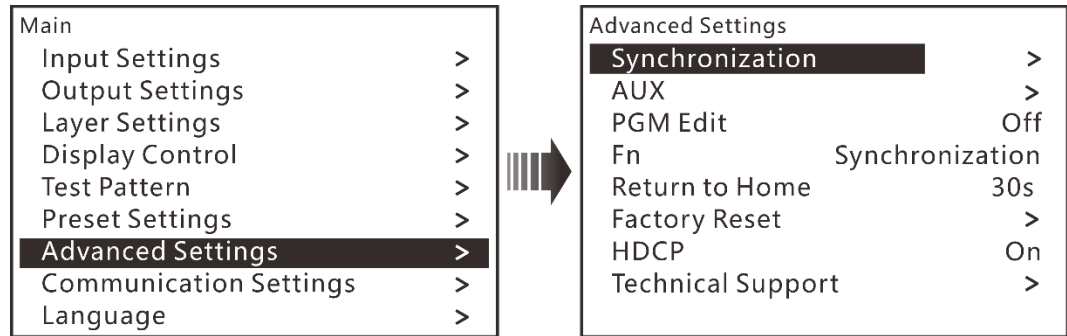
Figure 4-27 Preset settings



4.9 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 4-28 Advanced settings

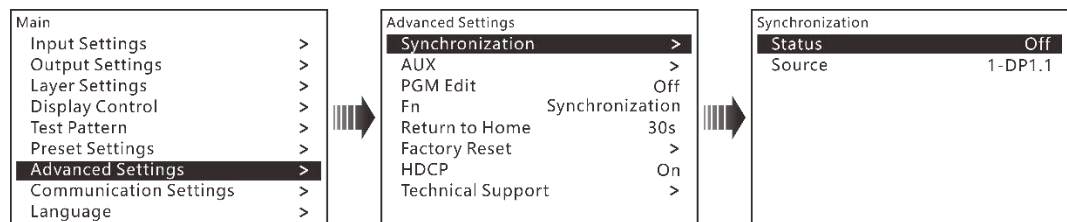


4.9.1 Synchronization

Status: Set to turn on or turn off (default) the synchronization function.

Source: Rotate the knob to select an input source or Genlock as the sync source.

Figure 4-29 Synchronization



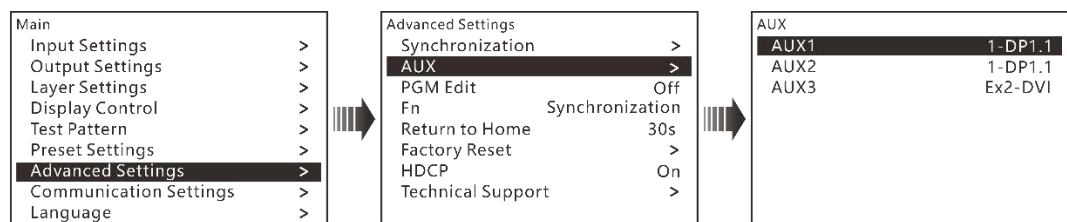
4.9.2 AUX

The N9 supports AUX1 and AUX2 allowing you to set the AUX input source.

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

On the main menu screen, rotate the knob to choose **Advanced Settings > AUX** to enter the AUX settings screen.

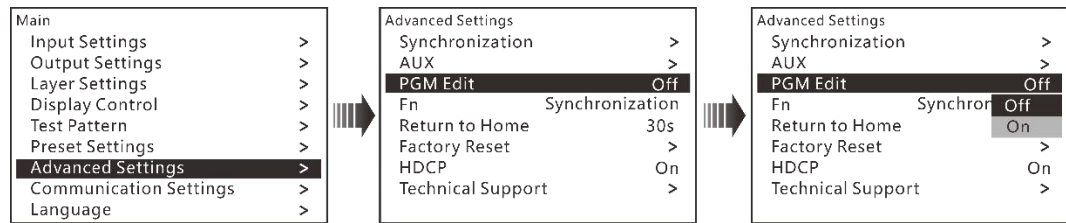
Figure 4-30 AUX



4.9.3 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.

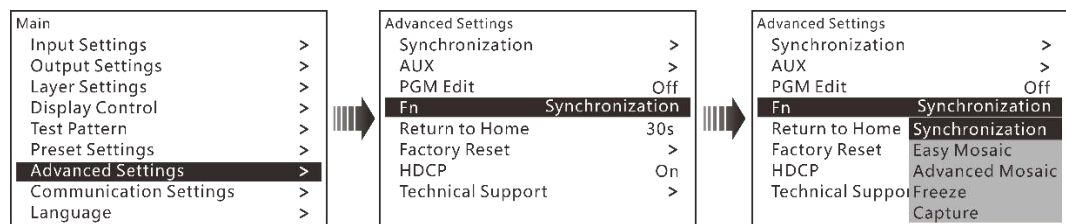
Figure 4-31 PGM edit



4.9.4 Fn

The Fn button can be customized to a shortcut button for a certain function. Press the Fn button to enter the corresponding menu screen.

Figure 4-32 Fn button settings



4.9.5 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.

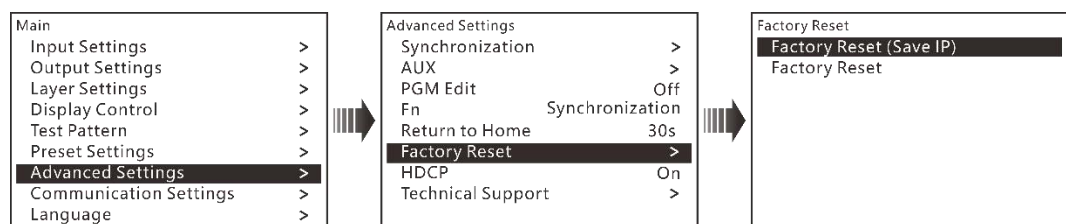
- Range: 30s–3600s
- Default value: 60s

4.9.6 Factory Reset

Reset all the settings to defaults.

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

Figure 4-33 Factory reset



4.9.7 HDCP Function

Turn on or turn off the HDCP function.

- On: When this function is turned on, the device will play and process the HDCP-encrypted video source.
- Off: When this function is turned off, the device will not process the HDCP-encrypted video source.

4.9.8 Technical Support

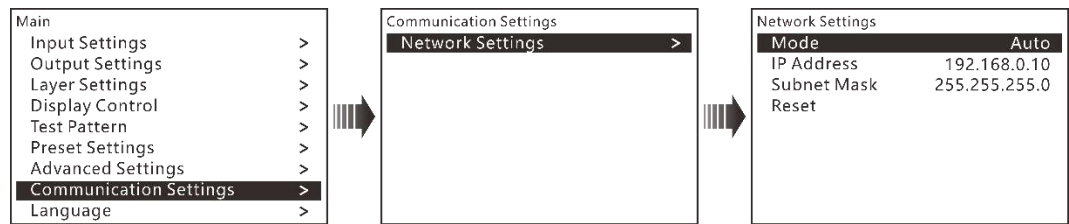
View the device hardware version, company website and contact number.

4.10 Communication Settings

Rotate the knob to select **Communication Settings** and press the knob to enter the communication settings screen.

When the device communicates with the control PC via a router, you need to configure **IP Address** and **Subnet Mask**.

Figure 4-34 Communication settings



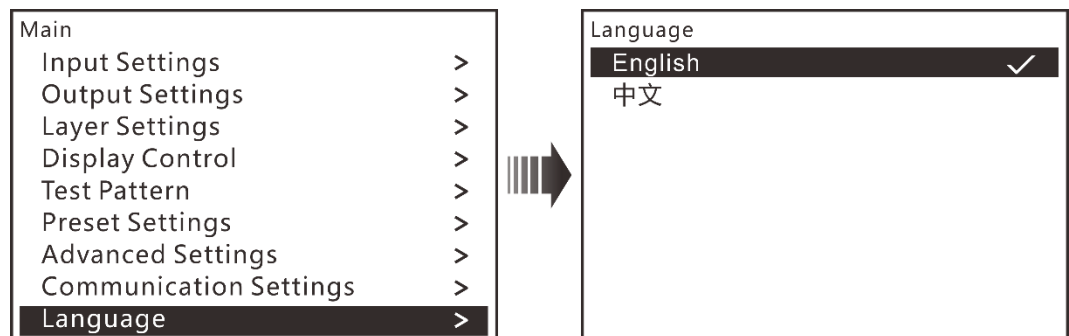
The network setting modes include **Manual** and **Auto**.

- **Auto**: The IP address and subnet mask cannot be entered, which will be assigned by the router.
- **Manual**: Set the device IP address and subnet mask manually. The IP address cannot conflict with the IP addresses of other devices.
- **Reset**: Reset all the network settings to defaults.

4.11 Language

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

Figure 4-35 Language settings



5 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 3.3, 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.

6 C1 Control

The C1 event controller is a hardware console of NovaStar specifically designed 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.

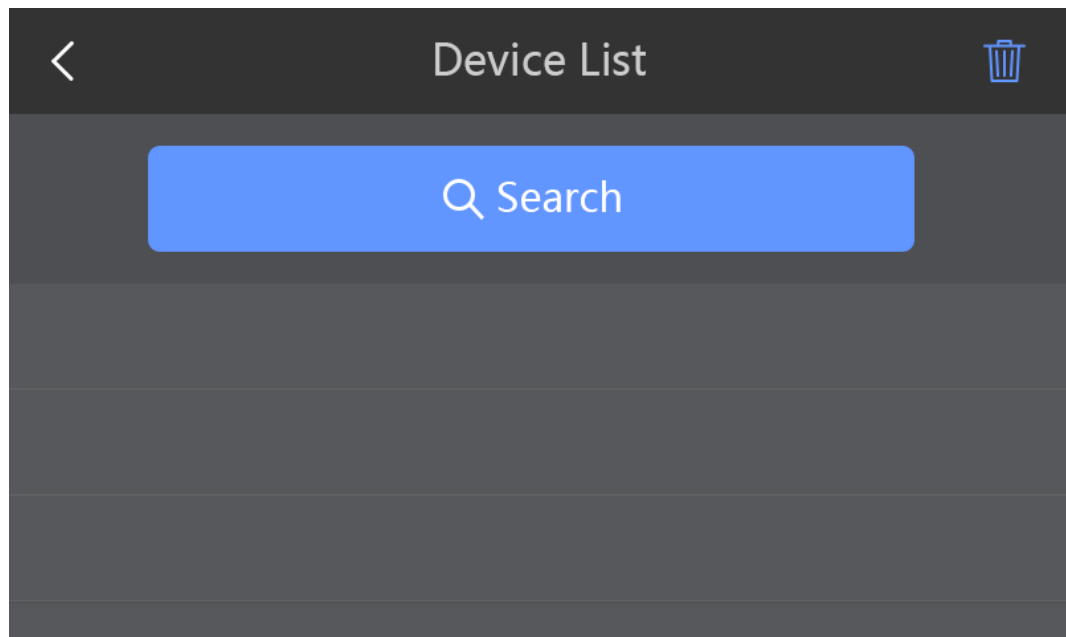
Step 1 Perform the device connections described in 3 3 .

Note:

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

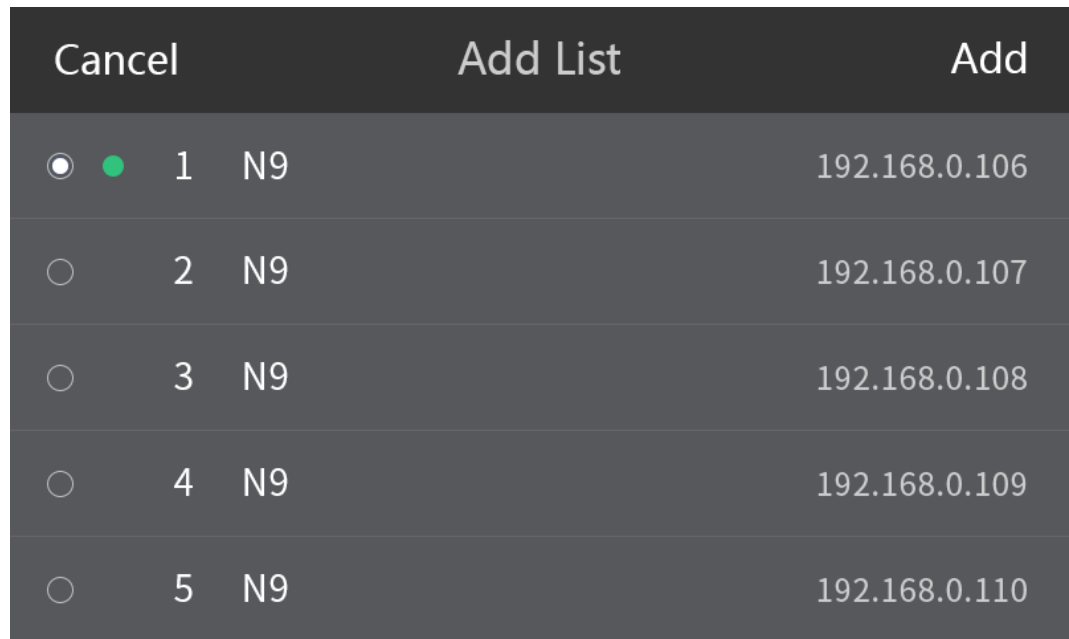
Step 2 On the home screen, click **Configuration** to enter the configuration page. Then click **Search**.

Figure 6-1 Searching for devices



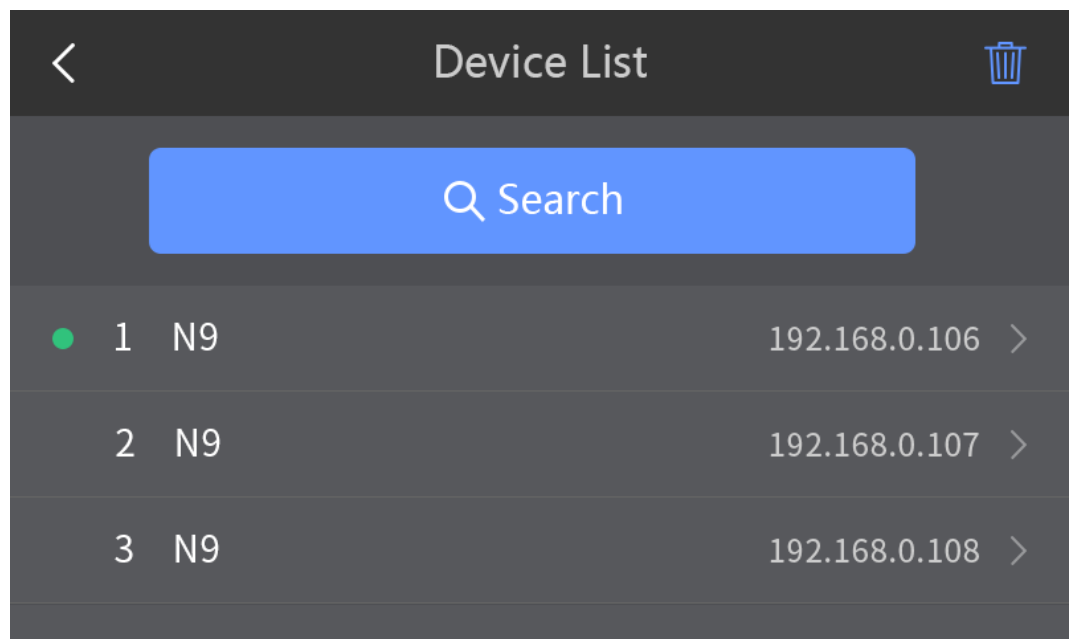
Step 3 On the right touch screen, select the devices to be added and then click **Add**.

Figure 6-2 Adding devices



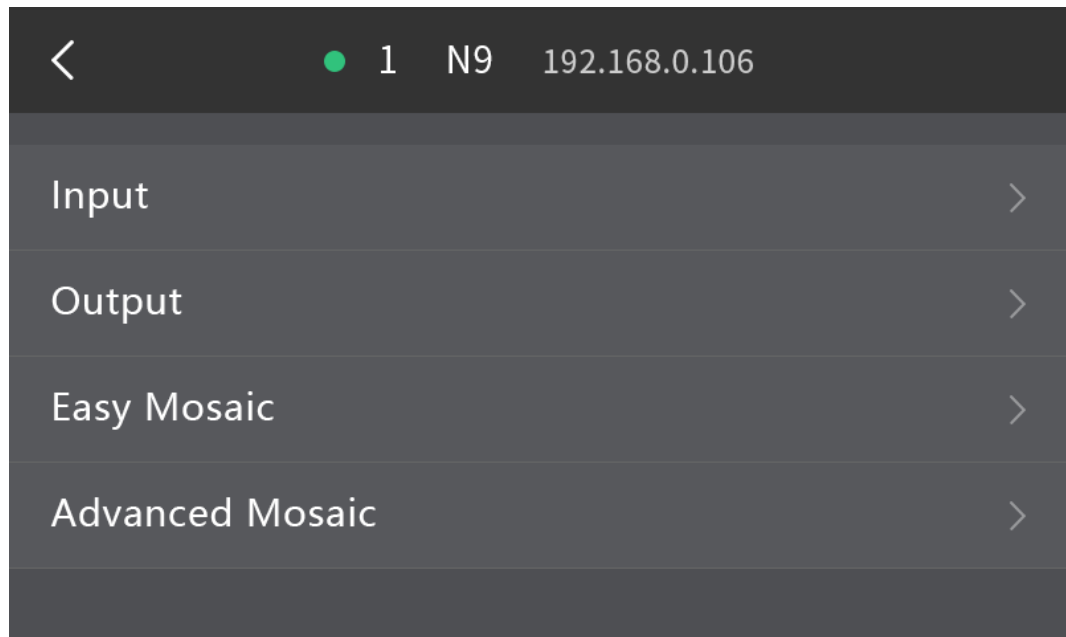
After the devices are added, you can view the information of those added devices on the **Device List** page, as shown in the figure below.

Figure 6-3 Device list



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

Figure 6-4 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. Tap **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 details, please refer to C1 User Manual.

7 Specifications

Connector Specifications		
Connector	Resolution	
DP 1.1	800×600@50/60/75/120Hz	1920×1080@50/60/75/120Hz
	1024×768@50/60/75/120Hz	1920×1200@/50/60/75Hz
	1280×720@50/60/75/120Hz	2048×640@50/60/75/120Hz
	1280×768@50/60/75/120Hz	2048×1152@/50/60/75Hz
	1280×800@50/60/75/120Hz	2048×1536@/50/60/75Hz
	1280×1024@50/60/75/120Hz	2304×1152@/50/60/75Hz
	1366×768@50/60/75/120Hz	2560×816@50/60/75/120Hz
	1440×900@50/60/75/120Hz	2560×960@/50/60/75Hz
	1600×1200@50/60/75/120Hz	2560×1600@/50/60Hz
	1680×1050@50/60/75/120Hz	3840×1080@/50/60Hz
DP 1.2	800×600@50/60/75/120Hz	1920×1200@50/60/75/120Hz
	1024×768@50/60/75/120Hz	1920×2160@50/60/75/120Hz
	1280×720@50/60/75/120Hz	2048×640@50/60/75/120Hz
	1280×768@50/60/75/120Hz	2048×1152@50/60/75/120Hz
	1280×800@50/60/75/120Hz	2048×1536@50/60/75/120Hz
	1280×1024@50/60/75/120Hz	2304×1152@50/60/75/120Hz
	1364×768@50/60/75/120Hz	2560×816@50/60/75/120Hz
	1440×900@50/60/75/120Hz	2560×960@50/60/75/120Hz
	1600×1200@50/60/75/120Hz	2560×1600@50/60/75/120Hz
	1680×1050@50/60/75/120Hz	3840×1080@50/60/75/120Hz
HDMI 1.3	800×600@50/60/75/120Hz	1920×1080@50/60/75/120Hz
	1024×768@50/60/75/120Hz	1920×1200@/50/60/75Hz
	1280×720@50/60/75/120Hz	2048×640@50/60/75/120Hz
	1280×768@50/60/75/120Hz	2048×1152@/50/60/75Hz
DVI	1280×800@50/60/75/120Hz	2048×1536@/50/60/75Hz

Connector Specifications	
Connector	Resolution
	1280×1024@50/60/75/120Hz 2304×1152@/50/60/75Hz 1366×768@50/60/75/120Hz 2560×816@50/60/75/120Hz 1440×900@50/60/75/120Hz 2560×960@/50/60/75Hz 1600×1200@50/60/75/120Hz 2560×1600@/50/60Hz 1680×1050@50/60/75/120Hz 3840×1080@/50/60Hz
SDI	3G-SDI, compatible with HD-SDI and SD-SDI signal De-interlacing 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	
Power connector	AC100V-240V~50/60Hz
Operating environment	Temperature: 0°C–60°C
	Humidity: 10% RH–90% RH, non-condensing
Dimensions	3U standard chassis 482.6 mm × 139.5 mm × 411.5 mm
Package dimensions	550mm × 601mm × 189mm
Power consumption	95 W
Net weight	6.5 kg
Total weight	20 kg