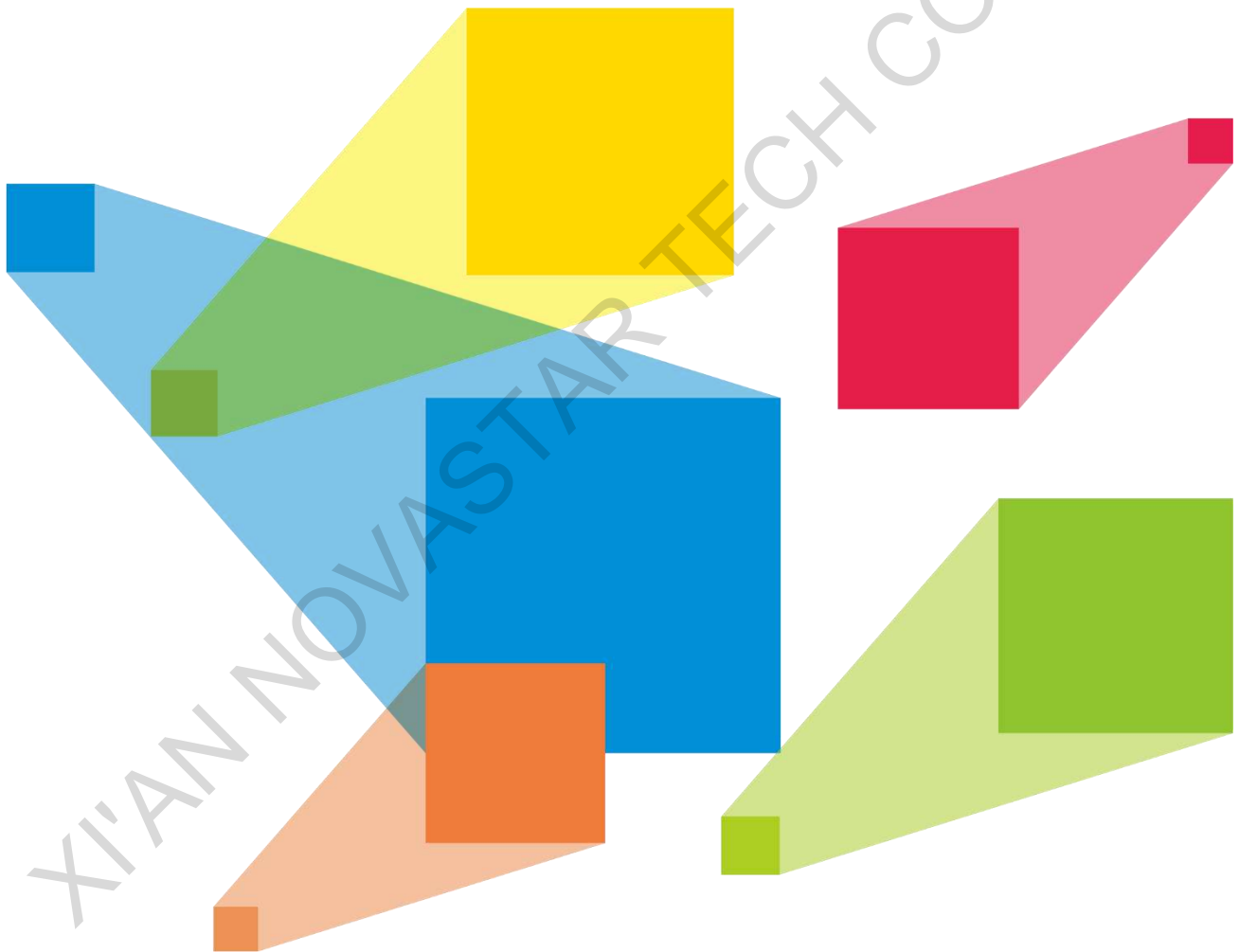


C1

Event Controller

V1.4.1



User Manual

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1 Introduction

The C1 is NovaStar's event controller designed for video processing products. The C1 is equipped with two LCD screens. One is used for monitoring the input sources and the other together with buttons on the panel is used to configure the layer size, layer position, input source, output resolution, layer border and input source cropping for each preset.

The C1 is designed with a joystick and T-Bar. The joystick is used to precisely adjust the size and position of layers, and the T-Bar is used to finely control various switching and transition effects.

Thanks to the clearly lit buttons, highly sensitive joystick and T-Bar, plus two LCD screens, the C1 is extremely easy to operate, making live stage control most convenient.

XI'AN NOVASTAR TECH CO., LTD.

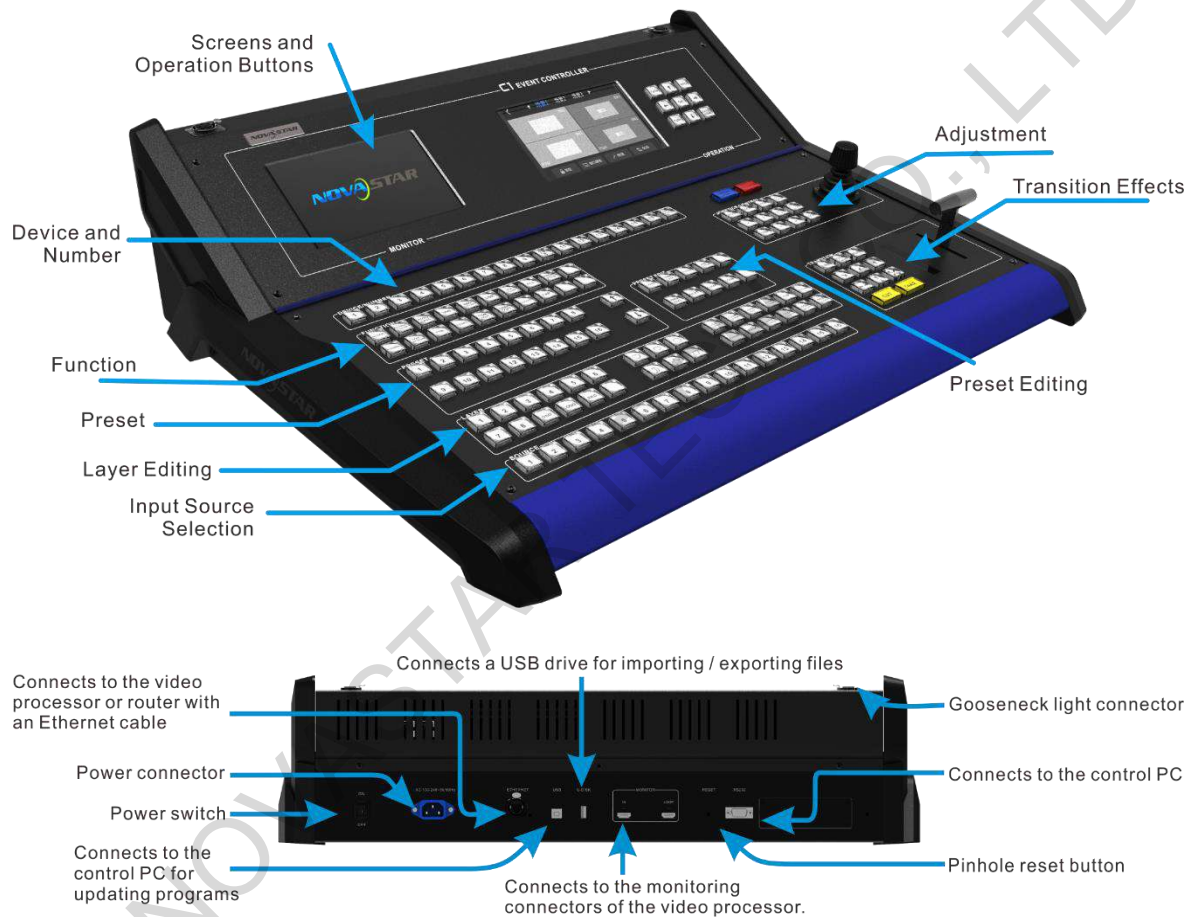
2 Hardware Introduction

Note:

Button operations mentioned in this document are as follows.

- Press: Press and immediately release the button.
- Hold down: Press and hold the button for 3 seconds or longer.

2.1 Appearance

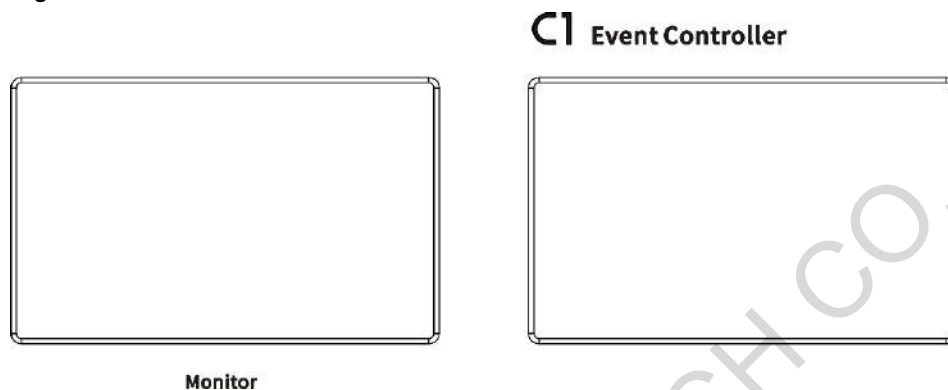


2.2 Front Panel

LCD Screens

The C1 is designed with two LCD screens for monitoring and operation. The screen on the left is used to monitor the input sources, PVW and PGM. You can view the input source content, real-time editing content in PVW, and current playback contents in PGM. The screen on the right is a touchscreen that provides a visualized operation platform for you to view related parameters, edit layers and perform other necessary operations.

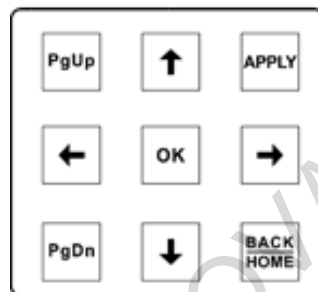
Figure 2-1 Monitor screen and touchscreen



Navigation

The navigation area includes navigation and confirmation buttons.

Figure 2-2 Navigation buttons



- **PgUp**: Press this button to jump to the previous page.
- **PgDn**: Press this button to jump to the next page.
- **APP**: Press this button to apply the current configuration parameters.
- **BACK HOME**: Press this button to exit current operation and return to the previous operation. Hold down this button to return to the homepage.
- **OK**: Press this button to confirm an option or operation.
- **↑ / ↓ / ← / →**: Press any of the arrow buttons to move the cursor to a specified direction.

Device/Number

After you have connected a device and then you press the corresponding device button, the button LED turns green. If the device is connected but not selected, the button LED is displayed yellow.

When you are setting parameters on the touchscreen, 1–10 number buttons function as numeric buttons for you to enter numbers. Press the **BACKSPACE** button to delete the entered numbers.

Figure 2-3 Number buttons



Status LEDs:

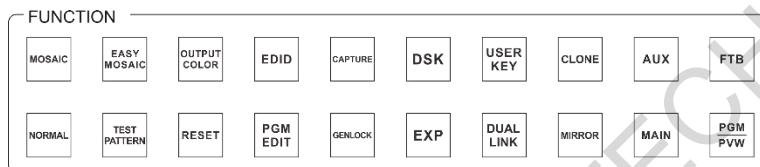
- Red: The connected device is offline.
- Green:
 - In single device control mode, the green LED indicates the device that you are operating.
 - In multiple control mode, the green LED indicates the device is currently selected. You can view the preset information saved in the device. The LED will turn yellow if you press the button again.
- Yellow: The device is connected.
- Off: The device is not connected.

Function

In the function area, you can set mosaic mode, adjust output color, save layer parameters, select test pattern, perform FTB, enter the programming page and so on.

In multiple control mode, only the **FTB** and **Normal** buttons can be used, but other buttons are unavailable.

Figure 2-4 Function buttons



- **MOSAIC**: Press this button to enter the advanced mosaic page.
- **EASY MOSAIC**: Press this button to enter the easy mosaic page.
- **OUTPUT COLOR**: Press this button to enter the output color adjustment page.
- **EDID**: Press this button to enter the input resolution settings page.
- **CAPTURE**: Press this button to capture the input source, PVW or PGM, and save the captured image as a KG.
 - Capturing an image of input source
Firstly press the **Capture** button. When the button flashes green, press the source number button corresponding to the target input source. After the image is captured, the system jumps to the image saving page on the touchscreen where you can save the image as a BKG.
 - Capturing an image of PVW/PGM
Firstly press the **Capture** button. When the button flashes green, press the **PVW/PGM** button in the **FUNCTION** area or hold down the **PVW/PGM** button to capture the current PGM content. After the image is captured, the system jumps to the image saving page on the touchscreen where you can save the image as a BKG.
- **DSK**: Press this button to enter the layer keying page.
- **USER KEY**: Press this button to save the layer parameters.
- **CLONE**: Press this button to copy a layer.
 - Press a layer button, or select a layer on the touchscreen and then press the **CLONE** button to clone a layer for the selected layer. The size of the cloned layer is the same as that of the original layer, and the two layers are in a horizontal symmetry position with the LED screen center as reference point.
 - When you move the original layer or the cloned layer, the two layers will move vertically together.
 - When you adjust the size of the original layer or the cloned layer, the two layers will always keep the same size.
 - The original layer and the cloned layer must not be on the screen loaded by the same port.
 - When the original layer is selected, the LED of the corresponding layer button is green. When the cloned layer is selected, the LED turns red.

- The input source and image quality of the two layers are always the same.
- When the mosaic mode is 1×2, 1×3 or 1×4, layer cloning is supported.
- **AUX**: Press this button to enter the AUX settings page.
- **FTB**: Press this button to make the LED screen fade to black.
- **NORMAL**: Press this button to make the LED screen go back to normal display.
- **TEST PATTERN**: Press this button to enter the test pattern settings page.
- **RESET**: Press this button to reset values of parameters currently set.
- **PGM EDIT**: Press this button to enable or disable PGM image editing.

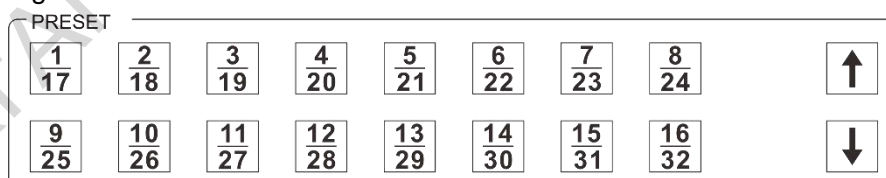
When you press the **PGM EDIT** button, the button LED turns green and the PGM editing function is enabled. At this time, the PGM content is displayed in the editing area on the touchscreen. If you press the **PGM EDIT** button again, the LED goes off and the PGM editing function is disabled. At this time, the PVW content is displayed in the editing area.

- **GENLOCK**: Press this button to enter the Genlock settings page.
- **EXP**: Press this button to enable or disable link mode for the current connected devices.
- **DUAL LINK**: Press this button to enable or disable dual-link output mode.
- **MIRROR**: Press this button to mirror the layer image horizontally.
 - When you select a layer on the touchscreen and then press the **MIRROR** button to create a mirrored layer. The size of the mirrored layer is the same as that of the original layer, and the two layers are in a horizontal symmetry position with the LED screen center as reference point. However, the two layer images are horizontally reversed.
 - When you move the original layer or the mirrored layer, the two layers will move vertically together.
 - When you adjust the size of the original layer or the mirrored layer, the two layers will always keep the same size.
 - The original layer and the mirrored layer must not be on the screen loaded by the same port.
 - When the original layer is selected, the LED of the corresponding layer button is green. When the mirrored layer is selected, the LED turns red.
 - The input source and image quality of the two layers are always the same.
 - When the mosaic mode is 1×2, 1×3 or 1×4, layer mirroring is supported.
- **MAIN**: Press this button to enter the programming page.
- **PGM/PVW**: Press this button to select PGM and hold down the button to select PVW. This button mainly works with the **CAPTURE** button to capture the PGM or PVW, or works with the **AUX** button to set the PGM or PVW as the AUX input source.

Preset

The C1 supports up to 32 presets. After you have saved the presets and then you press the corresponding preset button, the button LED turns green.

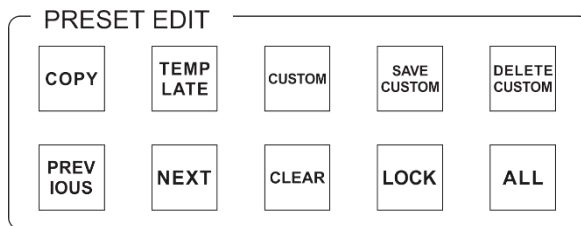
Figure 2-5 Preset selection buttons



- Yellow LED: The preset has layer data. In multiple control mode, it indicates the preset of each connected device has layer data.
- Red LED: The preset uses a template. In multiple control mode, it indicates the preset of one or several connected devices has no data.
- Green LED: The preset is being used.
- : Green LED indicates preset 1–16 are active.
- : Green LED indicates preset 17–32 are active.

Preset Edit

Figure 2-6 Preset editing buttons



- **COPY:** Press this button to copy the data of the selected preset to another preset.
Firstly press the **COPY** button. At this time, the **COPY** button flashes yellow and the buttons of the presets that have layer data also flash yellow. Select an original preset and a target preset in the **PRESET** area respectively to copy the selected preset data to the target preset.
- **TEMPLATE:** Press this button to apply a preset template.
Firstly press the **TEMPLATE** button. At this time, the **TEMPLATE** button flashes yellow and the preset buttons that flash red in the **PRESET** area are buttons that stands for the preset templates. Press a button to select a template and the selected template will be applied to current editing area.
- **CUSTOM:** Press this button to apply the custom preset.
Firstly press the **CUSTOM** button. At this time, the **CUSTOM** button flashes yellow and the preset buttons that flash yellow in the **PRESET** area are buttons that stands for the custom presets. Press a button and the selected custom preset will be applied to current editing area.
- **SAVE CUSTOM:** Press this button to save the data in current editing area as a custom preset.
Firstly press the **SAVE CUSTOM** button. At this time, the button flashes yellow. Press a button in the **PRESET** area and the data in current editing area will be save to the select preset as a custom preset.
- **DELETE CUSTOM:** Press this button to delete a custom preset.
Firstly press the **DELETE CUSTOM** button. At this time, the **DELETE CUSTOM** button flashes yellow and the buttons of saved custom presets in the **PRESET** area flash yellow. Press a button and the selected custom preset will be deleted.
- **PREVIOUS:** Press this button to jump to the previous preset.
- **NEXT:** Press this button to jump to the next preset.
- **CLEAR:** Hold down this button to clear the parameters of the selected preset.
- **LOCK:** Hold down this button to lock the buttons in the **PRESET** area and **PRESET EDIT** area.
- **ALL:** Press this button to select all the custom presets. You can use this button and the **DELETE CUSTOM** together to delete all the custom presets at once.

Note:

In multiple control mode, the **Preset Edit** buttons are unavailable.

Layer

The C1 supports up to eight layers and one BKG. The number buttons stands for the layer sequential number. When you press one of those buttons, the corresponding layer is selected and the button LED turns green.

In multiple control mode, layer editing is not supported.

Status LEDs:

- Off: The layer has been closed or the layer is not opened.
- Yellow: The layer is opened but not selected.
- Green: The layer is opened and selected.
- Red: The cloned layer of the selected layer is selected.

Figure 2-7 Preset selection buttons



- Number buttons: Press any of the number buttons to select a layer.
- **BKG**: Press this button to select the BKG.
- **ALL**: Press this button to select all the layers, including the layers and BKG.
- Six shapes: Reserved buttons.
- **ADD LAYER**: Press this button to add a layer.

On the programming page, when you press the **ADD LAYER** button on the panel, a layer will be added to the top-left corner of PVW. Each new layer will get a 64-pixel offset both horizontally and vertically compared to the previously-added layer. The added layer size defaults to 800×600.

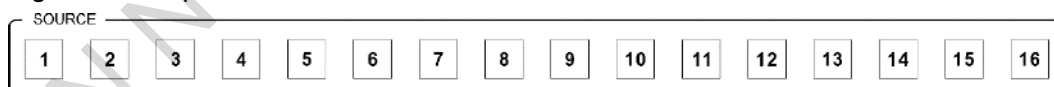
- **CLEAR LAYER**: Press this button to clear delete a layer. If no layers are selected, press this button to clear the layer with the highest priority. When you continue to press this button, the layers will be cleared in an order from the smallest sequential number to the highest sequential number.
- **LAYER EDIT**: Press this button to enter the layer information page where you can view the layer sequential number, priority, input source and resolution, as well as change the layer size and position.
- **LAYER COLOR**: Press this button to enter the layer color settings page where you can set the brightness, contrast, saturation and hue.
- **TOP**: Press this button to bring the selected layer to front.
- **BOTTOM**: Press this button to send the selected layer to back.
- **MASK**: A Reserved button.
- **LAYER FREEZE**: Press this button to freeze the selected layer.
- **CROP ON/OFF**: Press this button to enable or disable the cropping function.
- **BKG ON/OFF**: Press this button to enable or disable the BKG function.

Source

The number buttons 1–16 corresponds to sixteen input sources. For a normal accessed input source, when you press the corresponding input source button, the button LED turns green. If the input source fails or not connected, when you press the input source button, the button LED turns red and then goes off after you release the button.

In multiple control mode, layer source switching is not supported and the input source buttons are unavailable.

Figure 2-8 Input source buttons



Status LEDs:

- Green: The input source is being used.
- Yellow: The input source is accessed to the connected device, but the source is not used.
- Off: No input source is accessed or the input source is abnormal.

Lock

To avoid accidental touches in on-site operations, you can use the buttons in this area as necessary.

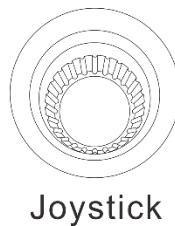
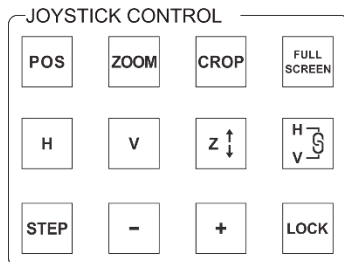
Figure 2-9 Lock buttons



- **ALL LOCK:** Hold down this button to lock all the panel buttons and the touchscreen. When the button LEDs flashes and then turns highlighted, the lock operation takes effect.
- **FREEZE PGM:** Press this button to freeze the frame currently played on the PGM. After pressed, the button LED turns blue. The content in PVW is still editable.

Adjustment


Figure 2-10 Buttons in adjustment area



- **Joystick:** Move the joystick to adjust the layer size and position, and rotate the knob to adjust the layer priority and set the size of cropped image.
- **POS:** Use this button and the joystick together to adjust the layer position. After the button is pressed, the button LED turns green. After the adjustment and when you press this button again, the button LED goes off.
Select a layer on the touchscreen and press the **POS** button, and then move the joystick to adjust the layer position.
- **ZOOM:** Use this button and the joystick together to adjust the layer size. After the button is pressed, the button LED turns green. After the adjustment and when you press this button again, the button LED goes off.
Select a layer on the touchscreen and press the **ZOOM** button, and then move the joystick to zoom the layer size. Move the joystick upward to zoom out the layer vertically or move it leftward to zoom out the layer horizontally, and move the joystick downward to zoom in the layer vertically or move it rightward to zoom in the layer horizontally.
- **CROP:** Press this button to crop an image of current input source. After the button is pressed, the button LED turns green. After the cropping and when you press this button again, the button LED goes off.
Select a layer that is accessed with an input source on the touchscreen and press the **CROP ON/OFF** button in the **Layer** area on the panel to enable the layer cropping function. At this time, the **CROP ON/OFF** button LED turns green and the input cropping page is displayed. Press the **CROP** button in this area and then drag the sliders of **Width**, **Height**, **X** and **Y**, tap the **+** or **-** button, or enter numbers to adjust the layer size and position.
- **FULL SCREEN:** Press this button to make the selected layer display in full screen. When you press the button again, the layer size and position will be restored.
On the touchscreen, select a layer and press the **FULL SCREEN** button, and then the layer will fill the entire mosaic screen where the layer locates.
- **H/V:** Press one of the buttons to select the direction of layer adjustment by using the joystick. After a button is pressed, the button LED turns green. After the operation and when you press this button again, the button LED goes off.
You must press the **POS** button before you use the **H** or **V** button to adjust the layer position; otherwise, the layer will not be moved.
 - **H:** Press this button to enable horizontal movement only. When the button LED turns green, only horizontal adjustment of the layer will take effect.

- **V**: Press this button to enable vertical movement only. When the button LED turns green, only vertical adjustment of the layer will take effect.
- The **H** button and **V** buttons cannot be used at the same time.
- **Z**: Use this button and the joystick together to adjust the layer priority. After the button is pressed, the button LED turns green. After the adjustment and when you press this button again, the button LED goes off.

On the touchscreen, select a layer and press the **Z** button and rotate the knob to adjust the layer priority.

- : Press the button to enable the function of scaling a layer proportionally. After the button is pressed, the button LED turns green. When you press this button again, the function is disabled.

When this button works with the **ZOOM** button, you can rotate the joystick knob to adjust the layer size proportionally.

- **STEP**: Press this button to set the step of moving the joystick. After the button pressed, the button LED turns green. After the adjustment and when you press this button again, the button LED goes off.

When you adjust the step, a step value is displayed on the top right corner of the **Programming** page in real-time, such as **Step: 1**. The step value ranges from 1 to 7.

- **-/+**: Press the buttons to decrease or increase the joystick step value by one pixel.

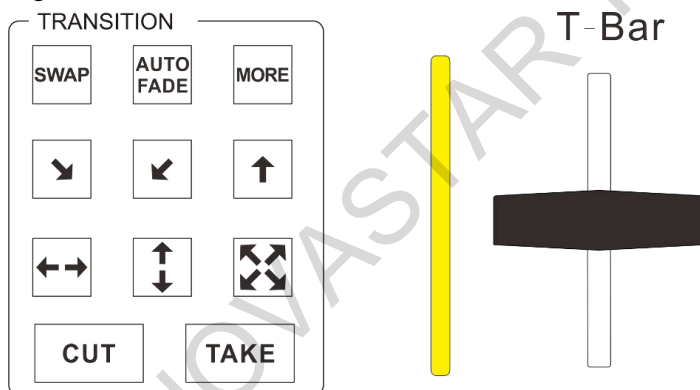
Note:

In multiple control mode, layer adjustment is not supported and the adjustment buttons are disabled.

Transition

The transition buttons are used to quickly select a transition effect. The CUT, Take and T-bar are used to send PVW to PGM.

Figure 2-11 Buttons in TRANSITION area



- **SWAP**: Press this button to exchange the PVW and PGM display.
- **AUTO FADE**: Press this button to set the transition effect to fade.
- **MORE**: Press this button to enter the transition effect settings page.
- Six buttons with arrows: Press a button to apply a transition effect.
- **TAKE**: Press this button to send a layer from PVW to PGM with a transition effect.
- **CUT**: Press this button to send a layer from PVW to PGM without a transition effect.
- T-Bar: Move the T-Bar to manually send PVW to PGM. The T-Bar supports the fade effect only. The T-bar is provided with a LED bar to indicate the sending progress.

2.3 Rear Panel

Figure 2-12 Rear Panel



- **ON/OFF:** Power switch
- **AC 100–240–50/60Hz:** AC power input connector
- **ETHERNET:** Control the connected devices.
- **USB:** A type-B USB port. Connect to the control PC to update the C1.
- **U-DISK:** Connect to a USB drive to upgrade update the C1 or import the BKG files.
- **MONITOR IN:** An HDMI-type monitoring connector. Connect to the monitoring connector of the connected device.
- **Monitor LOOP:** An HDMI-type monitoring loop output connector. Connect to the monitoring connector of the connected device. The C1 receives the input signal from the device and send the signal to another monitor.
- **RESET:** A pinhole reset button used to restart the C1

3 Applications

Note:

The device must be powered off before connection.

Figure 3-1 C1 controlling one device

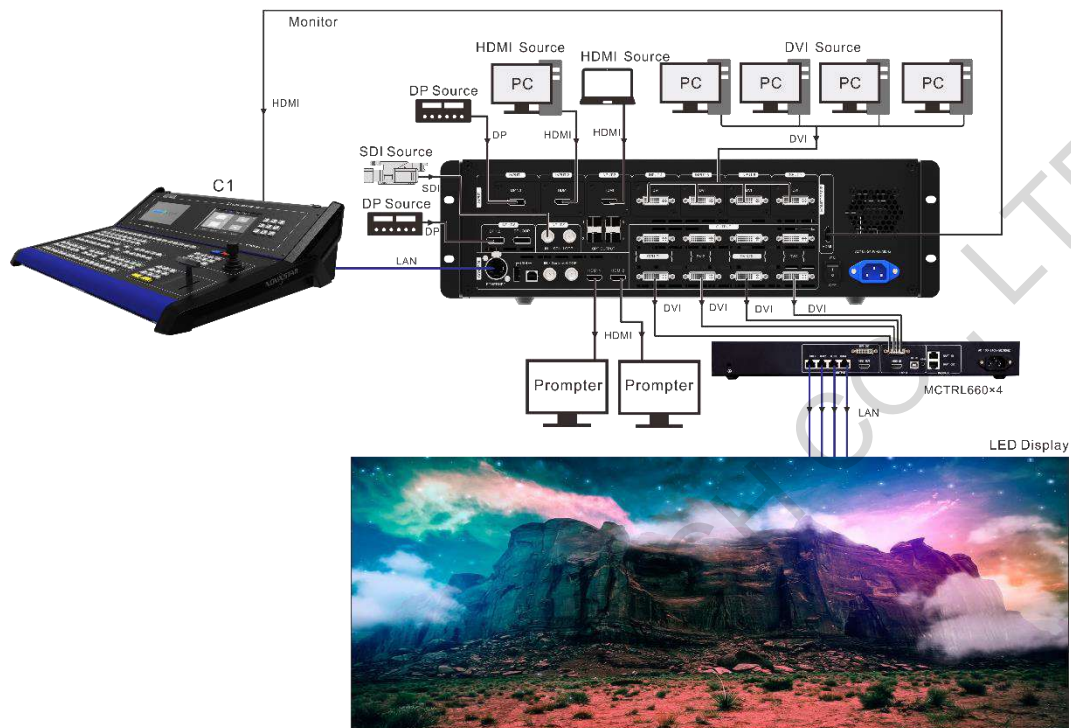
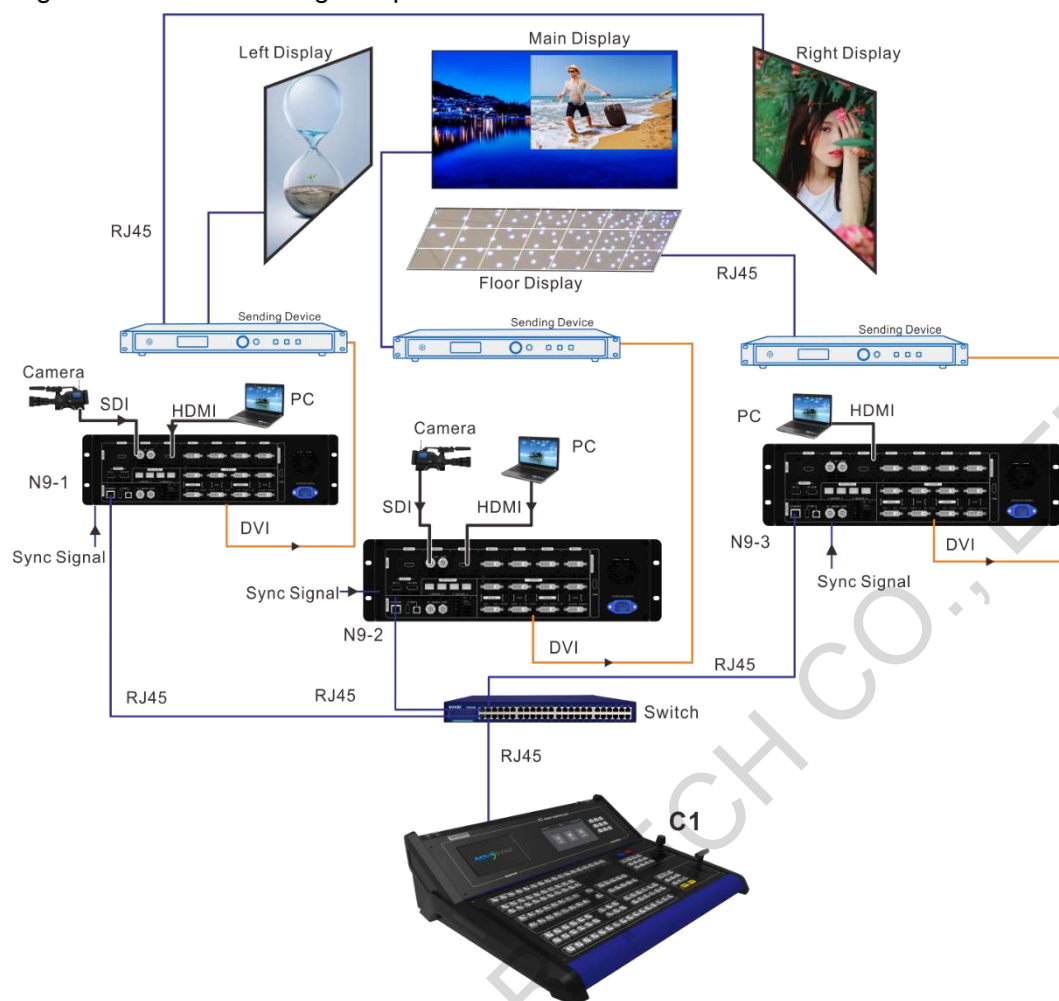


Figure 3-2 C1 controlling multiple devices

**Note:**

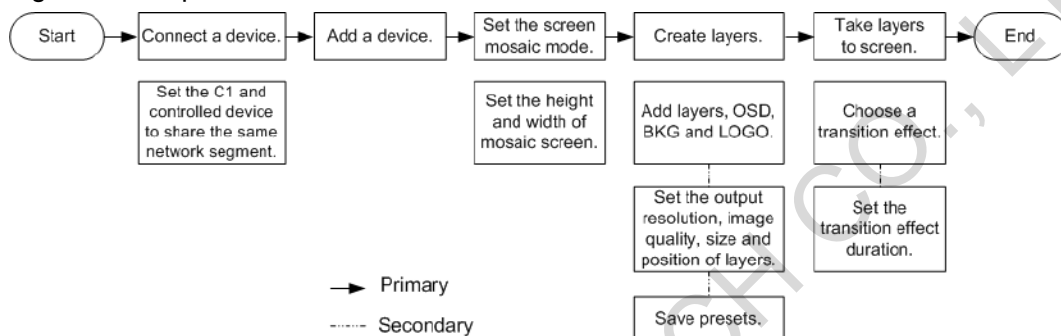
The C1 and its connected devices must be on the same network segment.

4 Operations

The C1 has three major function modules: configuration, programming and settings, which let you easily and quickly manage and control the processing devices.

- The configuration module allows you to add and delete devices, view input properties, set input EDID, view the outputs, set output resolution, adjust output image quality, set display, synchronization mode and so on.
- The programming module allows you to choose presets, add layers, lock the screens, view layer properties, set the transition effect and duration, view layer information on the layer properties page, adjust input cropping, adjust input image quality and so on.
- The settings module includes viewing device status, program update, communication settings, language settings, restoring factory settings, and viewing manufacturer information.

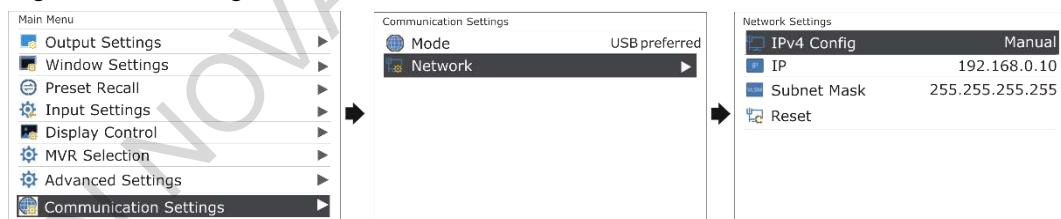
Figure 4-1 Operation flowchart



4.1 Preparation

- When the C1 controls one device, connect the Ethernet port of the device to the Ethernet port of the C1 via Ethernet cable and then set the IP address of the device (taking the N9 for example). See the procedure in the following figure.
- When the C1 controls multiple devices, connect the devices to the C1 with a router or switch, and ensure the C1 and the controlled devices are on the same network segment.

Figure 4-2 Setting IP address of controlled device



Set the IP address of the C1 and make sure the C1 and the N9 are on the same network segment. To set the IP address, go to **Menu > Settings > Communication Settings** to set the IP, subnet mask, and gateway on the communication settings page.

Figure 4-3 Setting IP address on C1

Cancel	Communication	Apply
DHCP		<input checked="" type="checkbox"/>
IP	192 . 168 . 0 . 10	
Mask	255 . 255 . 255 . 0	
Gateway	192 . 168 . 0 . 1	

4.2 Configuration

The configuration module allows you to add and delete devices, view input properties, set input EDID, view the outputs, set output resolution, adjust output image quality, set test pattern, synchronization mode and so on.

4.2.1 Adding Devices

Single Control Mode

In this mode, the C1 controls one seamless switcher.

Step 1 On the home screen, tap **Configuration** to enter the configuration page.

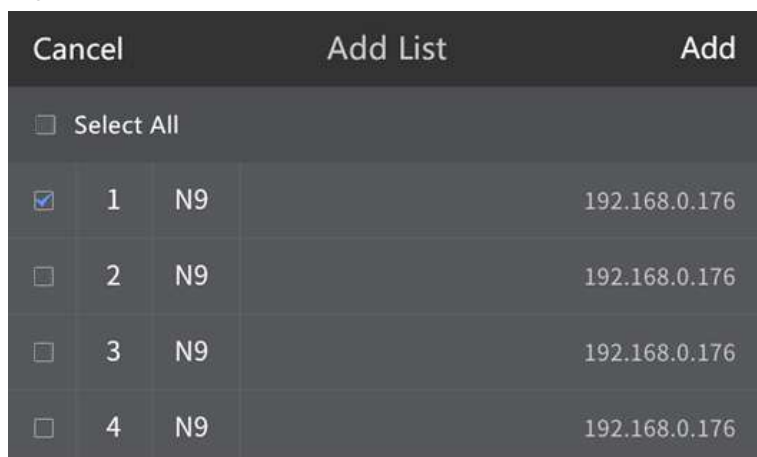
Figure 4-4 Configuration page



Step 2 Tap **Single Control** to enter the single control mode.

The system will automatically search for and list the online devices.

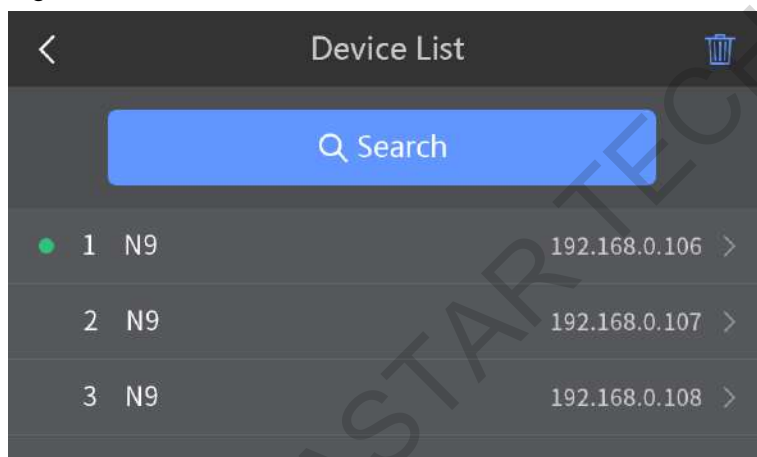
Figure 4-5 Device list



Step 3 Select the device you want to add and tap **Add**.

After a device is successfully added, the corresponding device number button on the panel turns yellow indicating an online device is added.


Figure 4-6 Device list



Step 4 Tap on the added device. The C1 will connect to the device and synchronize the device data automatically. The corresponding button in the **DEVICE/NUMBER** area on the panel turns green, but other corresponding buttons of online devices in the area stay yellow.

Note:

Up to 50 devices can be found and 16 devices can be added at most.

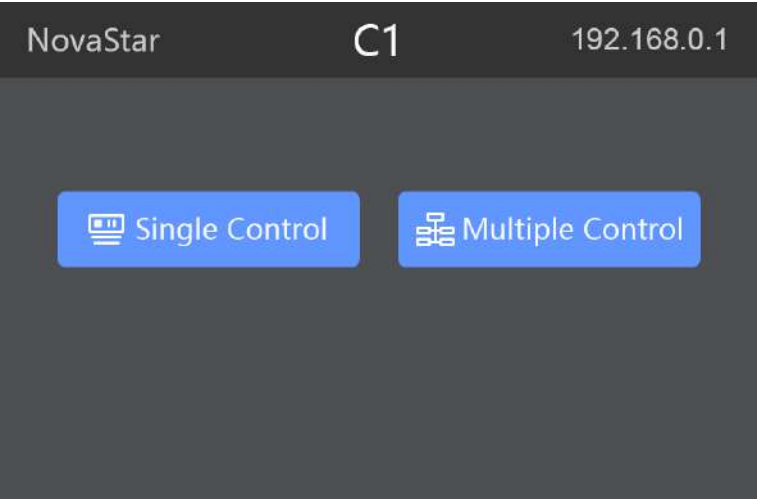
On the device list page, tap  to select the devices to be removed, and then tap it again to remove the selected devices.

Multiple Control Mode

In this mode, the C1 controls multiple devices at the same time. You can perform the operations, such as switching presets, FTB or freezing the currently played frame, to multiple connected switchers simultaneously on the C1.

Step 1 On the home screen, tap **Configuration** to enter the configuration page.

Figure 4-7 Configuration page



Step 2 Tap **Multiple Control** to enter the multiple control mode.

The system will automatically search for the online devices and show them in an order. The system will automatically search for and list the online devices.

Step 3 Select the devices you want to add and tap **Apply**.

After the devices are successfully added, the corresponding device number buttons on the panel turn yellow indicating the online devices are successfully controlled by the C1.

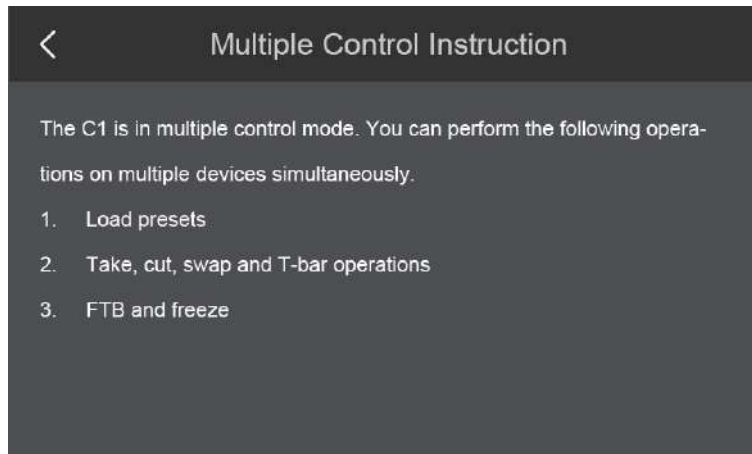
Figure 4-8 Multiple control mode



Step 4 After you tap **Apply**, a page is displayed telling you the multiple control instructions.

In the multiple control mode, the corresponding device number buttons in the **DEVICE/NUMBER** area on the panel turn yellow.

Figure 4-9 Multiple control mode



- In multiple control mode, only panel button operations are allowed and the tap operations on the touchscreen are disabled.
- After you press the **FTB** button in the **FUNCTION** area, all the screens connected to the control devices will fade to black simultaneously. If you press the **FTB** button again or press the **Normal button**, the screens will resume the playback.
- In multiple control mode, after you press a yellow button in the **DEVICE/NUMBER** area, the button LED will turn green. At this time, you can check the connection status of the corresponding device and the preset saving information. If you press the green button again, it will return to the connection status of multiple control mode.
- Description of preset loading in multiple control mode are as follows:
 - If the same preset of all the controlled devices is empty (the corresponding button is off), the preset cannot be loaded.
 - If the same preset of some controlled devices is empty (the corresponding button is in red), only the unempty presets can be loaded.
 - If the same preset of all the controlled devices is not empty (the corresponding button is in yellow), all the presets can be loaded.
- After a preset is loaded, you can press **TAKE** or **CUT**, or push the T-Bar to switch the preset.

4.2.2 Configuring Device Properties


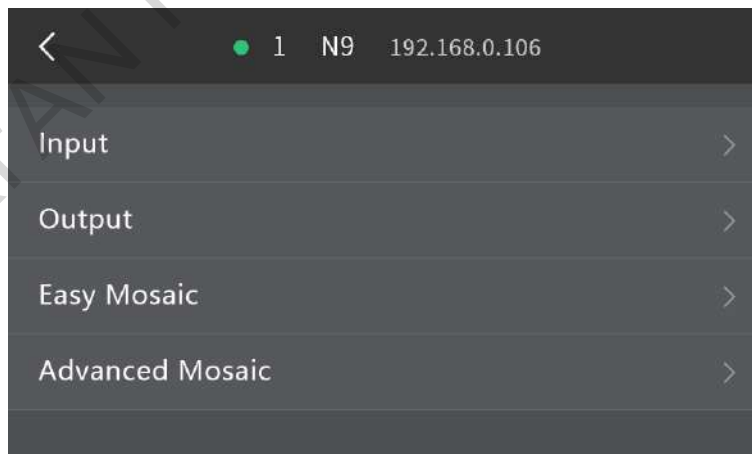
On the device list page, tap  next to the device name to enter the device properties page, or select a device by pressing a device button on the panel and then press **OK** in the navigation area to enter the device properties page. The device property settings include **Input**, **Output**, **Easy Mosaic**, and **Advanced Mosaic**.

Figure 4-10 Device properties



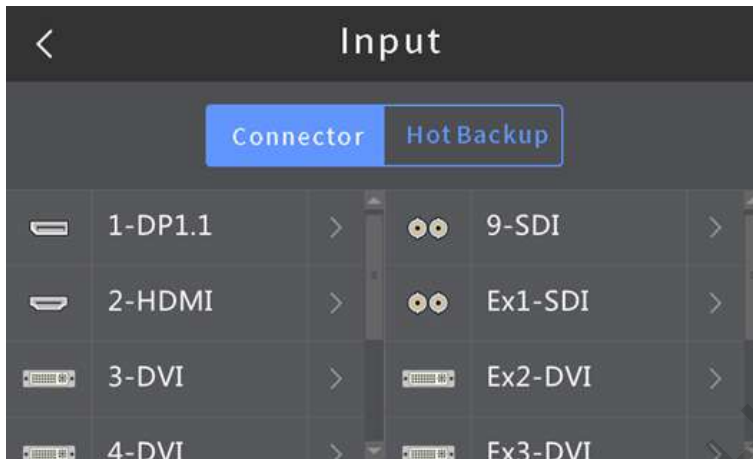
4.2.2.1 Input

Connector

View the basic input properties and adjust the input EDID and color. When the N9 is connected with the VE7, the input sources from the VE7 will be displayed with an **Ex** in front of the input source name.

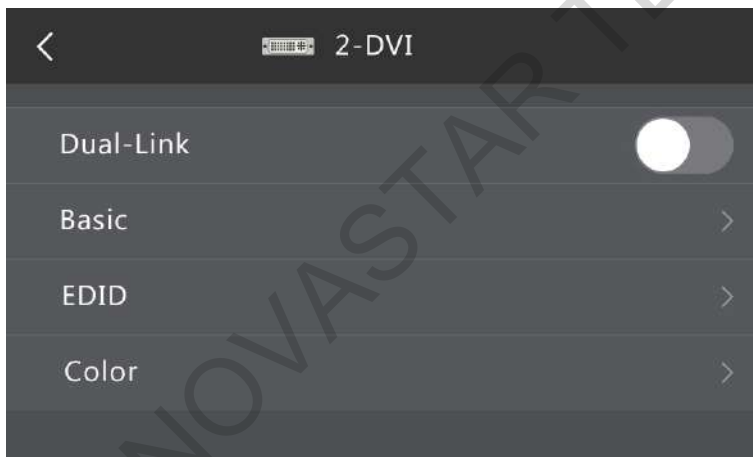
Step 1 Tap **Input** to show the connector list.

Figure 4-11 Selecting an input source



Step 2 Tap > next to the input source to enter the input source properties page as shown in the following figure.

Figure 4-12 Setting input source properties



- Dual-link

The VE7 input connectors supports both single link and dual link modes. When it is set to dual link mode, a dual link input source must be accessed.

- Basic

Basic properties include the source type, slot number, resolution and connector capacity. This is for viewing basic information of current connector.

Connector capacity indicates the resolution type, including SL, DL and 4K.

SL: 1920×1080

DL: 3840×1080

4K: 3840×2160.

Figure 4-13 Basic properties

Basic Properties	
Input Source	1-DP
Slot No.	Input-A
Resolution	2560x1600 @60Hz
Connector Capacity	DL

- EDID

Set the resolution and refresh rate. You can either choose a standard resolution and refresh rate, or customize them. When the settings are done, tap **Apply**.

Standard resolutions include 800×600, 1024×768, 1280×720, 1280×768, 1280×800, 1280×1024, 1366×768, 1440×900, 1600×1200, 1680×1050, 1920×1080, 1920×1200, 1920×2160, 2048×640, 2048×1152, 2048×1536, 2304×1152, 2560×816, 2560×960, 2560×1600, 3840×1080, 3840×1600, 3840×2160.

Standard refresh rates include 60Hz, 75Hz and 120Hz.

Note:

The above resolutions and refresh rates cover all connectors. For different connectors, its actually supported resolution and refresh rate are displayed.

Figure 4-14 Standard EDID

EDID	
<div> <div>Cancel</div> <div>EDID</div> <div>Apply</div> </div>	
<div> <div>Standard</div> <div>Custom</div> </div>	
Resolution	800x600
Refresh Rate	60

You can drag the sliders, tap the + or – button, or enter numbers to customize EDID.

Figure 4-15 Custom EDID



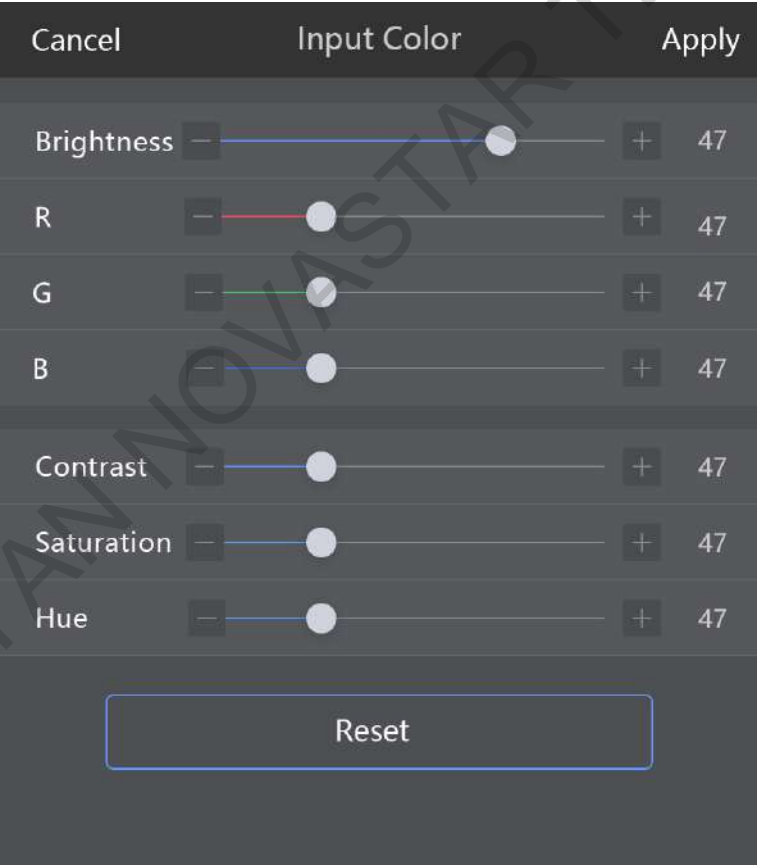
Note:

You can also press the **RESET** button in the **FUNCTION** area on the panel to reset the parameters displayed on current page.

- color

On the **Input Color** page, you can adjust the overall brightness, contrast, saturation and hue of the input source by dragging the sliders, tapping the **+** or **-** button, or entering numbers. When you tap **Reset**, parameters on this page can be restored to the default value 50.

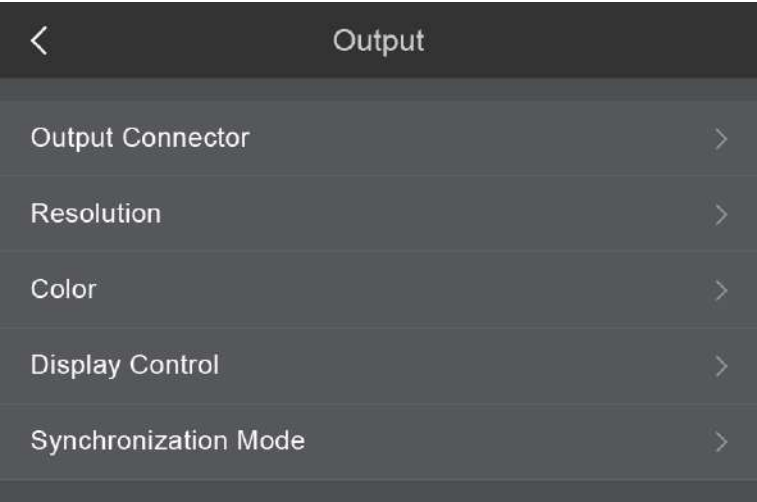
Figure 4-16 Input color adjustment



4.2.2.2 Output

Output settings allow you to view the information of output connectors, set output resolution, adjust output image quality, set display control and synchronization mode.

Figure 4-17 Output settings



- Output connector

Tap **Output Connector** and select the target output connector to view the output source, slot number, resolution and connector capacity.

Figure 4-18 Output connectors

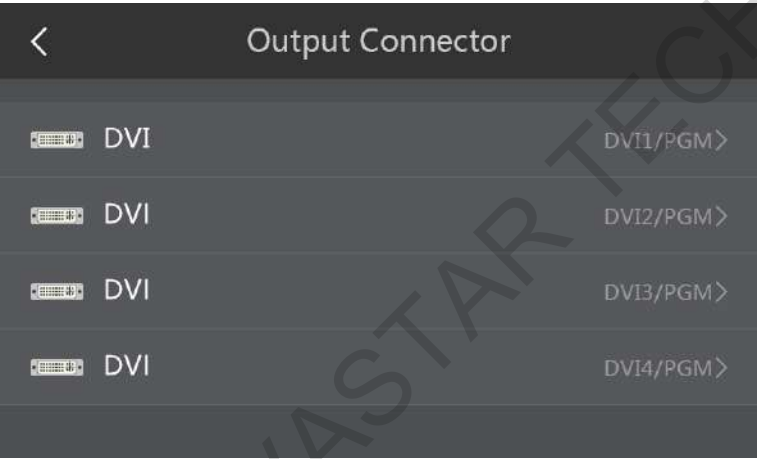
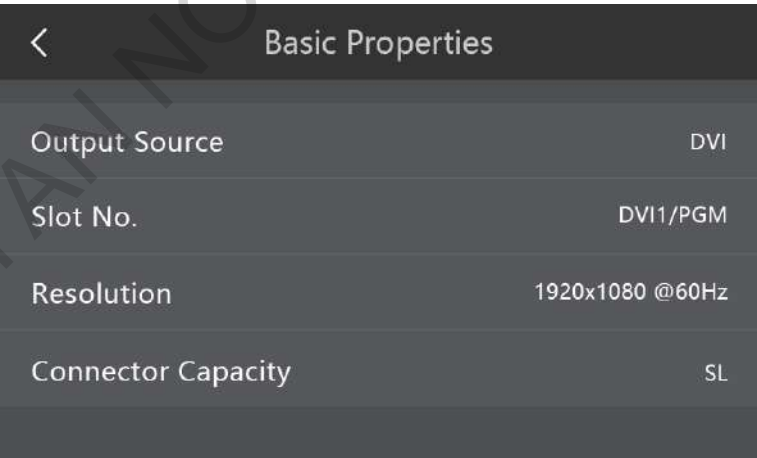


Figure 4-19 Output properties



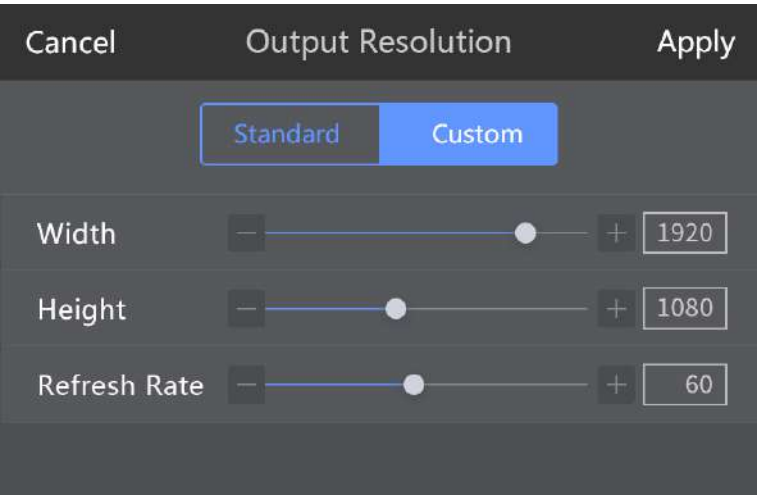
- Resolution

Set the resolution and refresh rate. You can either choose a standard resolution and refresh rate, or customize them. The standard resolutions and refresh rates are predefined in the C1. You can also drag the sliders, tap the + or – button, or enter numbers to customize a resolution and refresh rate. Tap **Apply** after the settings are done.

Standard resolutions include 800×600, 1024×768, 1280×720, 1280×768, 1280×800, 1280×1024, 1366×768, 1440×900, 1600×1200, 1680×1050, 1920×1080 and 1920×1200.

Standard refresh rates include 60Hz, 75Hz and 120Hz.

Figure 4-20 Custom resolution



● Color

On the **Output Color** page, you can adjust the overall brightness, contrast, saturation and hue of the output by dragging the sliders, tapping the + or – button, or entering numbers. When you tap **Reset**, parameters on this page can be restored to the default value 50.

Figure 4-21 Color



Note:

You can also press the **RESET** button in the **FUNCTION** area on the panel to reset the parameters displayed on current page.

- Display control
Set the output display style and display switching, such as whether to freeze the display or whether to make the screen fade to black.

Figure 4-1 Display control



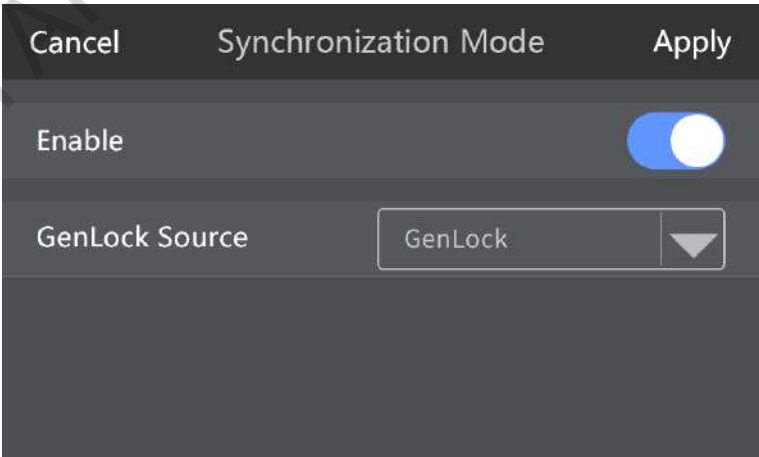
- Normal: Exit the freeze or FTB mode and display the image normally.
- Freeze: Freeze the current frame of the output image.
- FTB: Make the screen fade to black.
- FTB Time: Set the time duration when the FTB process lasts. The value ranges from 0.0s to 2.0s and defaults to 1.0s.
- Test Pattern: Test pattern is used to test the display effect and working status of the LED screen.

Note:

You can also press the **TEST PATTERN** button in the **FUNCTION** area on the panel to enter the test pattern page.

- Switch: Set the switching mode between the PVW and PGM. Copy and swap options are provided.
Copy: When you press TAKE, CUT or push the T-bar, the PVW display will copied to PGM.
Swap: When you press TAKE, CUT or push the T-bar, the PVW display will swapped with the PGM display.
- Synchronization mode
On the **Synchronization Mode** page, you can enable the synchronization function to make the playback smoother. You can choose either an input source or the Genlock source as the sync source. When you choose the former, current sync mode is internal synchronization. When you choose the latter, current sync mode is external synchronization.

Figure 4-2 Synchronization mode



Note:

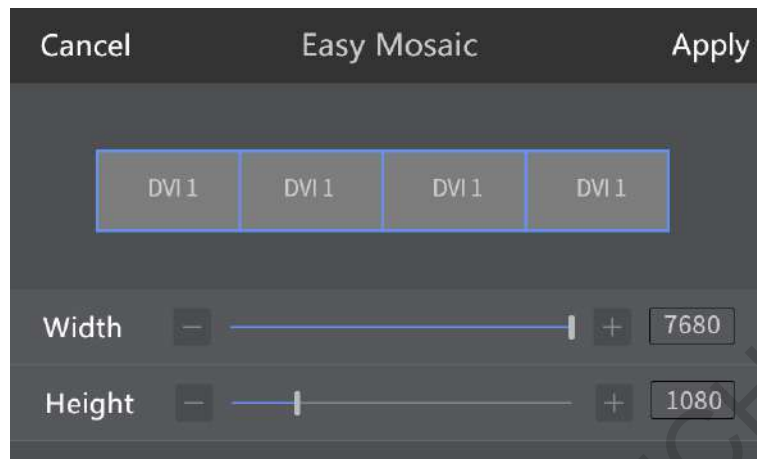
You can also use the **GENLOCK** button in the **FUNCTION** area on the panel to set the synchronization mode.

4.2.2.3 Easy Mosaic

For easy mosaic, the system will come up with a mosaic plan automatically by entering the screen width and height.

Step 1 Tap > next to **Easy Mosaic** to enter the easy mosaic page.

Figure 4-3 Easy mosaic

**Note:**

You can press the **EASY MOSAIC** button in the **FUNCTION** area on the panel to enter this page.

Step 2 Drag the sliders, tap the + or – button, or enter numbers to set the total screen width and height.

Step 3 Tap **Apply** and the system will finish easy screen mosaic automatically.

4.2.2.4 Advanced Mosaic

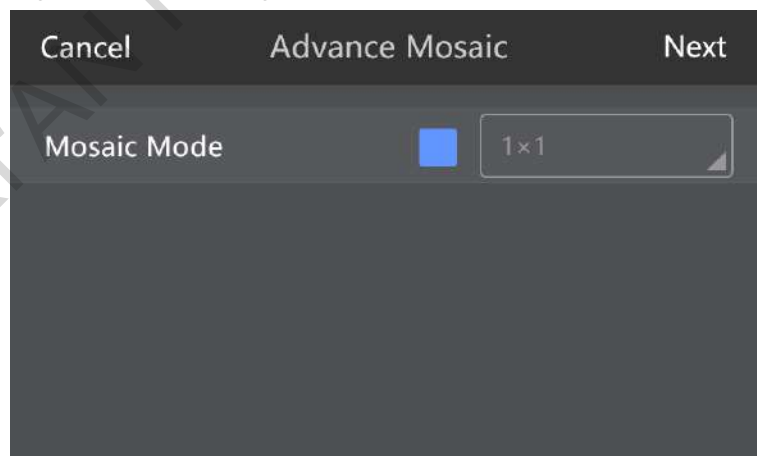
The advanced mosaic allow you to select a proper mosaic mode according to the screen size.

Step 1 Tap the drop-down box next to **Mosaic Mode** and choose a mosaic mode from the drop-down list.

Available mosaic modes include 1×1, 1×2, 2×1, 2×2, 1×3, 3×1, 1×4 and 4×1.

Step 2 Tap **Next**.

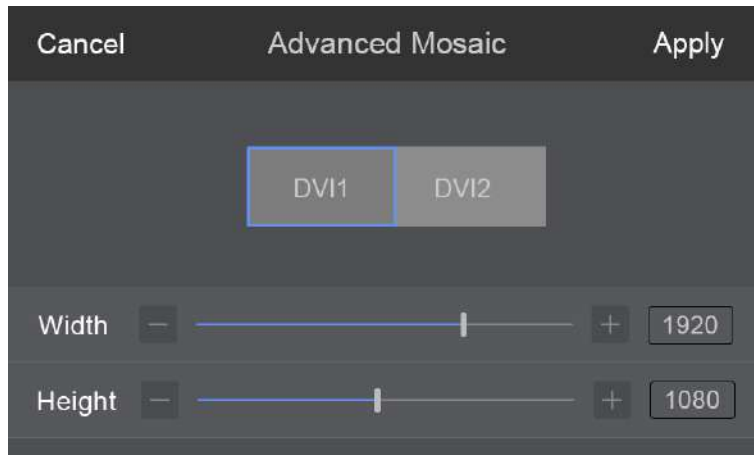
Figure 4-4 Selecting mosaic mode

**Note:**

You can press the **MOSAIC** button in the **FUNCTION** area on the panel to enter this page.

- Step 3 Select a mosaic screen and drag the sliders, tap the **+** or **-** button, or enter numbers to adjust the width and height of the mosaic screen. After adjustment, tap **Apply**.

Figure 4-5 Adjusting mosaic screen



4.3 Programming

The programming module allows you to edit and clone a layer, save, load and clear presets, set transition effects and BKG.

Note:

For the functions that are not supported by the device connected to the C1, the button operations on the C1 panel will not take effect.

4.3.1 Layer

Adding Layers

- Step 1 Tap **Programming** to enter the programming page.

Figure 4-6 Programming page



- Step 2 On the programming page, when you press the **ADD LAYER** button in the **LAYER** area on the panel, an 800x600 layer will be added.

Figure 4-7 Adding layers



Clearing Layers

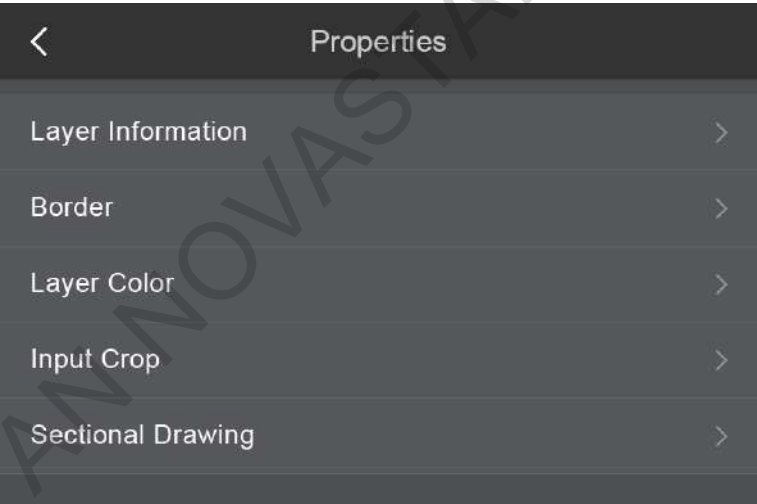
There are three ways to delete layers.

- Select a layer by pressing a layer button in the **LAYER** area on the panel or tapping a layer on the touchscreen, and then press the **CLEAR LAYER** button in the **LAYER** area on the panel.
- Hold down the **CLEAR** button in the **PRESET EDIT** area on the panel to delete all the layers in current editing area.
- On the programming page, select a layer by pressing a layer button in the **LAYER** area on the panel or tapping a layer on the touchscreen. After the layer is selected, tap **Clear** to delete the selected layer.

Changing Layer Properties

Select a layer and then go to **Layer Settings > Properties** to enter the layer properties page.

Figure 4-8 Layer properties



- Layer information
To view the layer information, tap **Layer Information** or press the **LAYER EDIT** button in the **LAYER** area on the panel to enter the layer information page where you can view the layer number, layer priority, layer source and the input resolution, as well as adjust the layer size and position.

Cancel		Layer Information		Apply	
No.	1	Priority	0		
Input Source			1-DP		
Resolution			1920×1080@60Hz		
Width	1920	Height	1080		
X	0	Y	0		

- Border

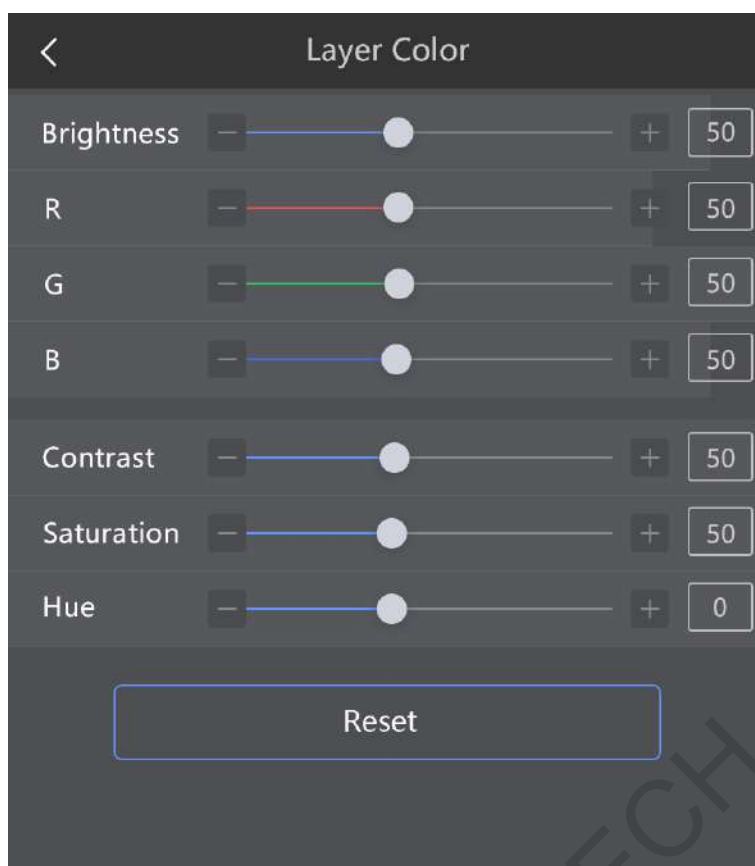
Set the layer border parameters. Toggle the border function switch to enable or disable the border settings.

Cancel		Border		<input checked="" type="checkbox"/>	
Frame Type			External F ▼		
Frame Width			5		
Color			<div style="display: inline-block; width: 20px; height: 20px; background-color: red; border: 1px solid black;"></div> Red ▼		
R	255	G	0	B	0
<div style="background-color: #007bff; color: white; padding: 5px 10px; border-radius: 5px;">Reset</div>					

- Frame Type: Set the layer border type. The options include **External Frame** and **Internal Frame**.
- Frame Width: Set the layer border width. The value ranges from 0 to 16.
- Color: Set the layer border color. Nine colors are provided.
When **Custom** is selected, you can customize the border color by setting the R, G and B color component values.
- Reset: Tap **Reset** to restore all the border parameters to default values.

- Layer color

Tap **Layer Color** or press the **LAYER COLOR** button in the **LAYER** area on the panel to enter the layer color settings page where you can set the overall brightness or RGB brightness, contrast, saturation and hue.



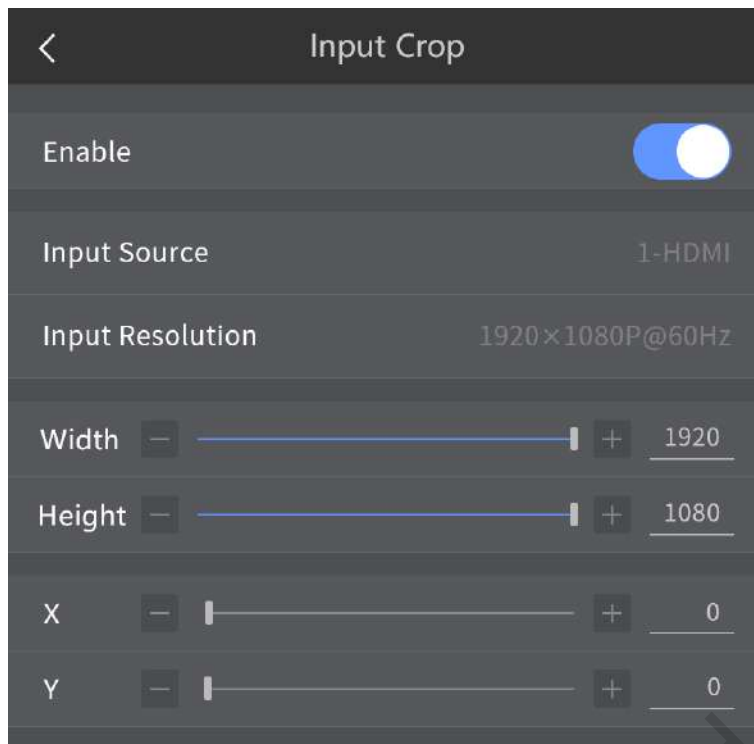
To adjust the layer color parameters, you can drag the sliders, enter numbers in the text boxes or tap the + or – button to fine tune them.

The values of overall brightness, RGB brightness, contrast and saturation range from 0 to 100 and default to 50.

The value of hue ranges from –180 to +180, and defaults to 0.

- Input crop

The input crop function allows you to crop a specific area of the video source, and display the cropped area in full screen. To enable this function, tap **Input Crop** to enter its page and toggle the input crop function switch. You can also press the **CROP ON/OFF** button in the **LAYER** area on the panel and then adjust the width, height, X, and Y parameters to set the area to be cropped.



To adjust the parameters, you can drag the sliders, enter numbers in the text boxes or tap the + or – button to fine tune them.

- **Width:** Horizontal width of the cropped area
- **Height:** Vertical height of the cropped area
- **X:** Horizontal initial position of the cropped area
- **Y:** Vertical initial position of the cropped area

Note:

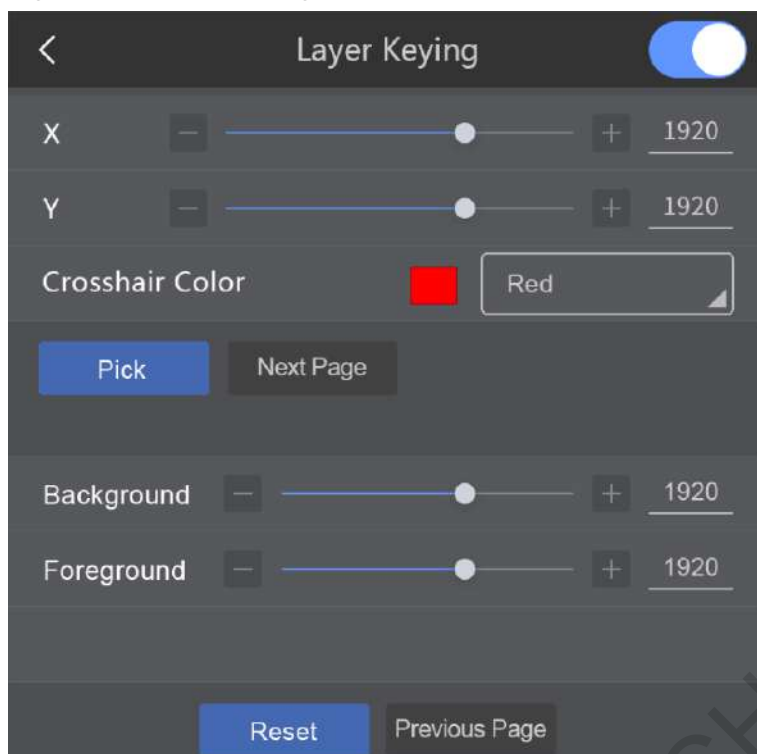
You can also use panel buttons and the joystick on the panel to adjust the size and position of the cropped area. Firstly, press the **CROP** button in the **JOYSTICK CONTROL** area. At this time, the button LED turns green. Then, press the **H** button and rotate the knob and move the joystick to set the width and horizontal position of the area. After that, press the **V** button, rotate the knob and move the joystick to set the height and vertical position of the area.

● Layer Keying

The function allows you to key out the undesired color.

1. Select a desired layer and go to **Layer Settings > Properties > Layer Keying** to enter the layer keying page.

Figure 4-9 Layer keying



2. Toggle the layer keying function switch to enable or disables the keying function.
3. Set the pick point color by settings the **X** and **Y** values.

When you are setting the pick point color, a crosshair is displayed on the selected layer on the screen.

4. Select the crosshair color.
5. Tap **Pick** to key out the selected color.
6. Click **Next Page** to adjust the **Background** and **Foreground** values to fine tune the keying effect.

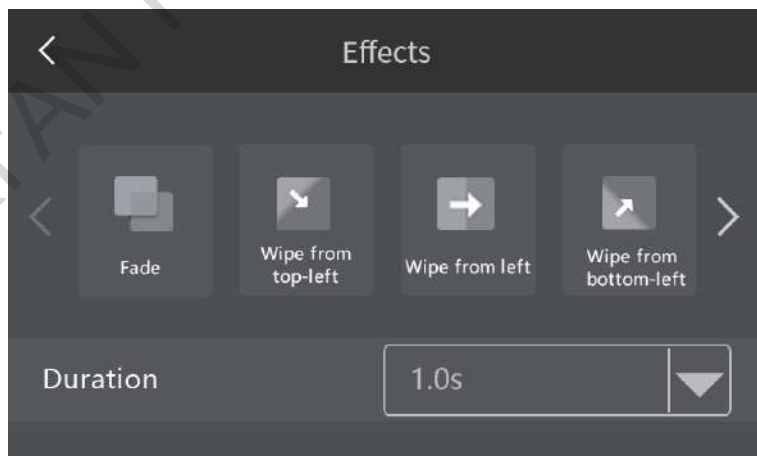
4.3.2 Transition Effects

Transition effect is a special effect that is displayed when sending PVW to PGM. Each layer in PVW is sent to PGM with the same transition effect. Up to 13 effects are provided.

On the **Effects** page, tap < or > button to view all the effects. After you tap an icon to select it, tap the drop-down box next to **Duration** to set the transition duration.

The transition duration ranges from 0s to 2.0s.

Figure 4-10 Transition effects



Note:

You can press the **MORE** button in the **TRANSITION** area on the panel to enter the **Effects** page, or you can directly press the six commonly-used effect buttons in the **TRANSITION** area. For details, see the description of the buttons in the **TRANSITION** area.

4.3.3 BKG

The C1 supports BKG settings. After a BKG is set, the BKG will be automatically sent to back and displayed in full screen.

Step 1 Insert a USB drive with the desired images stored in it into the type-A USB port on the C1 rear panel.

Step 2 After the C1 identified the USB drive automatically, a file import prompt box will be displayed. Tap **Import** in the box and the system will import the stored images to the C1.

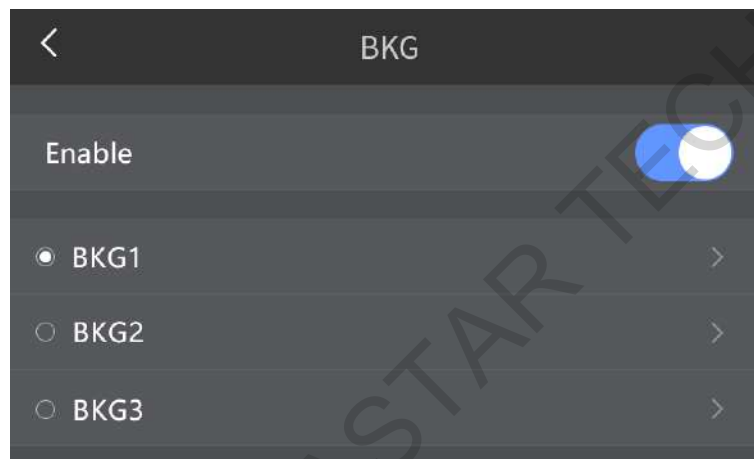
Up to 10 BKG files can be added to the C1.

Step 3 Go to **Layer Settings > BKG** to enter the BKG page.

Step 4 Toggle the BKG function switch to enable or disable the BKG function.

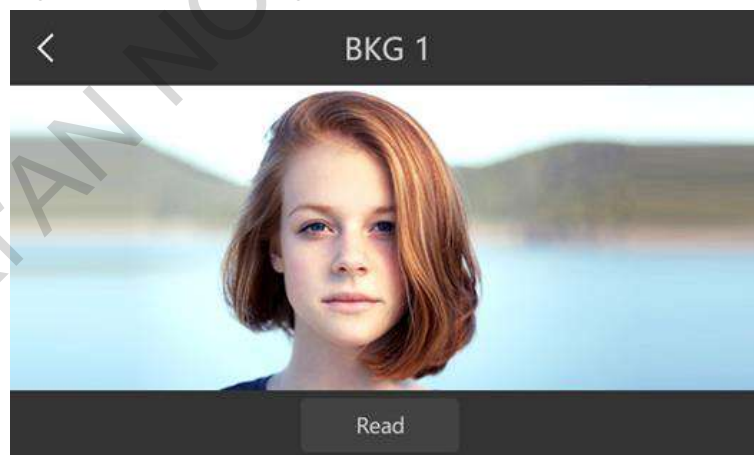
You can also press the **BKG ON/OFF** button in the **LAYER** area on the panel to enter the BKG page.

Figure 4-11 BKG page



Step 5 Select one of the BKG files, tap the > button next to the selected file name to enter the BKG settings page.

Figure 4-12 BKG settings



- **Read:** Read the BKG files added by the device and send the information to the C1.

Step 6 Tap **Apply** or press the **APPLY** button in the navigation area to apply the BKG file to PVW or PGM.

4.3.4 Presets

The C1 supports up to 32 presets. Presets in the C1 have the following three statuses.

- Red preset: The preset has been loaded to PVW.
- Green preset: The preset contains layer data.
- White preset: The preset is blank and no layer data is saved in it.

Saving Presets

The C1 allows the edited PVW or PGM to be saved as a preset which can be loaded and applied directly in future use.

Tap **Save** to enter the **Save Preset** page. Select a preset and tap **Save** at the top right to save the edited layer data to the selected preset.

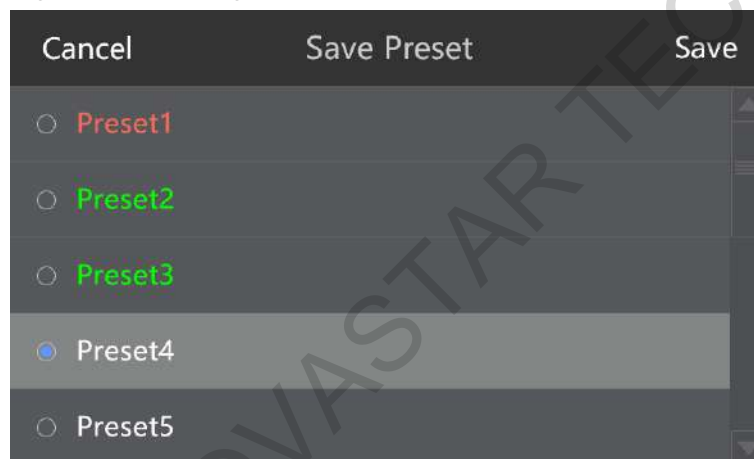
Presets also can be saved quickly with panel buttons. Below are the operating procedure:

In the **PRESET EDIT** area, press the **SAVE CUSTOM** button, and it flashes yellow. At the same time, the preset buttons with data in the **PRESET** area turn yellow while the preset buttons without data do not change. Press the button of the desired preset where you want to save the edits to save the current layer information to the selected preset.

Note:

When you are saving a new preset, if you select a preset whose button LED is yellow, data in the original preset will be overwritten.

Figure 4-13 Saving presets



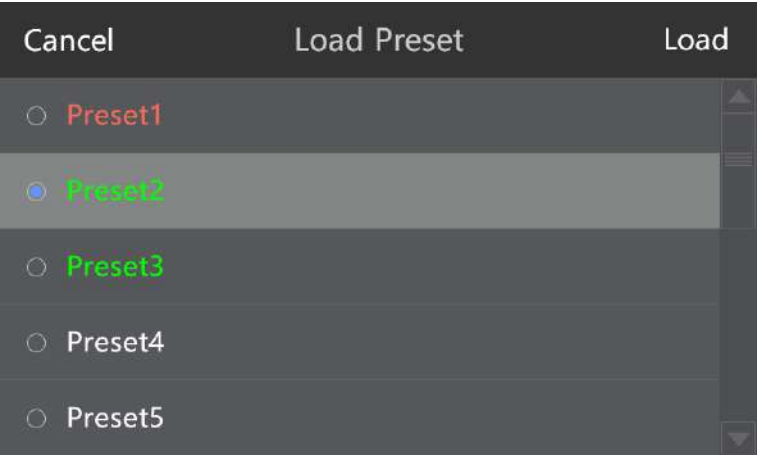
Loading Presets

The C1 allows for the loading of both custom presets and preset templates. Custom presets can be loaded on the touchscreen and preset templates can be loaded by pressing panel buttons.

- Loading custom presets

Tap **Load** on the programming page to enter the preset list page.

Figure 4-14 Loading presets



Select a preset and tap **Load** to load the preset to the current editing area.

Note:

Custom presets can also be loaded with panel buttons. Press the **CUSTOM** button, and it flashes yellow. Buttons of the presets with data turn yellow. Press a preset button to load the custom preset to the current editing area.

- Loading preset templates
Preset templates can be loaded with panel buttons only. Press the **TEMPLATE** button, and it flashes yellow. Buttons in the **PRESET** area turn red. Buttons in the **PRESET** area serve as preset template numbers. Press a button in the **PRESET** area to load the template to the editing area.

Clearing

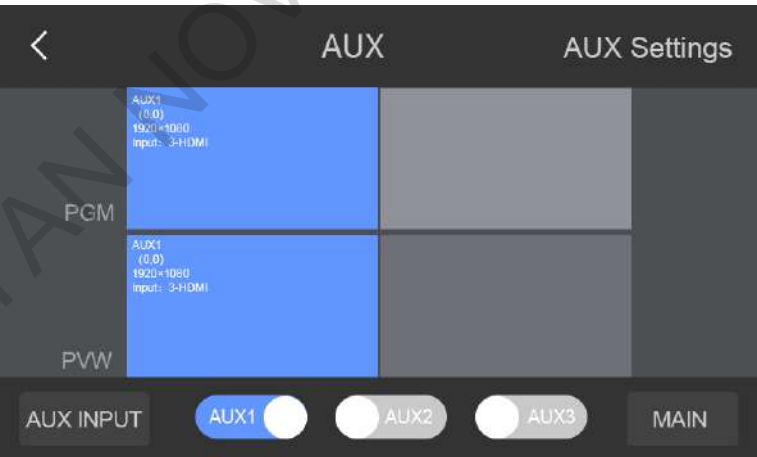
Tap **Clear** to delete the layers and BKG information in the editing area.

4.3.5 AUX

AUX is the auxiliary output of the source signal, PVW or PGM. You can output an unprocessed video signal to a monitor. When the VE7 is connected with the N9, you can set its MVR/AUX connector on the N9.

Press the **AUX** button in the **FUNCTION** area or tap **AUX** on **Programming** page to enter the AUX settings page as shown in the following figure.

Figure 4-15 AUX



At the bottom of the page, toggle the desired AUX switch to enable or disable the corresponding AUX function. Tap **AUX INPUT** to set the input source for the enabled AUX.

AUX1 and AUX2 can be accessed with the input sources from the N9 and VE7

AUX3 decides the output content of the MVR/AUX connector on the VE7. AUX3 can be accessed with the input sources from the VE7 only.

Tap **MAIN** to exit the AUX settings page and go back to the programming page.

AUX Settings

Tap **AUX Settings** on the top right to enter the AUX settings page.

Figure 4-16 AUX settings

Cancel		AUX Settings		Apply	
No.	1	Input Source	03-HDMI		
Follow the Sence		<input checked="" type="checkbox"/>			
Follow the Blank		<input checked="" type="checkbox"/>			
AUX Mosaic			1x1	▼	
Scaling Pattern		Full Screen		▼	

- No.: View the AUX number. 1 represents AUX 1, 2 represents AUX 2 and 3 represents AUX 3.
- Input Source: View the input source of the current AUX.
- Follow the scene: Set whether the AUX follows the preset switching.
 - On: If the preset has AUX data, AUX will switch automatically when the preset is switched.
 - Off: AUX will not switch when the preset is switched.
- Follow the Blank: Set whether the AUX follows the screen to fade to black.
 - On: When the LED screen fades to black, AUX will fade to black automatically.
 - Off: When the LED screen fades to black, AUX will not fade to black.
- AUX Mosaic: Set the AUX mosaic layout.
AUX 1 and AUX 2 support mosaic and the mosaic options include 1x1, 1x2 and 2x1.
- Scaling Pattern: Set whether to scale the AUX output image.
 - Full Screen: Display the image in full screen.
 - Equal ratio: Scale the image and display the image proportionally.

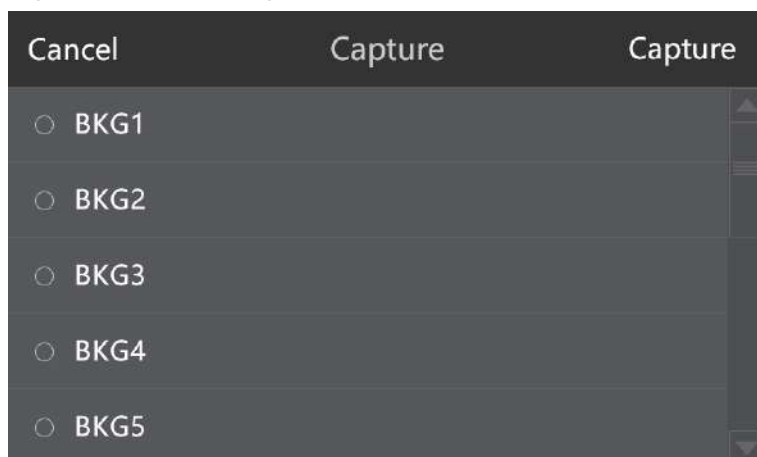
Tap **Apply** to make the settings take effect.

4.3.6 Capturing

The C1 allows you to capture the input sources and the captured images can be saved as BKG files.

In the **FUNCTION** area, press the **CAPTURE** button and it flashes green. Press the button of the target input source to capture the current frame. After the capturing, you can select a desired BKG to save the captured image on the following page.

Figure 4-17 Capturing

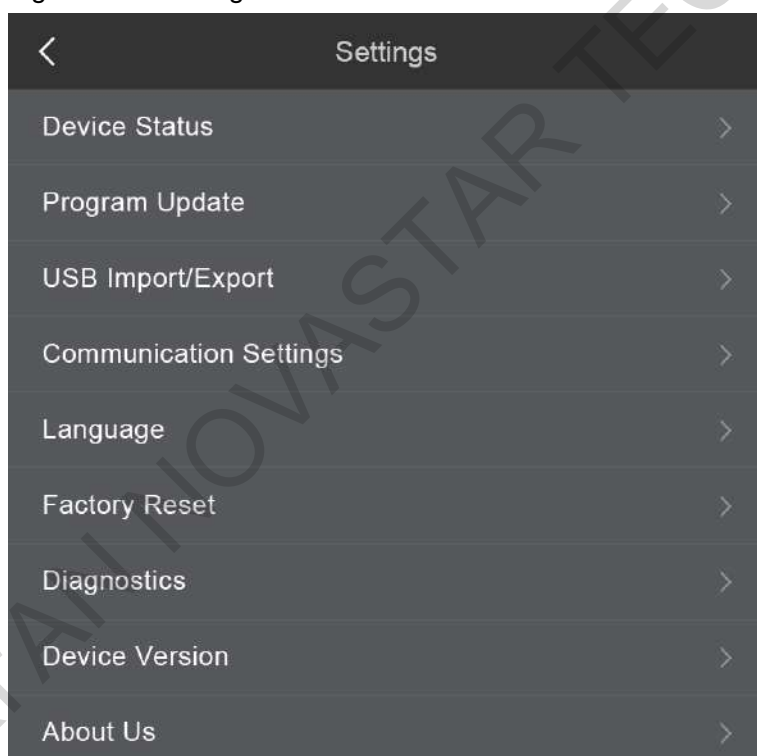


You can select a name from BKG1–BKG10. Tap to select one and tap **Apply** to save the captured image.

4.4 Settings

The **Settings** area includes mainly nine sub-modules: device status, program update, USB import and export, communication, language, factory reset, diagnostics, device version and manufacturer information. These settings are mainly used for the C1.

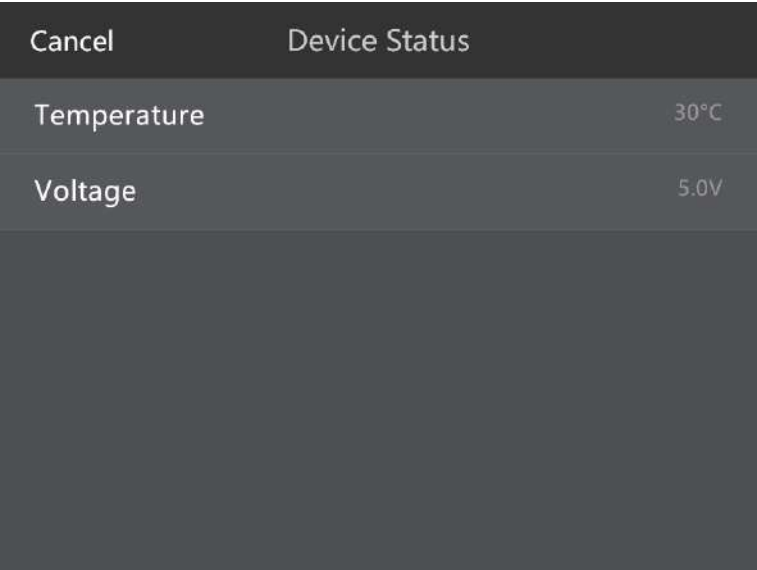
Figure 4-18 Settings



4.4.1 Device Status

Tap **Device Status** to view the current temperature and voltage of the device.

Figure 4-19 Device status



4.4.2 Program Update

The C1 can be updated via USB drive. You can save the update program file in a USB drive and insert it into the USB port on the C1 rear panel. On the program update page, tap **Program Update**. The system automatically detects the USB drive presence. In the pop-up window, tap **OK** and the system will automatically update the unit.

Figure 4-20 Program Update

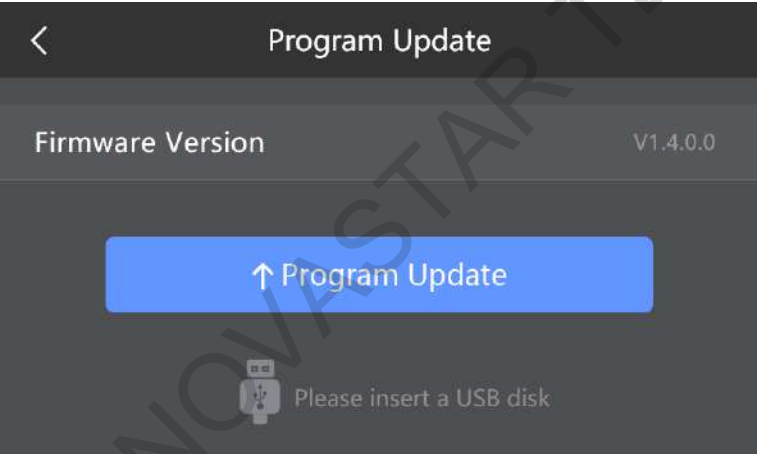
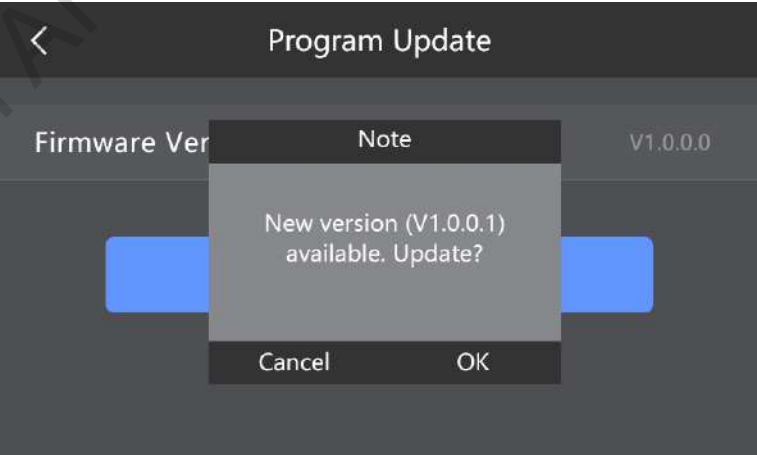


Figure 4-21 Pop-up window



4.4.3 USB Import and Export

Configuration files saved in a USB drive can be imported into the C1 and configuration files in the C1 can be exported to a USB drive so that the files can be imported into another C1 unit for quick use.

Figure 4-22 USB import and export



Preset and BKG Import

1. Insert a USB drive stored with the C1 configuration files into the USB port on the C1 rear panel.
2. Go to **Settings > USB Import and Export** to enter the USB import and export page.
3. Tap **Preset Import** or **BKG Import**, and the system will automatically import the preset files or BKG files into the C1.

Preset and BKG Export

1. Insert a USB drive into the USB port on the C1 rear panel.
2. Go to **Settings > USB Import and Export** to enter the USB import and export page.
3. Tap **Preset Export** or **BKG Export**, and the system will automatically export the preset files or BKG files into the inserted USB drive.

4.4.4 Communication Settings

When the C1 is connected with multiple devices via a router or switch, you need to set the IP address, subnet mask and gateway properly to ensure the C1 and the controlled devices on the same network segment.

In communication settings, you can set the network mode (static and dynamic), IP address, subnet mask, and gateway.

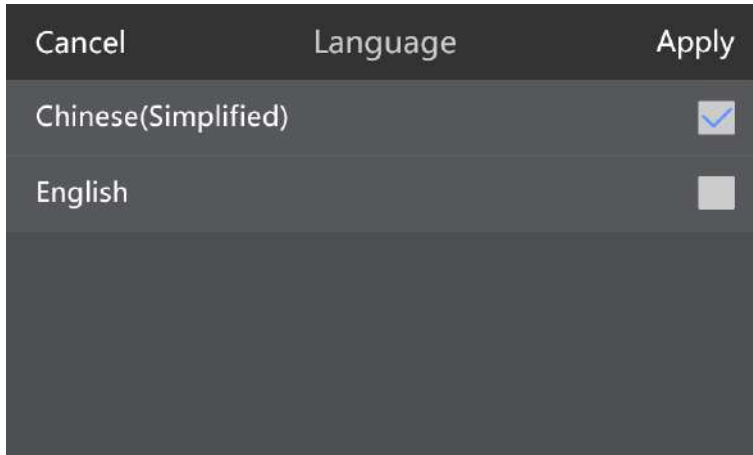
Figure 4-23 Communication settings



4.4.5 Language

The C1 currently supports English and Simplified Chinese. You can easily switch to your preferred language.

Figure 4-24 Language



4.4.6 Factory Reset

You can select to reset the C1 or its connected device to factory settings. Select the desired device and then select whether to reset all parameters.

- Factory Reset: Reset all the parameters to factory defaults.
- Factory Reset (Save IP): Reset all the parameters except for the IP address to factory defaults.

Figure 4-25 Factory reset



4.4.7 Diagnostics

Diagnose whether each component works normally. If anything is wrong, send feedback to technical support team of Xi'an NovaStar Tech Co., Ltd. to solve the problems as soon as possible.

4.4.8 Device Version

View all the firmware versions, such as FPGA.

4.4.9 About Us

View the manufacturer information of the C1.

- Official website: <http://www.novastar.tech>
- Social media contact: Facebook

Figure 4-26 Manufacturer information



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