

INSTRUCTIONS

Z6

USER MANUAL

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1 Safety Information

To prevent personal injury and to protect the device from damage, read and follow these safety precautions.

- **Do not remove the cover**

To avoid personal injury, do not remove the top cover.

- **Only use the power supply and accessories specified by the manufacturer**

The operating voltage of this product is 100V-240V AC. Only use the power cord provided with the product or the power cord that meets the appropriate local rating standards.

- **Prevent function interfaces from contact with charged objects**

This is an electric product. The circuit elements may be damaged if the function interfaces contact charged objects.

- **Grounding**

To avoid electrical shock, ensure that the product is grounded.

- **Electromagnetic Interference**

This is a class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures

- **Environmental Condition**

Use only at altitudes not more than 5000m above sea level.

- **Avoid Moisture**

This product is not waterproof, so avoid contact with liquid or operating the product in a humid environment.

- **Keep the product away from flammable and explosive hazardous substances**

Unpacking and Inspection

After unpacking, checking the items according to the packing list in the box. Please contact the salesman in time if you find the accessories are incomplete.

2 Overview

Z6 is a professional LED display controller. As video splicer, processor and LED controller in one combined, Z6 has 4K video input capability, UHD and HDR images processing and transmission. Z6 can be applied to high-end rental display and high-resolution LED display perfectly.

Features

Input

- Two 4K inputs: 1×HDMI2.0, 1×DP1.2
- Six 2K inputs: 4×DVI, 2×SDI
- Up to 3840×2160@60Hz resolution
- 8/10bit color depth
- Support HDCP

Output

- 16 Neutrik Gigabit Ethernet outputs
- Support Ethernet port redundancy and controller redundancy

Video processing

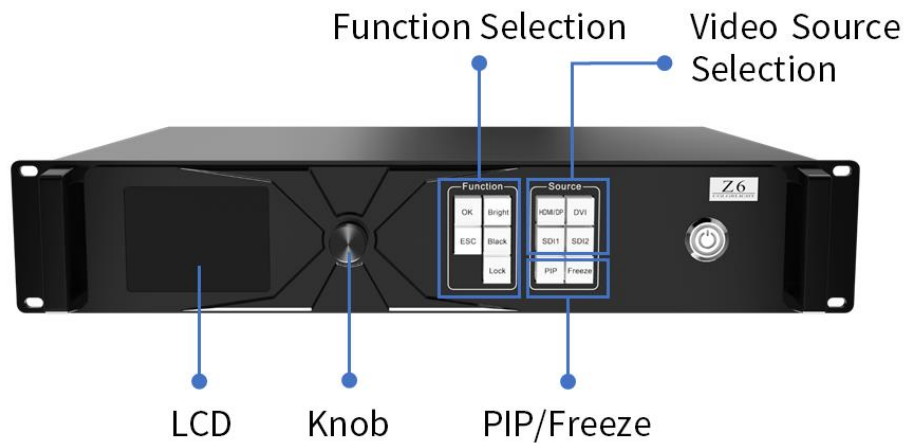
- HDR display: HDR10 standard
- Low latency
- Support cropping, scaling and splicing of input images
- Support the display of up to 3 windows, which are freely assignable and can be scaled up and down
- Brightness adjustment, color temperature adjustment
- Better gray at low brightness

Device control

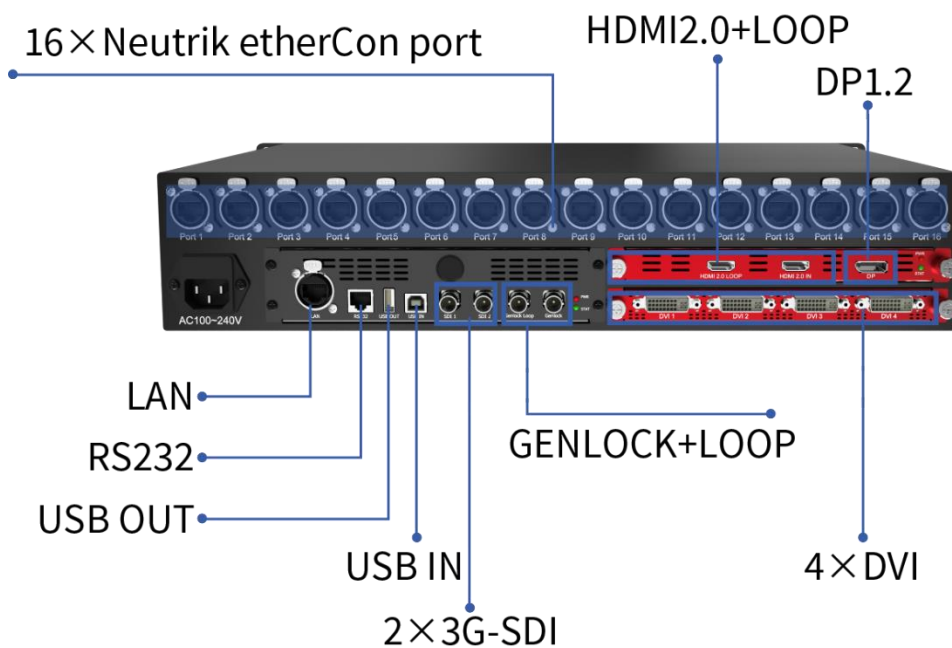
- USB port for control or cascading
- Control via RS232 protocol
- Control via TCP/UDP protocol and Art-Net protocol in local area network

3 Appearance

Front Panel



Back Panel



4 Signal Connection

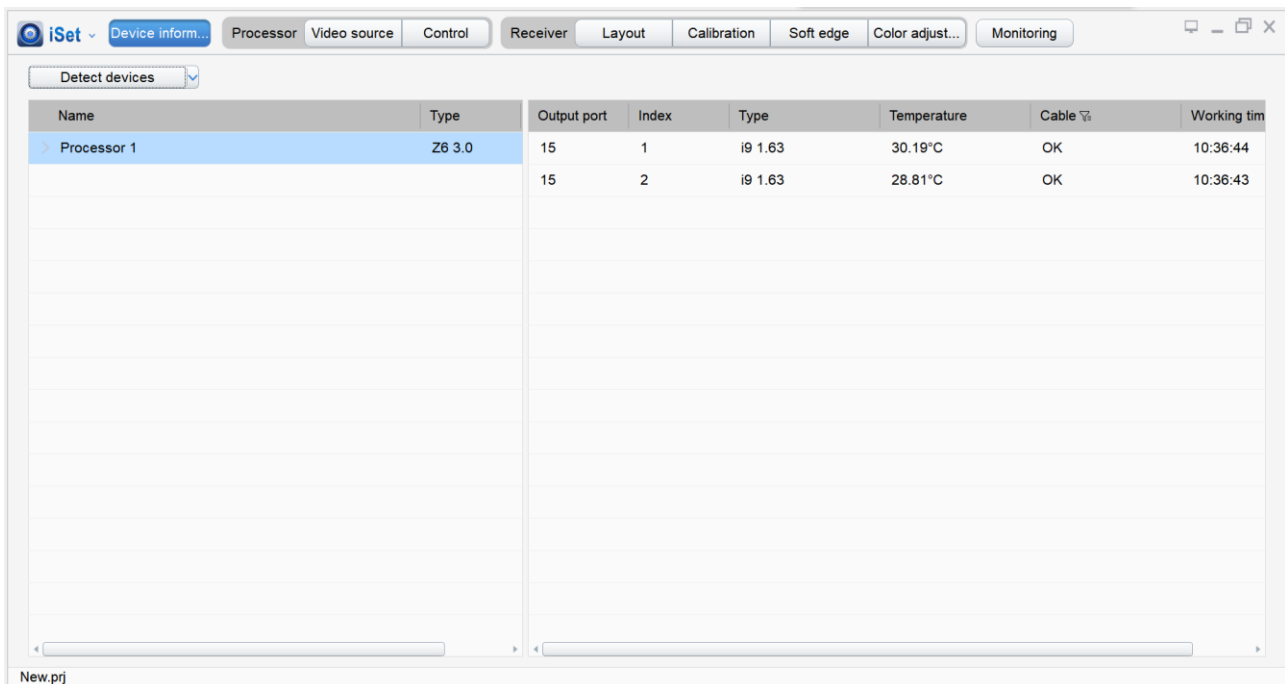


5 Software Operation Instruction

Please ensure that the hardware is properly connected before setting parameters, and that all senders and receiver cards can be detected by the software. You can visit www.colorlightinside.com to download the iSet installation package.

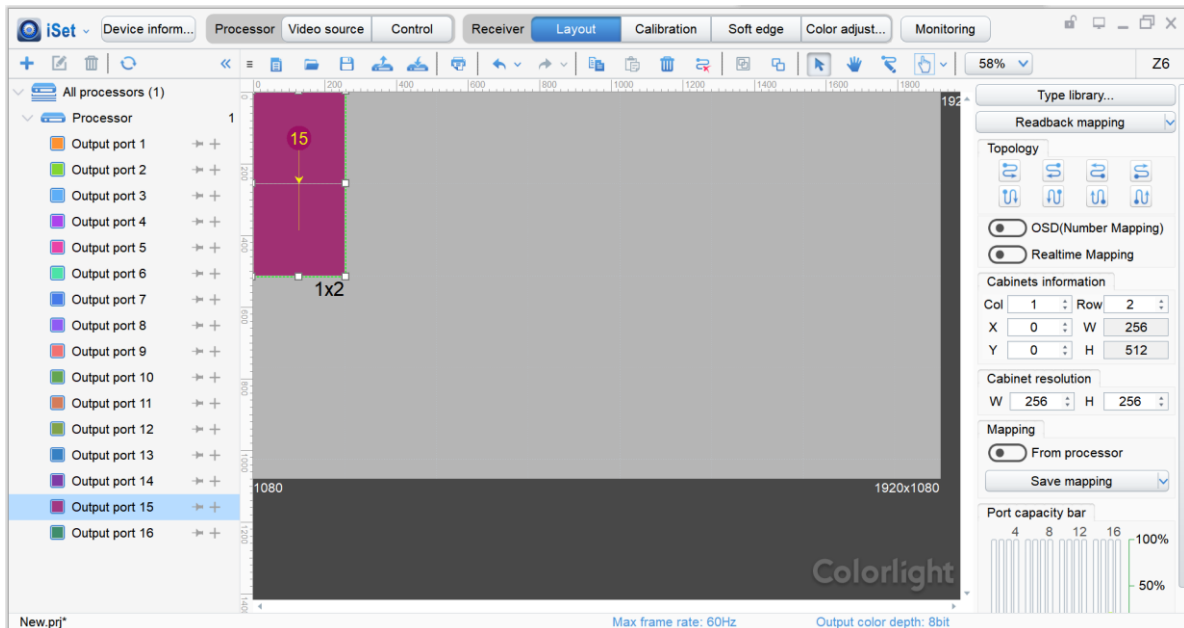
5.1 Device Detection

Open iSet. On the **Device information** page, click **Detect devices**, and the name and type of the sender will be displayed at the left side of the page while the output port, index, type, temperature, cable status and working time at the right side of the page. Please check the corresponding cable if the number of receiver cards are inconsistent with actual status.



5.2 Layout Settings

Click **Layout** to enter the layout settings page.



5.2.1 Adding Cabinets


1. Set cabinet specifications.

There are two ways to set cabinet specifications:

(1) Custom setting

- ① Click the adding icon **+** beside the output port you are to add cabinets to at the left side of the page, and select **Custom**.
- ② In the pop-up dialog box, enter the width and height of the cabinet, and click **OK**.

(2) Import cabinet type file



- ① Click **Type library** in the upper-right corner of the page.
- ② In the pop-up window, click the import icon , and select a cabinet type file.
- ③ Click the adding icon **+** beside the output port you are to add cabinets to at the left side of the page, and select the file you have just imported.

2. After setting cabinet specifications (the cursor turns into a cabinet shape), click the left mouse button to add the cabinet to the canvas.
3. Drag the small white square on the cabinet frame to modify cabinet number, or enter the column and row number of cabinets in the **Cabinets information** area at the right side of the page.

Cabinets information			
Col	1	Row	1
X	0	W	256
Y	0	H	256

5.2.2 Mapping Settings

After adding cabinets, the software will automatically generate mapping. You can reset the mapping if the generated mapping is inconsistent with the actual one.

1. Select the cabinets that you want to set mapping in the canvas area.
2. Click the clear mapping icon  in the toolbar at the top of the page to clear the mapping of the selected cabinets.
3. Click the custom typology icon  in the toolbar at the top of the page.
4. In the canvas area, select the corresponding cabinet of the first receiver card based on the actual connection of the Ethernet port, and left-click the cabinet one by one (or hold the left mouse button and move the cursor) according to actual connection line.

As for the display with relatively standard connection line, you can select all the cabinets needing setting mapping and select a mapping icon in the **Topology** area at the right side of the page.



- Click **Saving mapping** in the bottom right corner of the page to save the mapping to the sender and receiver card.

If the image on the LED screen is displayed normally, then you have successfully set the mapping.

For the cabinets with different specifications (different in dimensions), you can select them and separately adjust the mapping after setting.

Click **Readback mapping** in the upper-right corner of the page, and then the mapping saved in the sender and receiver card will be read back.

5.3 Video Source Settings

Click **Video source** to enter the video source setting page.

5.3.1 EDID

- Click **...** in the upper-right corner of the page.
- In the pop-up dialog box, set the resolution, frame rate (FPS), color depth and standard of the signal, and click **OK**.

The screenshot shows the video source settings interface. On the left, a window titled "HDMI - EDID settings" is open, displaying the following configuration:

- Resolution: 1920x1080PC
- FPS: 60
- Color depth: 8 bit
- Standard: CVT_RB
- Buttons: OK, Cancel

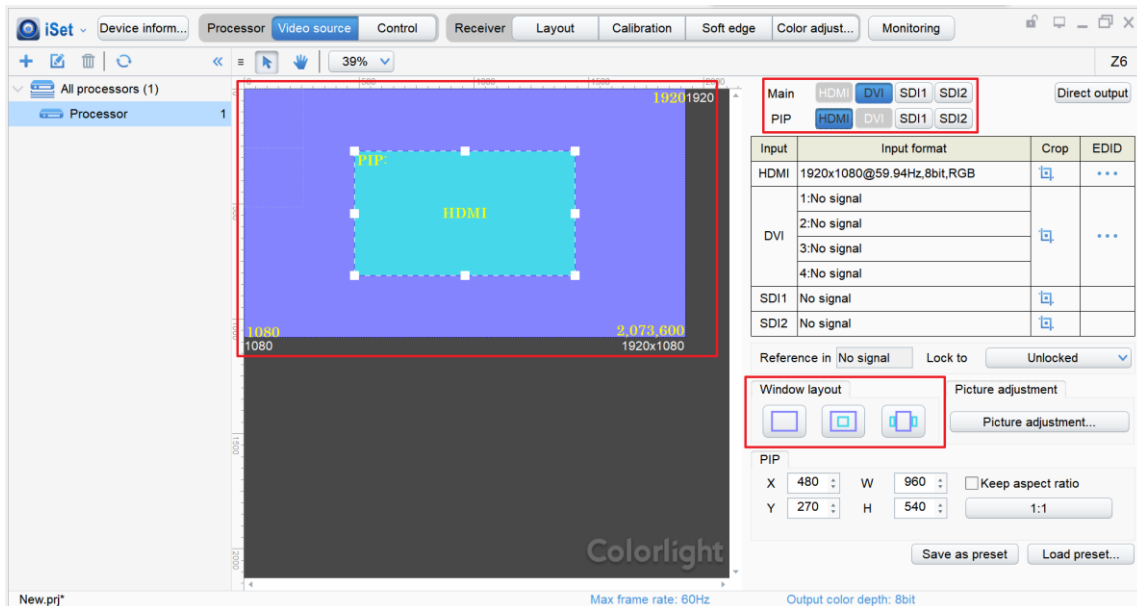
On the right, the main settings table is visible. The table has columns for Input, Input format, Crop, and EDID. The EDID column for the HDMI input is circled in red, and a red arrow points from it to the EDID settings dialog box.

Input	Input format	Crop	EDID
HDMI	1920x1080@60Hz,8bit,RGB	[Crop Icon]	[EDID Icon]
DVI	1:1920x1080@60Hz,8bit,RGB	[Crop Icon]	[EDID Icon]
	2:1920x1080@60Hz,8bit,RGB		[EDID Icon]
	3:1920x1080@60Hz,8bit,RGB		[EDID Icon]
	4:1920x1080@60Hz,8bit,RGB		[EDID Icon]
SDI1	1920x1080@60Hz,8bit,RGB	[Crop Icon]	[EDID Icon]
SDI2	1920x1080@60Hz,8bit,RGB	[Crop Icon]	[EDID Icon]

Below the table, there are additional settings: Reference in (No signal), Lock to (Unlocked), and tabs for Window layout and Picture adjustment.

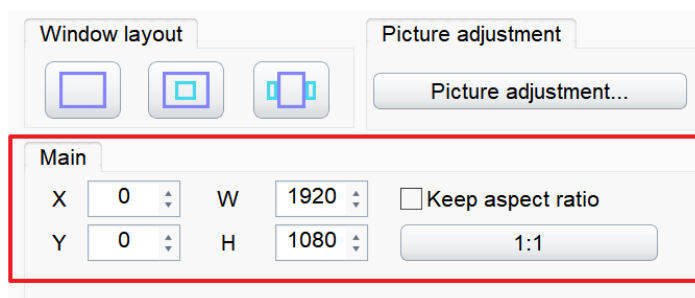
5.3.2 Multi-window Display

1. Select a layout type in the **Window layout** area at the right side of the page.
2. Select a signal window in the canvas area, and choose a signal source for the selected window in the **Main** and **PIP** field in the upper-right corner of the page.



5.3.3 Window Settings

1. Select a signal window in the canvas area.
2. Set the row starting point (X), column starting point (Y), width and height of the selected window in the bottom-right corner of the page.



You can select the **Keep aspect ratio** check box in the bottom-right corner of the page to keep the aspect ratio of output resolution the same as that of input resolution; or you can click **1:1** to make the make output resolution equate to input


resolution.

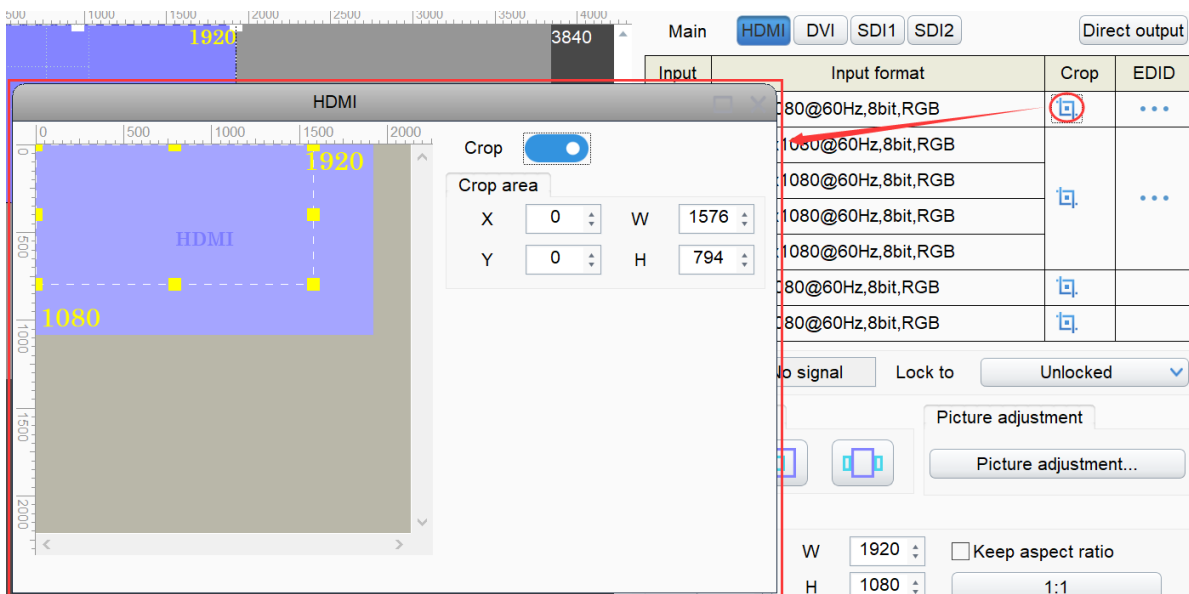
5.3.4 HDMI/DP Signal Switching

Right-click the HDMI or DP signal window, and select DP or HDMI to switch signals.



5.3.5 Cropping

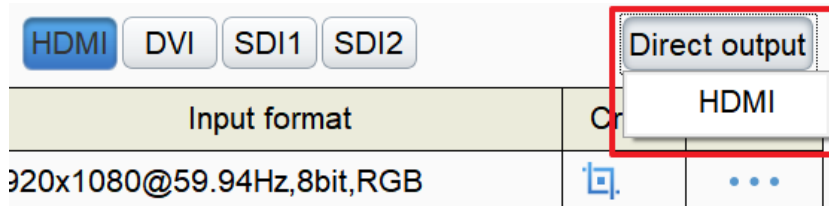
1. Click the cropping icon  in the upper-right corner of the page.
2. In the pop-up cropping window, turn on **Crop**.
3. Set the row starting point (X), column starting point (Y), width (W) and height (H) of the cropped image in **Crop area**.



5.3.6 Direct Output

Click **Direct output** in the upper-right corner of the page and select **HDMI**.

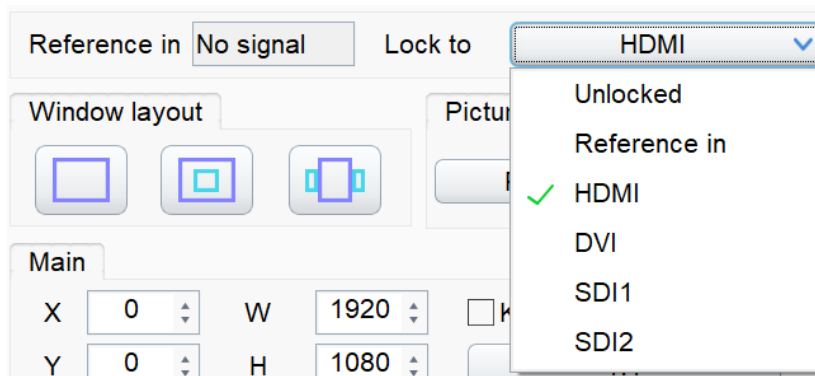
After setting, the canvas area will output a single HDMI image, the aspect ratio of output resolution will be the same as that of input resolution, the cropping function will be turned off, and the low latency function will be turned on.



5.3.7 Sync Settings

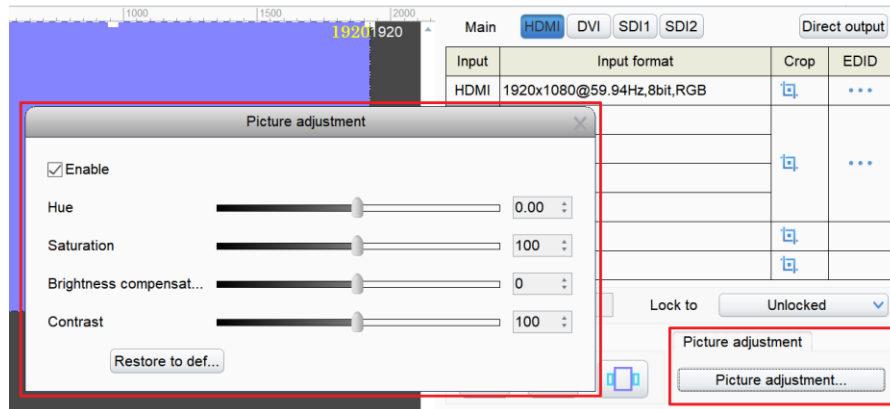
From the **Lock to** drop-down list at the right side of the page, select a signal as the synchronous signal source.

The synchronous signal source can be **Reference in** or any channel of input signals. If the specified synchronous signal source has no signal, the main image will serve as the source.



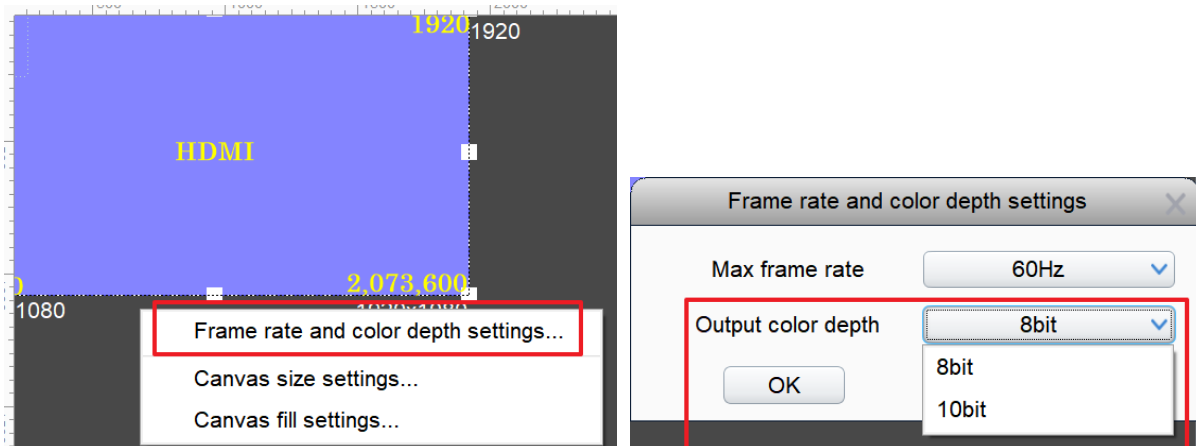
5.3.8 Picture Adjustment

1. Click Picture adjustment at the right side of the page.
2. In the pop-up dialog box, select the **Enable** check box, and then you can modify the value of hue, saturation, brightness compensation and contrast.



5.3.9 Output Color Depth

1. Right-click the non-window area, and select **Frame rate and color depth settings**.
2. In the pop-up dialog box, select an output color depth, and click **OK**.

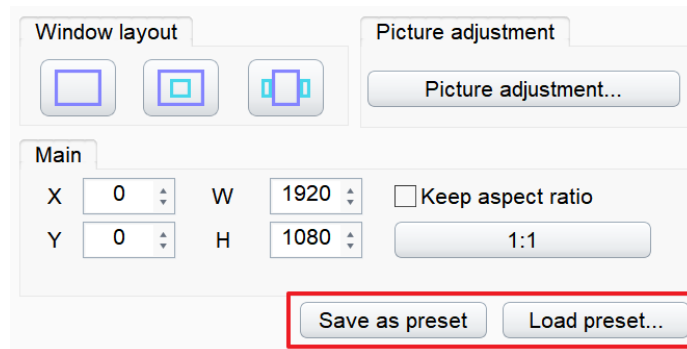


5.3.10 Preset

You can save the parameters on window number, position, size, cropping information, picture adjustment and 3D (supported by the 3D version) as a preset, so that you can load the saved preset to quickly set the display image next time.

Save as preset

1. Click **Save as preset** in the bottom-right corner of the page.
2. Select an unnamed preset.
3. In the pop-up dialog box, enter the preset name.
4. Click **OK** to save the preset to the device.



Load the preset

1. Click **Load preset** in the bottom-right corner of the page.
2. In the pop-up menu, select a preset.

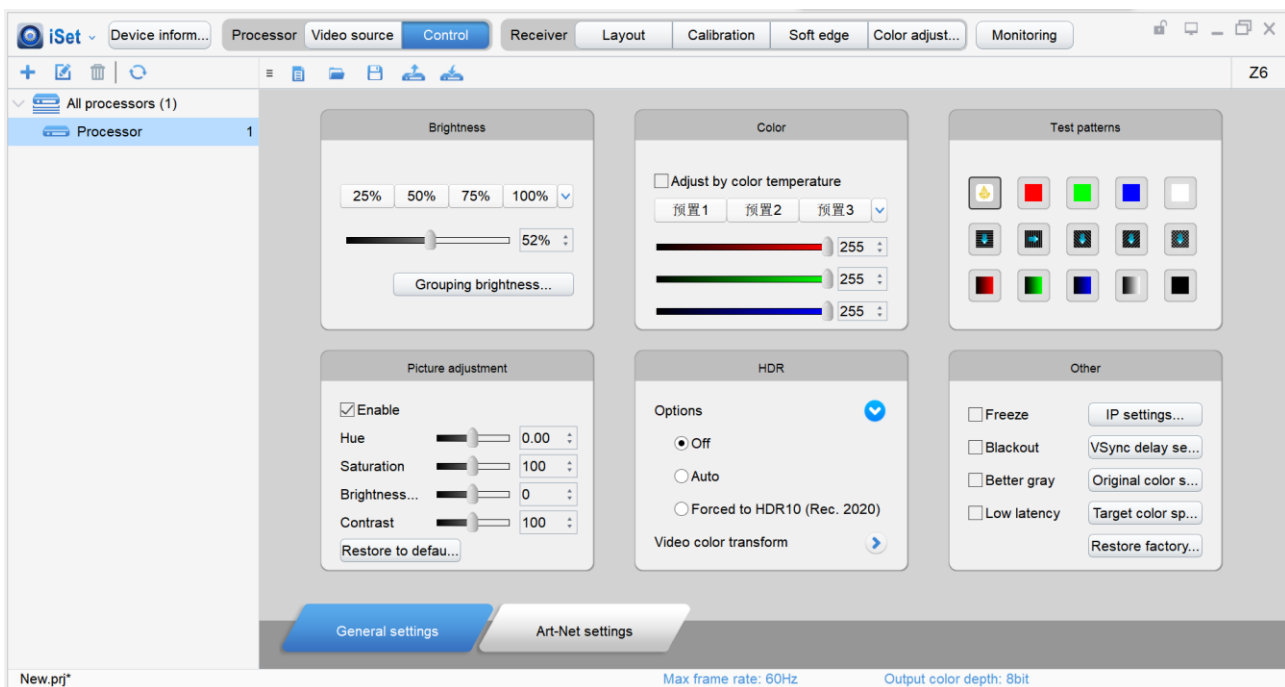
If the preset has been successfully loaded, the screen will display the image according to the preset parameters.

5.4 Control

Click Control. The Control page contains two subpages: General Settings, Art-Net Settings.

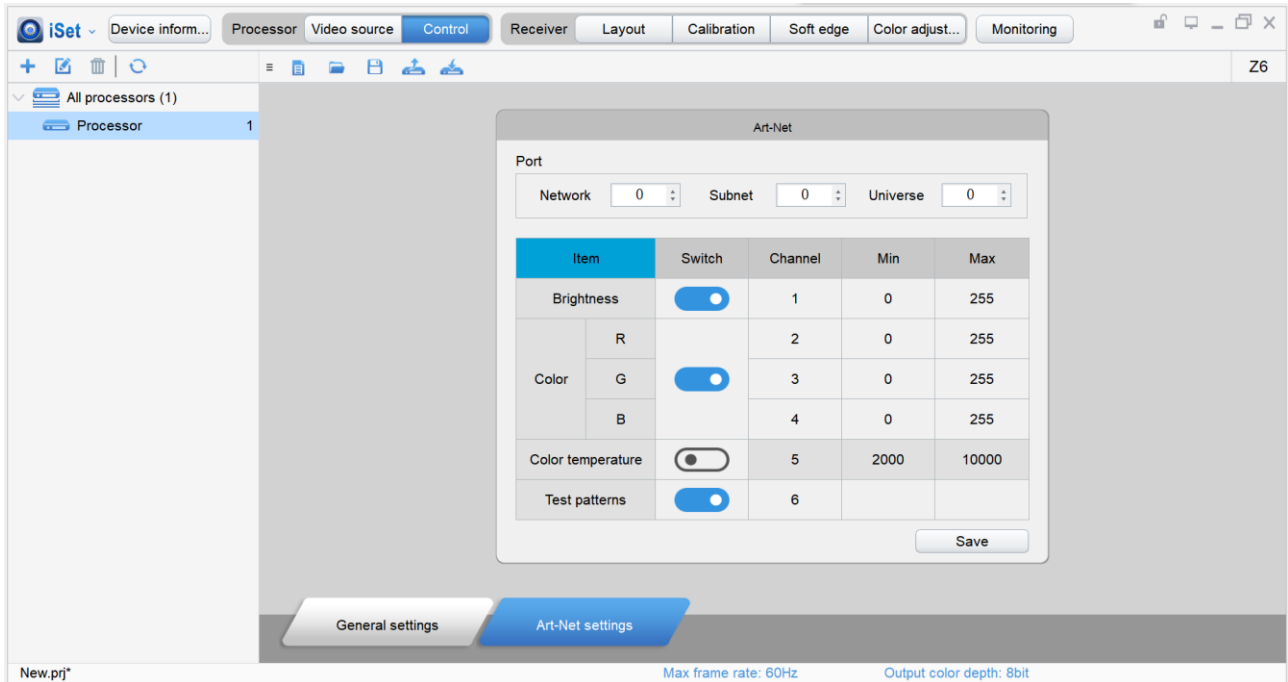
5.4.1 General Settings

On the General settings subpage, you can adjust the brightness, color and color temperature of the display, and select a test mode, perform picture adjustment, turn on or off HDR, freeze the image of the LED display or make the display blackout, turn on or off Better gray, turn on or off Low latency, and set the IP address, VSync delay, display color and brightness, and color space, and restore factory settings.



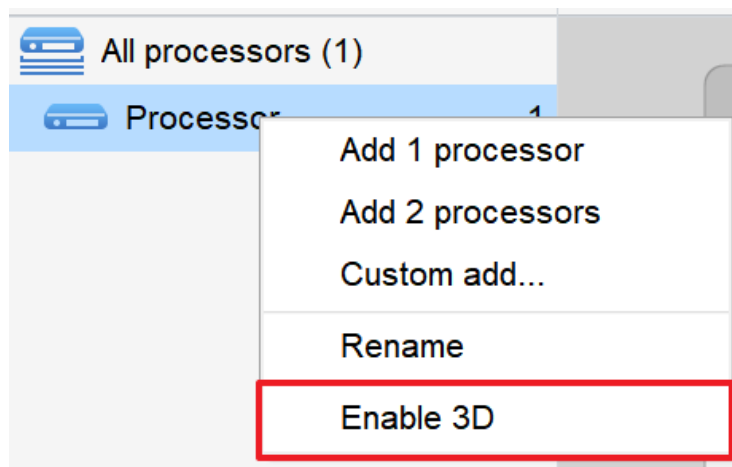
5.4.2 Art-Net Settings

On the Art-Net settings subpage, you can set the port address, switch on or off Brightness, Color, Color Temperature and Test patterns, and set the corresponding channel, and minimum and maximum value. After setting, click **Save**.



5.4.3 3D (Supported by 3D Version)

Right-click the name of the sender in the upper-left corner of the page, and select **Enable 3D**.



6 LCD Operation Instruction

6.1 Operation Instruction

Knob/OK:

- In the main interface, press the knob/OK to enter the operation menu.
- On the operation menu, rotate the knob to scroll to a menu item, press the knob/OK to select the current item or enter the submenu.
- Rotate the knob to adjust parameters after selecting the menu item with the parameter and press the knob/OK to save the value.

ESC: Exit the current menu or operation.

Bright: Press the key and rotate the knob to adjust screen brightness, and then press the knob/OK to confirm the current brightness.

Black: Blackout. Press the key, and the display will go dark. You can press it again to make the screen go back to normal.

Lock: Lock all the keys of the front panel. You can press it again and follow the directions to press OK to exit the Lock mode.

HDMI/DP, DVI, SDI1, SDI2: Switch the signal source to HDMI/DP, DVI, SDI1 or SDI2 signal.

PIP: Press the key and then press a signal selection key to switch the signal of PIP1 window.

Freeze: Freeze the display image. You can press it again to unfreeze the image.

6.2 Main Interface

After starting up the device, the main interface of the LCD display is as follows:



First row: Company Logo

Second row: Signal source and resolution, Brightness

Third and fourth row: Signal source connection status, 10bit signal status, Genlock signal connection status

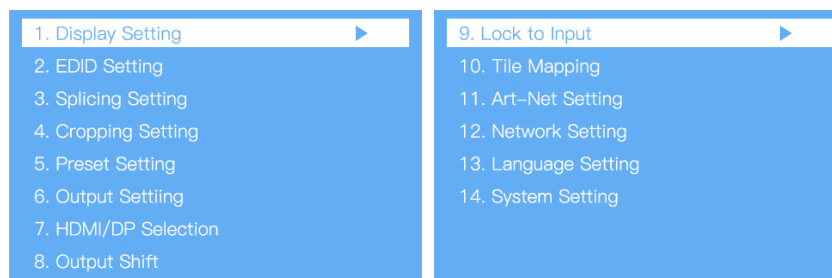
Fifth row: Connection status of Ethernet ports

Sixth row: Device name, IP address, Operating temperature

6.3 Menu Operation

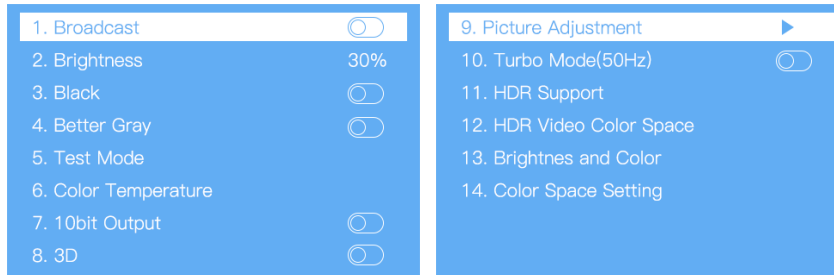
Press the knob/OK to enter the operation menu, which includes 14 operation items:

Display Setting, EDID Setting, Splicing Setting, Cropping Setting, Preset Setting, Output Setting, HDMI/DP Selection, Output Shift, Lock to Input, Tile Mapping, Art-Net Setting, Network Setting, Language Setting and System Setting.



6.3.1 Display Setting

Rotate the knob and select **Display Setting** to enter the **Display Setting** submenu.



Broadcast

Press the knob/**OK** to turn on or off **Broadcast**. If the broadcast function is turned on, the setting of the menu items in this submenu (**Brightness**, **Black**, **Better Gray**, **Test Mode**, **Color Temperature**, **10bit Output**, **3D**, **Picture Adjustment**, **Turbo Mode(50Hz)**, **HDR Support**, **HDR Video Color Space**, **Brightness and Color**, **Color Space Setting**) will be synchronously sent to the devices cascaded with this controller.

Brightness

Select **Brightness**, rotate the knob to change the brightness, and then press the knob/**OK** again to save the brightness.

Black

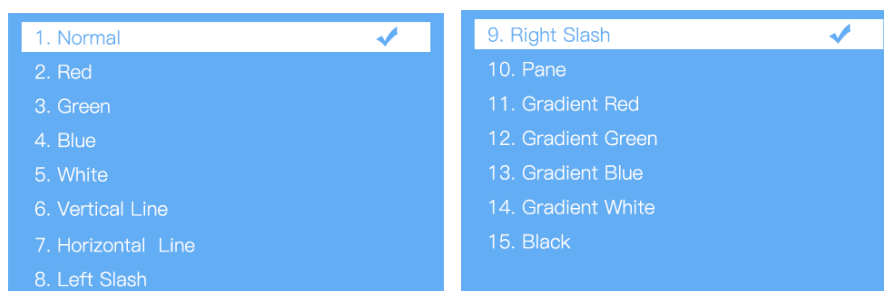
Press the knob/**OK** to turn on or off the LED screen.

Better Gray

Press the knob/**OK** to turn on or off the better gray function.

Test Mode

In the **Test Mode** menu, you can select a test mode.



Color Temperature

Press the knob/OK to turn on or off **Enable**. If **Enable** is turned on, you can rotate the knob to change the value of color temperature (range: 2000-10000) , or select **Reset to Default** to reset the value of color temperature as 6500.



10bit Output

Press the knob/OK to turn on or off the 10bit output function.

3D

Press the knob/OK to turn on or off the 3D function.

Picture Adjustment

Press the knob/OK to turn on or off **Enable**. If **Enable** is turned on, you can select **Hue**, **Saturation**, **Brightness**, or **Contrast** and rotate the knob to modify their values, or select **Reset** to reset the hue value as 0, saturation value as 100, brightness value as 0, and contrast value as 100. Finally select **Save** to save all these parameters.

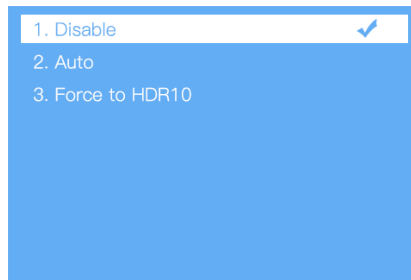


Turbo Mode (50Hz)

Press the Knob/OK to turn on or off **Turbo Mode**. If **Turbo Mode** is turned on, the frame rate of the test mode will change to 50Hz.

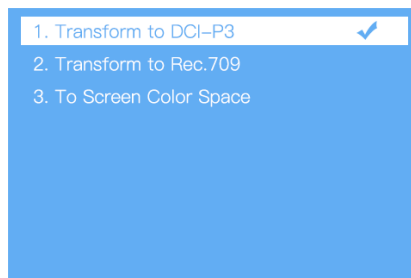
HDR Support

In the HDR Support submenu, you can select a HDR mode.



HDR Video Color Space

In the HDR Video Color Space submenu, you can change the color space of the display.



Brightness and Color

In the Brightness and Color submenu, if you set Color And Brightness as Know, you can modify display brightness and color.

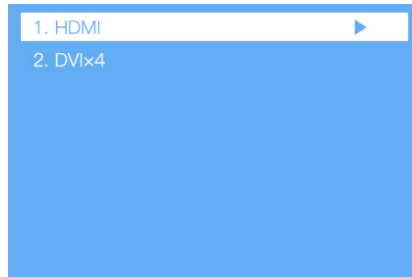


Color Space Setting

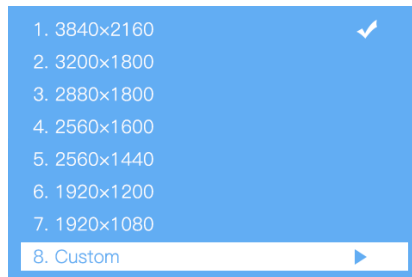
In the Color Space Setting submenu, you can modify the color space of the display if Color And Brightness has been set as Know.

6.3.2 EDID Setting

Rotate the knob and select **EDID Setting** to enter the **EDID Setting** submenu.



In the EDID setting submenu of signal source (take HDMI as an example), you can rotate the knob and select a conventional resolution to save the selected resolution to the sender; or select **Custom** and set the width, height and frame rate, and then select **Save** to save the setting to the sender.



6.3.3 Splicing Setting

Rotate the knob and select **Splicing Setting** to enter the **Splicing Setting** submenu.

Press the knob/OK to enter the **DVI × 4** submenu. You can view the splicing mode, in which four DVI signal images are combined into one DVI image. You can also adjust the size of the spliced DVI signal image by modifying the width and height of the single one.



6.3.4 Cropping Setting

Rotate the knob and select **Cropping Setting** to enter the **Cropping Setting** submenu.



In the cropping setting submenu, press the knob/**OK** to turn the cropping function on or off. If **Enable** is turned on, you can rotate the knob to set the row starting point (**X**), column starting point (**Y**), and the width and height of the signal image, and then select **Save**.



6.3.5 Preset Setting

Rotate the knob and select **Preset Setting** to enter the **Preset Setting** submenu.



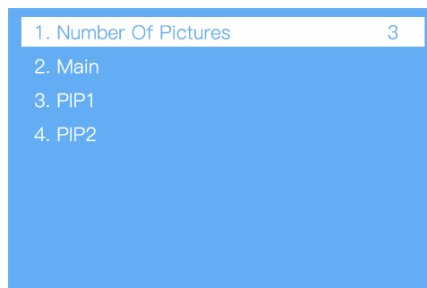
In the submenu, you can turn the broadcast function on or off. If the broadcast function is turned on, the loading of a preset can be broadcast to the devices cascaded with this controller. You can set and save up to 16 presets for quick loading.



6.3.6 Output Setting

Rotate the knob and select **Output Setting** to enter the **Output Setting** submenu.

In the submenu, select **Number Of Pictures** and rotate the knob to set the number of windows from 1 to 3. If the number is 3, you can select **Main**, **PIP1** or **PIP2**, and set the input signal, the row starting point (X), column starting point (Y), and the width and height of the output window.



6.3.7 HDMI/DP Selection

Rotate the knob and select **HDMI/DP Selection**. Press the knob/OK to enter the **HDMI/DP Board** submenu, and select HDMI or DP as the output signal.

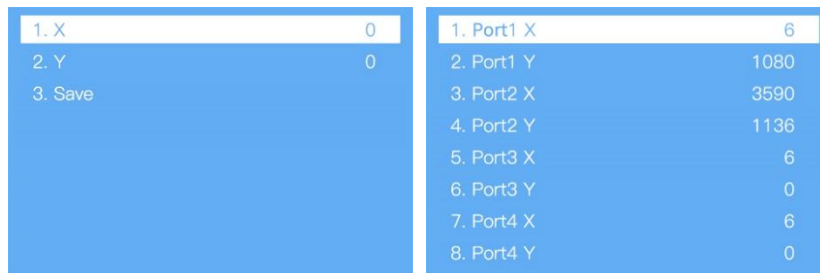


6.3.8 Output Shift

Rotate the knob and select **Output Shift** to enter the **Output Shift** submenu.

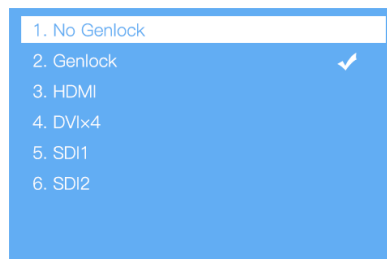


Output shift contains two selections: **Whole** and **By Port**. On the submenu of **Whole**, you can rotate the knob to set the row starting point (**X**) and the column starting point (**Y**) of the whole image and then save the setting; on the submenu of **By Port**, you can respectively set the row starting point (**X**) and the column starting point (**Y**) of the image of the 16 Ethernet ports, and then save the setting.



6.3.9 Lock to Input

When several controllers are cascaded with each other, **Lock to Input** is necessary to ensure the synchronization of the video displays. Rotate the knob and select **Lock to Input** to enter the submenu. In the submenu, you can select a sync signal source.



6.3.10 Tile Mapping

Rotate the knob and select **Tile Mapping** to enter the **Tile Mapping** submenu.

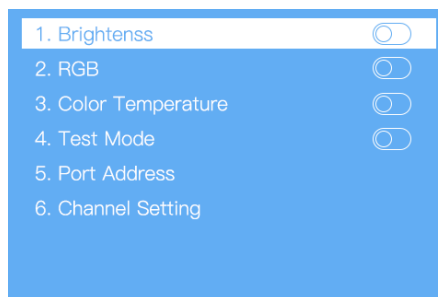


In the submenu, press the knob/**OK** to set the sender as the connection source. Then select **Set by Port** to enter the submenu, in which you can choose the Ethernet port from 1 to 16 that needs setting mapping, and set the offset values of X and Y, and the width, height, row number, column number and link type of the corresponding cabinets. Finally select **Save** to save the mapping.

6.3.11 Art-Net Setting

Rotate the knob and select **Art-Net Setting** to enter the **Art-Net Setting** submenu.

In the submenu, you can turn on or off **Brightness**, **RGB**, **Color Temperature** and **Test Mode**, and set port address. You can select **Channel Setting** and set the channel, minimum value and maximum value of brightness, RGB, color temperature and test mode.



6.3.12 Network Setting

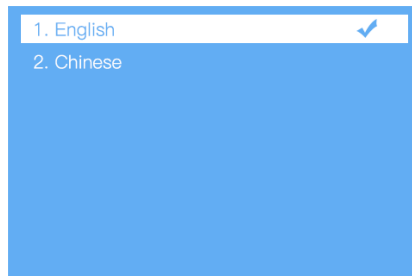
Rotate the knob and select **Network Setting** to enter the **Network Setting** submenu.

In the submenu, you can press the knob/OK to turn **DHCP** on or off. If **DHCP** is turned on, the IP address can be automatically obtained; or you can select **IP Setting** to enter the submenu, in which you can manually set the IP address, subnet and gateway via the knob.



6.3.13 Language Setting

In the Language menu, you can switch languages.



6.3.14 System Setting

In the **System Setting** menu, you can restore factory settings and view the detailed information of the current version.





Visual Future

Colorlight Cloud Tech Ltd
www.colorlightinside.com