KU20

LED Display Controller

User Manual

Change History

Document Version	Release Date	Description
V1.5.0	2025-09-30	• Supports central control protocol and viewing of device MAC address. • Supports SPDIF audio output.
V1.4.2	2024-10-31	Deleted the Sync Lock related operations from the device's LCD interface.
V1.4.1	2024-08-13	Updated the descriptions for internal source operations.
V1.4.0	2024-06-13	The "Layer Setting" in the LCD interface of the device has been renamed to "Layer Parameters". Now, it only shows the parameters without allowing any modifications.
V1.1.0	2023-04-28	• Added the **All-In-One Controller** working mode. • Added the image scaling function. • Added the temperature scale switching function. • Support the SNMP and Art-Net protocols. • Support 8-bit output bit depth only (10-bit supported by customized program).

Contents

1 Introduction

The KU20 is an LED display controller with 6 Ethernet ports in the brand-new control system COEX series of Xi'an NovaStar Tech Co., Ltd. (hereinafter referred to as NovaStar). This controller offers 1x HDMI input, 6x Ethernet outputs and 1x optical output. It can also work with the brand-new software VMP (Vision Management Platform) to provide a better operation and control experience.

This document mainly describes the menu operations on the LCD screen of the controller. For more function operations, please refer to *VMP Vision Management Platform User Manual*.

2 Appearance

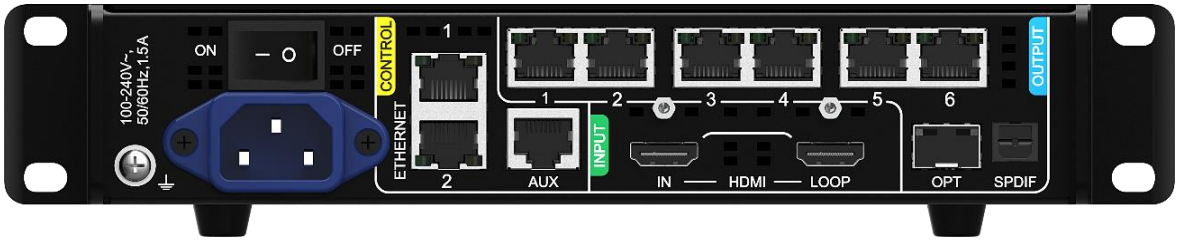
2.1 Front Panel

Front Panel

Name	Function
Running indicator	• Solid red: Standby. • Solid blue: The device is being powered on. • Solid green: The device is running normally. • Flashing red: The device is running abnormally.
Standby button	• Press the button to power on or power off the device. • Hold down the button for 5s to 10s to restart the device.
USB 2.0	• Connect to a USB drive only to export the device diagnostic result. • Only the NTFS and FAT32 file systems are supported. Others are not supported.
LCD Screen	A 2.0-inch screen to display the device status, menus, submenus and messages for parameter settings.
Knob	• On the home screen, press the knob to enter the main menu screen. • On the main menu screen, rotate the knob to select a menu item or adjust the parameter value. Press the knob to confirm the operation. • Hold down the knob and **BACK** button simultaneously for 5s or longer to lock or unlock the buttons and screen.
BACK	Go back to the previous menu or cancel the current operation.

2.2 Rear Panel

Rear Panel



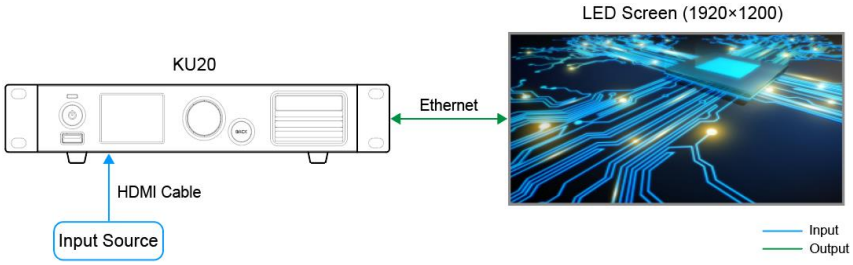
Inputs			
Type	Qty	Description	
HDMI IN	1	Resolutions	Max resolution: 1920×1200@60Hz Min resolution: 800×600@60Hz
		Max width/height	Max width: 3840 (3840×600@60Hz) Max height: 2560 (800×2560@60Hz)
		Frame rates	23.98/24/25/29.97/30/47.95/48/50/59.94/60/71.93/72/75/100/119.88/120 Hz
		EDID management	Support standard resolutions, up to 1920×1080@60Hz. Support custom input resolutions.
		HDCP	HDCP 1.4 compliant, backwards compatible with HDCP 1.3.
		Interlaced signal inputs	Not supported.
Outputs			
Type	Qty	Description	
1–6	6	Gigabit Ethernet output ports. Support hot backup between Ethernet ports. • Max device load capacity: 3.9 million pixels • Max output width/height: 4,096 pixels • The maximum load capacity per Ethernet port is 659,722 pixels (8bit@60Hz). For details, see the Ethernet Port Load Capacity section. Note • The load capacity of a single Ethernet port can only achieve its maximum when the load width is 128 pixels or more. If the load width is less than that, the load capacity will be reduced accordingly, calculated as (128 - load width) × load height.	

Inputs		
Type	Qty	Description
		• The customized KU20 program supports 10-bit output when it works with the A10s Pro receiving card. If needed, please contact NovaStar for customization.
OPT	1	10G optical output ports with a transmission rate of 10 Gbps. Note The product doesn't include an optical module by default. If you need one, it's recommended to choose a compatible NovaStar product.
HDMI LOOP	1	HDMI loop through. Up to 8 devices can be cabled in one loop.
SPDIF	1	Digital audio output connector allows for using the HDMI 1.3 input source as the audio output.
Controls		
Type	Qty	Description
ETHERNET	2	Gigabit Ethernet control ports. Support TCP/IP protocol and star connection. They have the same functions without priority and order, and can be connected to VMP software and central control devices. No switch or router is needed to deploy multiple devices on the same LAN via device cascading as the network switching function is already built in. Up to 20 KU20 can be cascaded.
AUX	1	An auxiliary connector for connecting to central control devices (RS232).
Power		
100-240V~, 50/60Hz, 1.5A	1	An AC power input connector and switch.

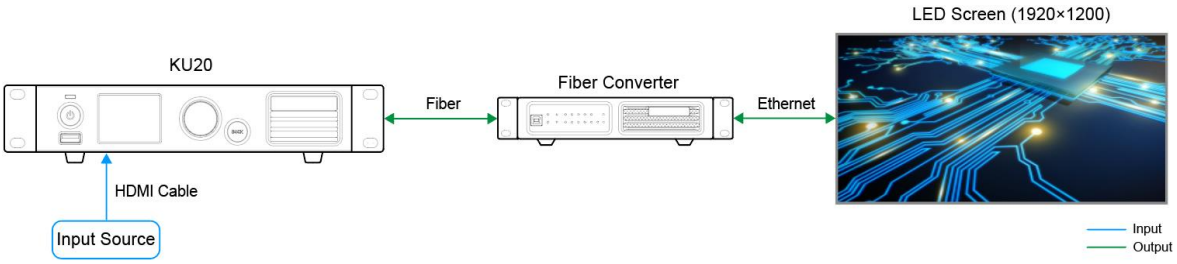
3 Applications

The KU20 has two typical application scenarios as shown below. In those application examples, the LED screen size is 1920×1200

Application 1: Output via Ethernet Ports



Application 2: Long-Distance Transmission via OPT Ports



4 UI Introduction

4.1 Home Screen

After the device is powered on, the home screen is displayed as follows. On the home screen, press the knob to enter the main menu screen.

Figure 4-1 Home screen

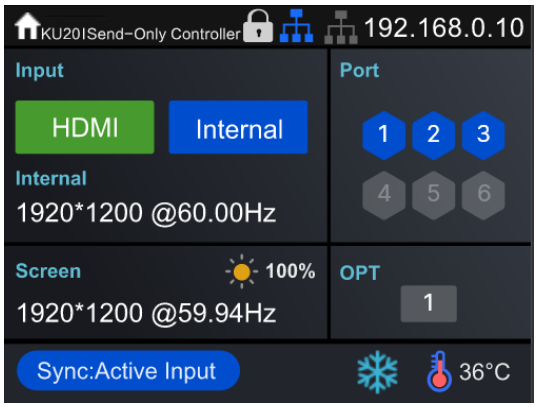


Table 4-1 Home screen descriptions

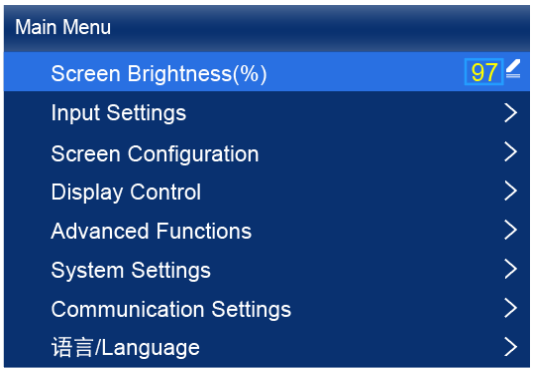
Area	Content	Description
Top line	KU20|Send-Only Controoler	The device name and working mode.
		The device button lock status. • When the icon is displayed: The buttons are locked. • When the icon is not displayed: The buttons are unlocked. Hold down the knob and **BACK** button simultaneously for 5s or longer to lock or unlock the buttons.
		The connection status of the Ethernet ports. • Blue: Connected • Gray: Disconnected
	192.168.0.10	The device IP address For related operations, please refer to Configure Communication Settings
Input	HDMI, Internal	The device input source type and status. • Green: The signal is accessed normally.

Area	Content	Description
		• Blue: The signal is accessed normally, but not used. • Red: The signal is abnormal. • Gray: The signal is abnormal and not used. For the input source settings, please refer to Set Input Source
	Internal 1920×1200@60Hz	The resolution and frame rate of the currently available input source. For the resolution and frame rate settings, please refer to Set Resolution and Frame Rate
Screen	1920×1200@59.94Hz	The screen resolution and frame rate.
		The screen brightness. For the screen brightness settings, please refer to Adjust Screen Brightness
Port	1–6	The statuses of the Ethernet ports. • Blue: Connected • Gray: Disconnected
OPT	1	The status of OPT port。 • Blue: Connected • Gray: Disconnected
Bottom line	Sync: Active Input	The sync signal currently used and the signal status。 • **Sync: Active Input**: Sync with the frame rate of the current input source. • **Sync: Internal**: Sync with the frame rate of the internal clock of the device. Color code: • Blue: The signal is normal. • Red: The signal is abnormal.
		The output display status. For related operations, please refer to Control Display Status •  : The display is frozen. •  : The display is blacked out • Icon not displayed: The display is normal.
		The temperature inside the chassis.

4.2 Main Menu

On the home screen, press the knob to enter the main menu screen. When the device working mode is All-In-One Controller, the main menu is shown in Figure 4-2. When the device working mode is Send-Only Controller, the **Layer Parameters** menu is not displayed.

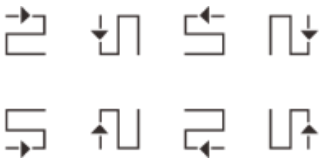
Figure 4-2 Main menu



5 Initial Screen Configuration

If the LED screen, cabinets, data flow and the number of cabinets loaded by Ethernet ports can meet the following requirements, you can configure the screen via the device front panel menu; otherwise, screen configuration in VMP will be your ideal choice.

- Screen: The LED screen must be a regular screen.
- Cabinet: The cabinets must be regular ones of the same size, and function well.
- Data flow: The data must run in the same way for all Ethernet ports and the data flow must be one of the followings. The starting position of the data flow is the first cabinet of Ethernet port 1, and the connections are made in sequence according to the serial number of the Ethernet port.



- Number of cabinets loaded by Ethernet ports: If n ports are used to load the cabinets, the number of cabinets loaded by each of the first (n−1) ports must be the same and the integral multiple of the number of cabinet rows or columns, and it must be greater than or equal to the number of cabinets loaded by the last port.

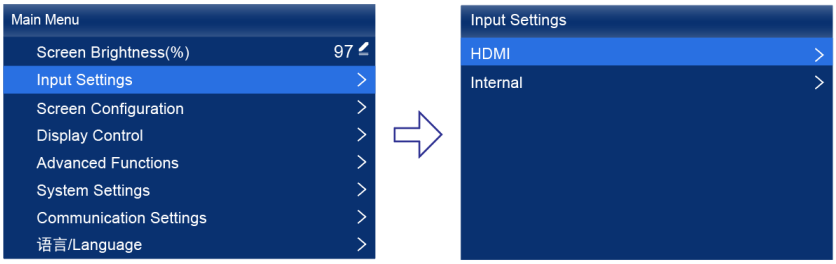
5.1 Quick Configuration via Front Panel Screen

5.1.1 Set Input Source

Select the desired input source and complete the related settings, such as resolution and frame rate. If the resolutions of the input source and screen are the same, the image can be displayed pixel to pixel. A lower frame rate may result in image flickering, while a higher frame rate helps stabilize the display image.

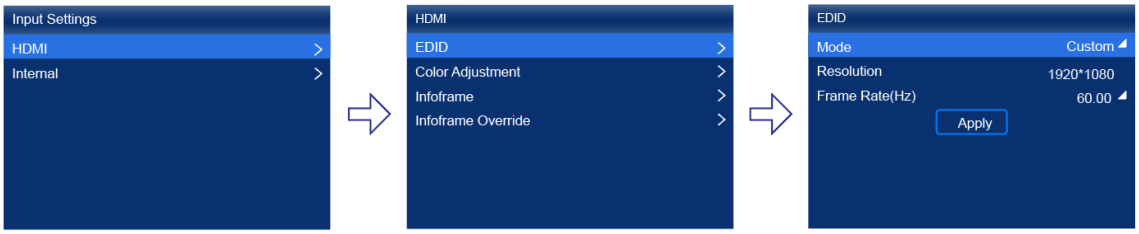
Step 1 On the main menu screen, choose **Input Settings** > **Select Input** to select a video source.

Figure 5-2 Select input source



Step 2 Perform the corresponding operations for the input source according to the input source type. For the SDI sources, please skip this step.

- HDMI



Note

Input source settings are required for screen configuration in the Send-Only Controller working mode. When the device operates in All-In-One Controller mode, Select Input is not available on the LCD menu.

a. Choose **HDMI** > **EDID**.

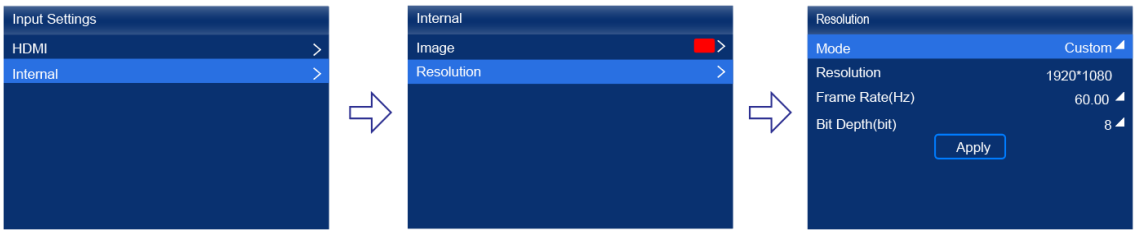
b. Set **Mode** to **Custom** or **Standard**, and then set the resolution and frame rate.

Custom: Set the resolution manually.

Standard: Select the desired resolution from the drop-down options.

c. After the settings are done, click **Apply**.

- Internal sources



d. Choose **Internal Source** > **Image**, and navigate to the sub-menu. Then, select a picture.

e. When the relevant parameters of the image are displayed, set the parameters according to your actual needs; otherwise, please skip this step.

f. Press the **BACK** button to go back to the upper-level menu and select **Resolution**.

g. Set **Mode** to **Custom** or **Standard**, and then set the resolution and frame rate.

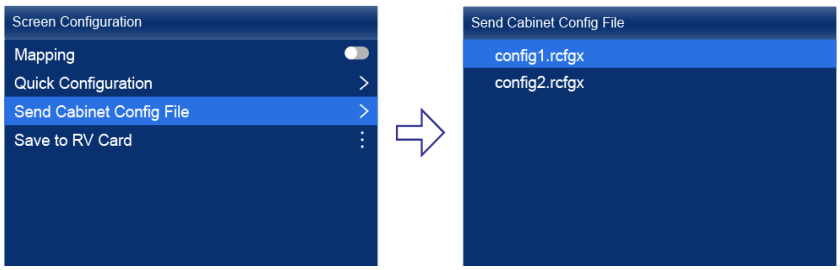
h. After the settings are done, click **Apply**.

5.1.2 Load Cabinet Config File

When the cabinet cannot display images normally, send the cabinet configuration file (.rcfgx) to the cabinet and save it to let the cabinet display image normally. Before the operation, please import cabinet configuration file with VMP, or store the cabinet configuration file in the root directory of the USB drive and insert the USB drive into the USB port on the device front panel.

Step 1 On the main menu screen, choose **Screen Configuration** > **Send Cabinet Config File**.

Figure 5-3 Send cabinet config file



Step 2 Select the target configuration file.

Step 3 Select **Yes** in the displayed dialog box.

After the configuration file is successfully sent, a message appears on the menu screen and then then you will automatically return to configuration file screen.

Step 4 Press the **BACK** button to go back to the upper-level menu.

Step 5 Select **Save to RV Card**.

Step 6 Select **Yes** in the displayed dialog box.

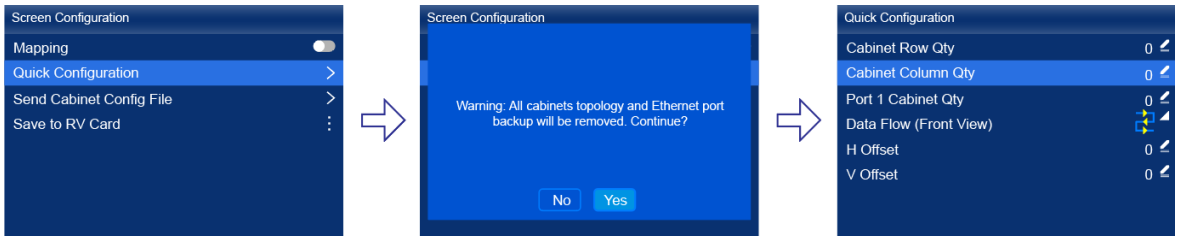
After the configuration file is successfully saved, a message appears on the menu screen.

5.1.3 Configure the Screen Quickly

Set the screen configuration parameters to quickly complete the cabinet connection, so that the LED screen can display the input source image normally.

Step 1 On the main menu screen, choose **Screen Configuration** > **Quick Configuration**.

Figure 5-4 Quick configuration



Step 2 Select **Yes** in the displayed dialog box.

Step 3 Set screen configuration parameters as required.

- **Cabinet Row Qty**: Set the number of cabinet rows.
- **Cabinet Column Qty**: Set the number of cabinet columns.
- **Port 1 Cabinet Qty**: Set the number of the cabinets loaded by Ethernet port 1.
- **Data Flow (Front View)**: Select the data flow for the cabinets loaded by Ethernet port 1.
- **H Offset**: Set the horizontal offset of the displayed image.
- **V Offset**: Set the vertical offset of the displayed image.

5.2 Free Screen Configuration via VMP

The VMP software can be used to configure either the regular screens or complex screens, and supports free wiring of the cabinets, plus the ability of calculating the used load capacity according to the cabinets that are actually loaded. For the details of performing the free screen configuration, please refer to *VMP Vision Management Platform User Manual*.

6 Display Effect Adjustment

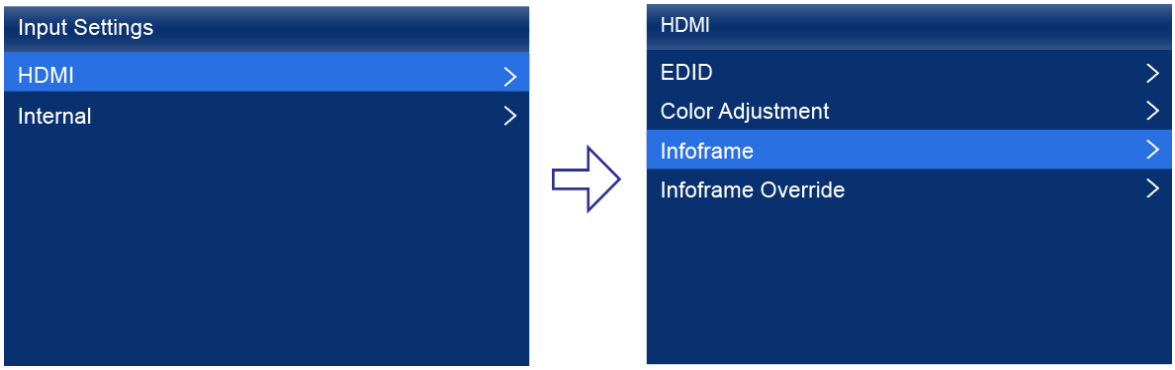
6.1 Set External Input Source Parameters

6.1.1 View Input Source Information

View the attribute values of the external input source, including the resolution, frame rate, bit depth, color gamut, etc.

Step 1 On the main menu screen, choose **Input Settings** > **HDMI** > **Infoframe**.

Figure 6-1 Input source information



When the device working mode is All-In-One Controller, the **Select Input** menu is not displayed.

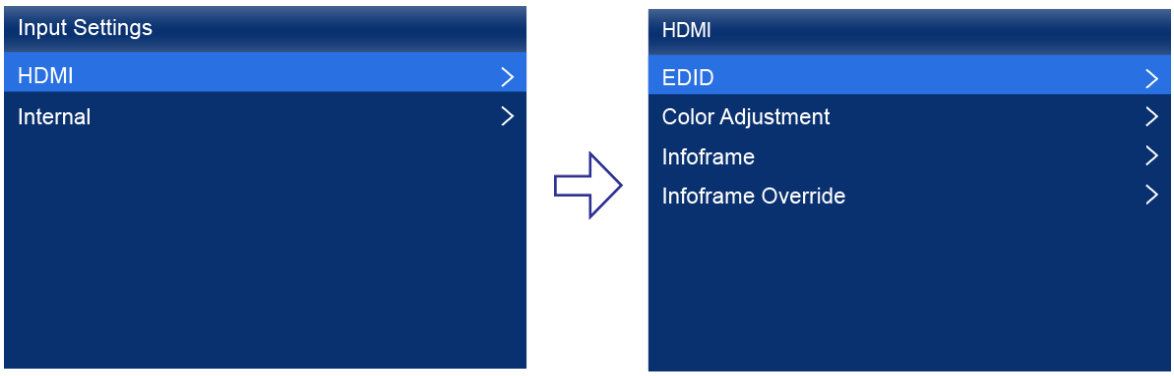
Step 2 View the input source information.

6.1.2 Set Resolution and Frame Rate

Set the resolution and frame rate of the external input source. If the resolutions of the input source and screen are the same, the image can be displayed pixel to pixel. A lower frame rate may result in image flickering, while a higher frame rate helps stabilize the display image.

Step 1 On the main menu screen, choose **Input Settings** > **HDMI** > **EDID**.

Figure 6-2 EDID



When the device working mode is All-In-One Controller, the **Select Input** menu is not displayed.

Step 2 Set **Mode** to **Custom** or **Standard**, and then set the resolution and frame rate.

- **Custom**: Set the resolution manually.
- **Standard**: Select the desired resolution from the drop-down options.

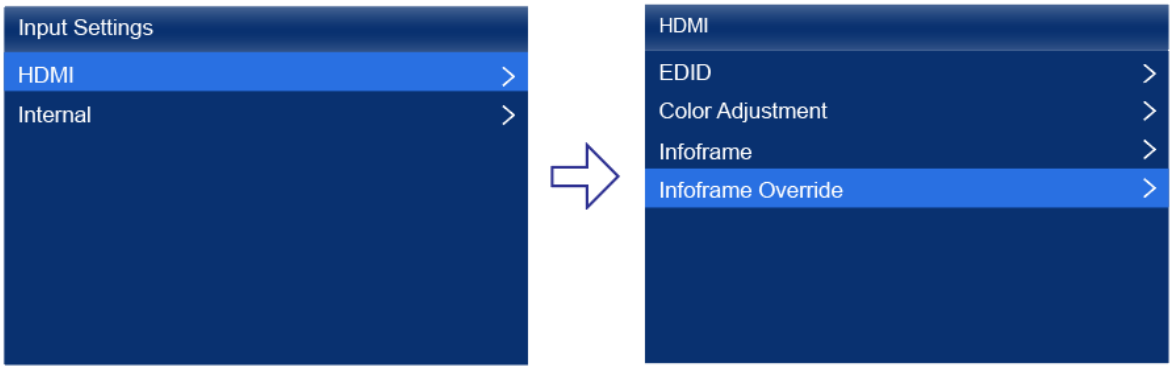
Step 3 After the settings are done, click **Apply**.

6.1.3 Adjust Color

Set the infoframe override parameters of the external input source and adjust the color. The override parameter will be used in the calculation of color adjustment. If the value of this parameter is not set manually, the value that comes with the input source will be used.

Step 1 On the main menu screen, choose **Input Settings** > **HDMI** > **Infoframe Override**.

Figure 6-3 Infoframe override



When the device working mode is All-In-One Controller, the **Select Input** menu is not displayed.

Step 2 Set the override parameters as required.

Select **Auto** and the device will read the attribute value that comes with the input source.

Step 3 Press the **BACK** button to go back to the upper-level menu.

Step 4 Select **Color Adjustment**.

Step 5 Set the related parameters.

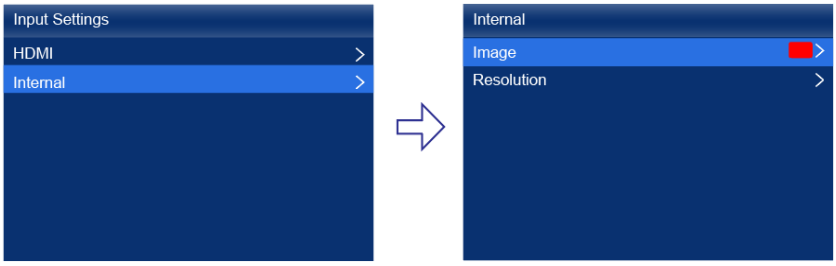
Parameter	Description
Black Level	It is used to adjust the brightness of the dark areas of the image. The smaller the value, the darker the dark part of the screen.
Contrast	It is used to adjust the brightness of the highlight areas of the image. The greater the value, the brighter the highlight part of the screen. Contrast and black level together affect the overall contrast of the image.
Saturation	It is used to adjust the color purity of the image. The greater the value, the more vivid the color.
Hue	It is used to adjust the color effect of the displayed image color.
Red Shadow/Green Shadow/Blue Shadow	It is used to adjust the brightness of the dark areas of the image. The principle is the same as that of black level, but only the RGB components are adjusted.
Red Highlight/Green Highlight/Blue Highlight	It is used to adjust the brightness of the highlight areas of the image. The principle is the same as that of contrast, but only the RGB components are adjusted.

6.2 Set Internal Input Sources

Select the internal source stored in the device and set the related parameters for screen testing and troubleshooting.

Step 1 On the main menu screen, choose **Input Settings** > **Internal**.

Figure 6-4 Internal source



When the device working mode is All-In-One Controller, the **Select Input** menu is not displayed.

Step 2 Select **Image** to navigate to the sub menu and select a picture.

Step 3 When the relevant parameters of the image are displayed, set the parameters according to your actual needs; otherwise, please skip this step.

Step 4 Press the **BACK** button to go back to the upper-level menu and select **Resolution**.

Step 5 Set **Mode** to **Custom** or **Standard**, and then set the resolution, frame rate and bit depth.

Figure 6-5 Resolution parameters

- **Custom**: Set the resolution manually.
- **Standard**: Select the desired resolution from the drop-down options.

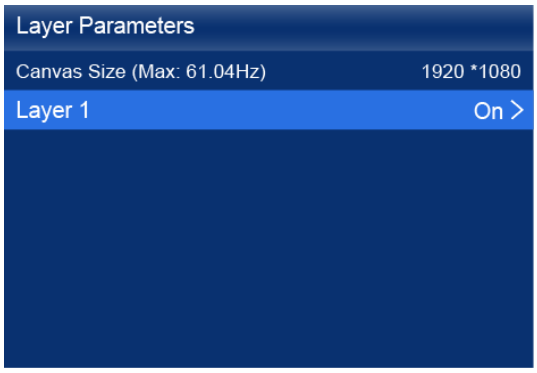
Step 6 After the settings are done, click **Apply**.

6.3 View Layers Parameters (All-In-One Controller Mode only)

The LCD screen of the controller is designed to only display layer parameters. To create or configure layers, please connect to VMP for these operations. For detailed instructions, please refer to *VMP Vision Management Platform User Manual*.

Step 1 On the main menu screen, select **Layer Parameters**.

Figure 6-6 Layer parameters



Step 2 View the **Canvas Size** and the max frame rate.

Step 3 Select **Layer 1** and view the related parameters.

- **Input Source**: The number of the layer that is using this input source is displayed in the input source information area.
- **Scaling Mode**: The scaling mode currently being applied.
  - **Custom**: Customized width and height.
  - **Pixel to Pixel**: Same as the width and height of the input source.
- **Width**: The layer width.
- **Height**: The layer height.

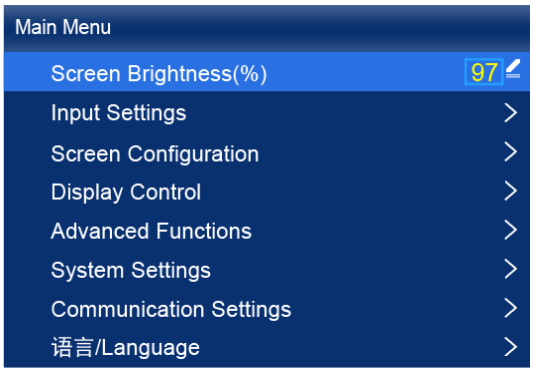
6.4 Set Output Parameters

6.4.1 Adjust Screen Brightness

Adjust and save the screen brightness.

Step 1 On the main menu screen, select **Screen Brightness (%)** and press the knob to let the brightness value become editable.

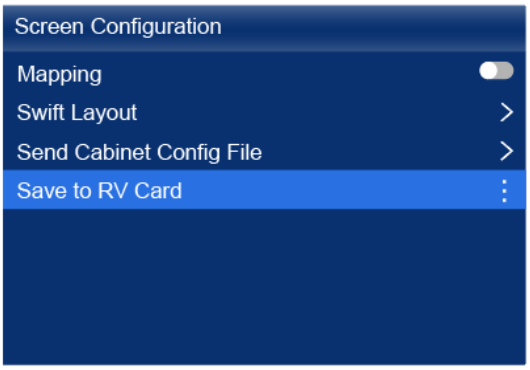
Figure 6-7 Screen brightness (taking Send-Only Controller mode as example)



Step 2 Rotate the knob to adjust the brightness to the target value, and then press the knob to confirm.

Step 3 Select **Screen Configuration** > **Save to RV Card**.

Figure 6-8 Save to RV card



Step 4 Select **Yes** in the displayed dialog box.

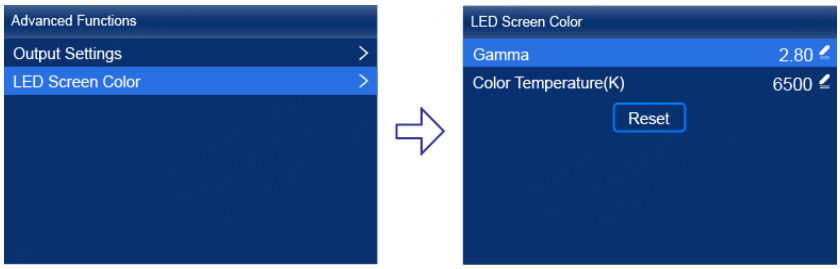
After the brightness value is successfully saved, a message appears on the menu screen.

6.4.2 Adjust Gamma and Color Temperature

Adjust and save the Gamma and color temperature.

Step 1 On the main menu screen, choose **Advanced Functions** > **LED Screen Color**.

Figure 6-9 LED screen color



Step 2 Adjust the Gamma value.

1. Select **Gamma** and press the knob to let the value become editable.
2. Rotate the knob to adjust the Gamma to the target value, and then press the knob to confirm.

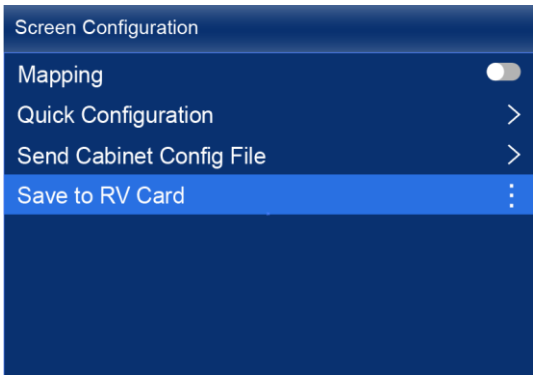
Step 3 Adjust the color temperature value.

3. Select **Color Temperature (K)** and press the knob to let the value become editable.
4. Rotate the knob to adjust the temperature to the target value, and then press the knob to confirm.

If you want to restore the parameters to the defaults, select **Reset**.

Step 4 Press the **BACK** button to go back to the main menu, and then choose **Screen Configuration** > **Save to RV Card**.

Figure 6-10 Save to RV card



Step 5 Select **Yes** in the displayed dialog box.

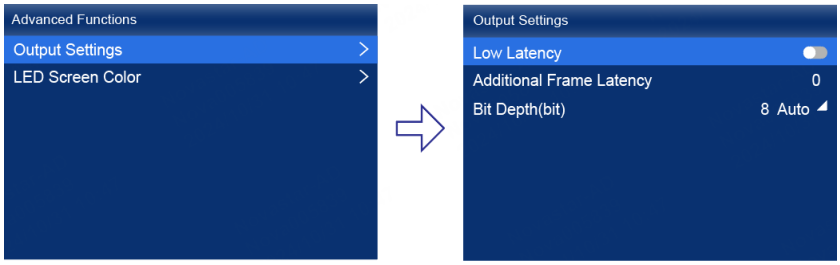
After the values are successfully saved, a message appears on the menu screen.

6.4.3 Set Low Latency

The low latency function is used to reduce the delay at the controller, or increase the latency when the device works with high-latency equipment.

Step 1 On the main menu screen, choose **Advanced Functions** > **Output Settings**.

Figure 6-11 Low latency



Step 2 Perform any of the following operations as required.

- Enable low latency

  Set the **Low Latency** switch to to enable the low latency function.

- Set additional frame latency

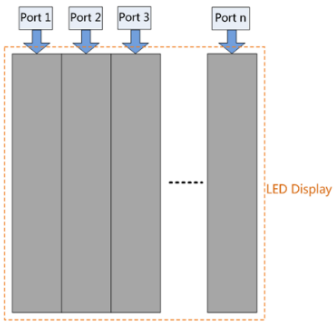
  a. Select **Additional Frame Latency** and press the knob to let the value become editable.

  b. Rotate the knob to adjust the parameter to the target value, and then press the knob to confirm.

Note

- The latency at the controller is 0 frame (less than 1 ms) in Send-Only Controller working mode and 1 frame in All-In-One Controller working mode.

- To enable low latency, please make sure all Ethernet ports load the cabinets vertically and share the same Y coordinate. Free screen configuration (for example, Ethernet port 2 loads cabinets horizontally, or its Y coordinate is different from that of Ethernet port 1) will reduce the load capacity.

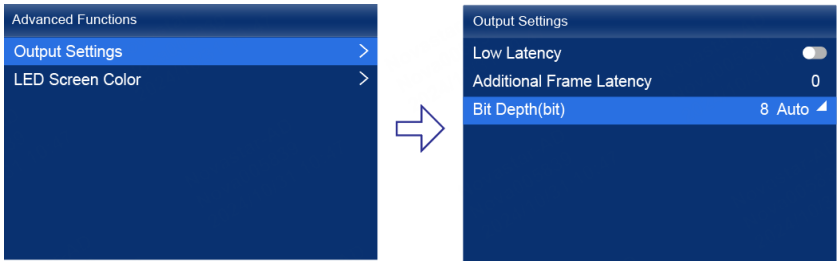


6.4.4 Set Bit Depth

Set the output bit depth of the input source.

Step 1 On the main menu screen, choose **Advanced Functions** > **Output Settings**.

Figure 6-12 Bit depth



Step 2 Select **Bit Depth**, press the knob, and select the desired bit depth value from the drop-down options. (Currently, only 8bit is supported. For customized program, 10bit is supported.)

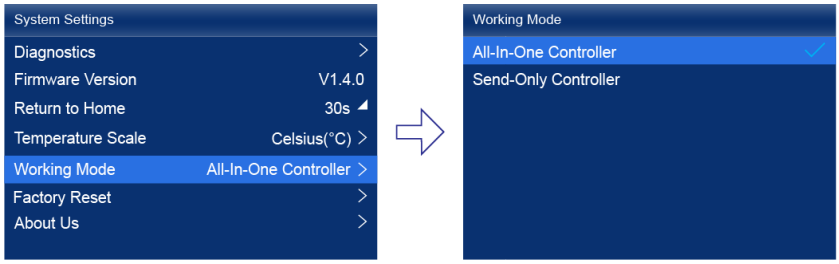
7 Device Management

7.1 Switch Working Mode

Set the device working mode to All-In-One Controller or Send-Only Controller.

Step 1 On the main menu screen, choose **System Settings** > **Working Mode**.

Figure 7-1 Working mode



Step 2 Select **All-In-One Controller** or **Send-Only Controller**.

Step 3 Select **Yes** in the displayed dialog box.

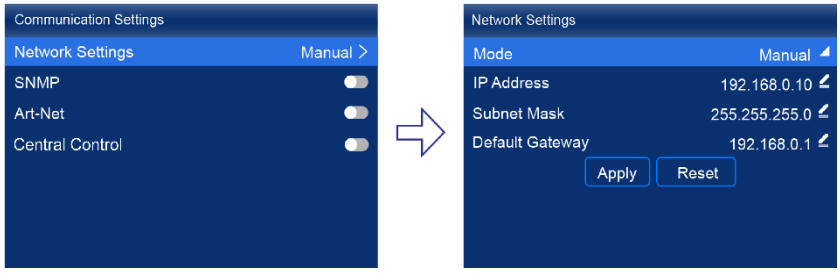
7.2 Configure Communication Settings

Set an IP Address

Manually set a static IP address for the device or set up the device to automatically obtain an IP address.

Step 1 On the main menu screen, choose **Communication Settings** > **Network Settings**.

Figure 7-2 Network settings



Step 2 Choose **Mode** and then select a mode from the drop-down options.

- **Manual**: Manually set a static IP address for the device.

- **Auto**: The device automatically obtains an IP address.

Step 3 If the manual mode is selected, set an **IP Address**, **Subnet Mask** and **Default Gateway**, and then select **Apply**. If the automatic mode is selected, this step is not required.

If you want to reset the IP address to the default, select **Reset**.

View Device MAC Address

You can view the device's MAC address. MAC address can be used as a unique identifier in scenarios like network communication, device management, and security control.

Set the Protocol Switch

Set the SNMP, Art-Net, and central control protocol switch status.

Note

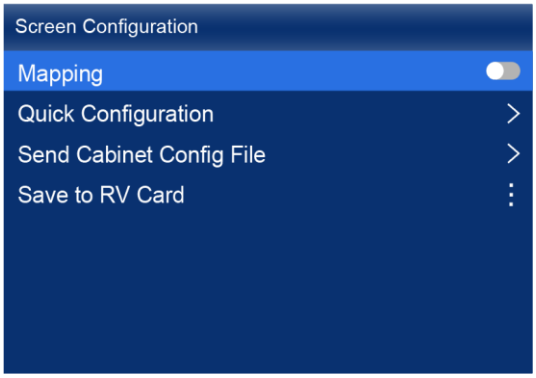
For details, see the *SNMP Protocol Instructions*, *Art-Net Protocol Instructions*, and *Central Control Protocol Instructions*.

7.3 Enable Mapping

After the **Mapping** function is enabled, cabinets can display some information, such as the Ethernet port number and receiving card number, allowing users to easily obtain the locations and connection topology of receiving cards.

Step 1 On the main menu screen, choose **Screen Configuration** > **Mapping**.

Figure 7-3 Mapping



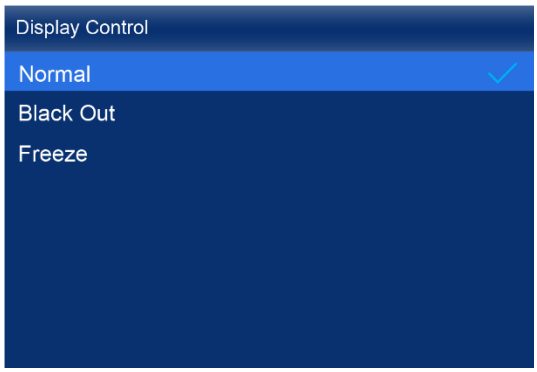
Step 2 Enable the **Mapping** function by toggling on this switch .

7.4 Control Display Status

Set the display loaded by the controller to a black screen or frozen status.

Step 1 On the main menu screen, choose **Display Control**.

Figure 7-4 Display control



Step 2 Select a display status as required.

- **Normal**: Display the normal output screen.
- **Freeze**: Make the output screen always display the current frame. The input source is played normally.
- **Blackout**: Make the output screen go black. The input source is played normally.

7.5 Diagnostics

7.5.1 Upon Powering Up

When the device is powered on, it automatically conducts a diagnostic process:

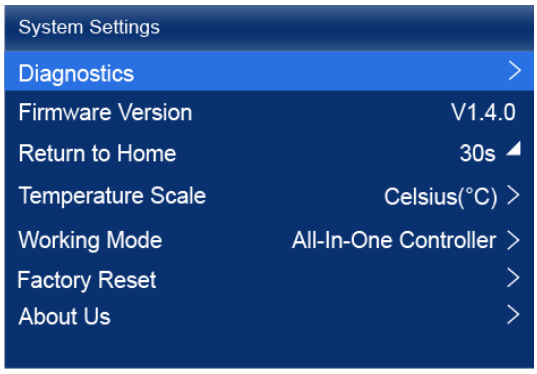
- Normal startup: All functions of the KU20 are available for use.
- Abnormal Startup: Based on the error message displayed, select **Export Log** to obtain the diagnostic results. If there are only warning messages (in orange), you can choose **Continue** to proceed in a limited functionality mode. However, if there are error messages (in red), usage cannot be continued.

7.5.2 Maintenance

Perform device diagnostics, then view and export the result.

Step 1 On the main menu screen, choose **System Settings** > **Diagnostics**.

Figure 7-5 Diagnostics

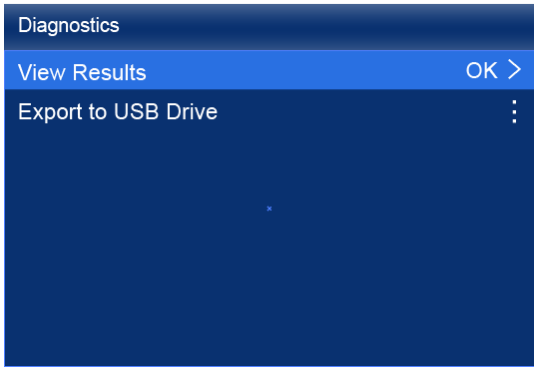


Step 2 Select **Yes** in the displayed dialog box.

After the diagnostics operation is complete, the diagnostic result will be displayed.

Step 3 Select **Close** to close the dialog box, and the screen will appear as shown in Figure 7-6.

Figure 7-6 After diagnostics



Step 4 Do any of the following as required.

- View the diagnostic results

  Select **View Results** to enter the report page and view the results.

- Export the diagnostic result to a USB drive

  a. Insert the USB drive to the USB port on the front panel of the device.

  b. Select **Export to USB Drive**.

A prompt will be displayed after the operation is successful.

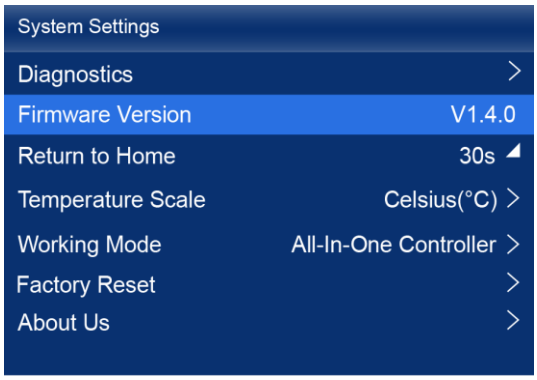
7.6 View the Firmware Version

View the current firmware program version of the device.

Step 1 On the main menu screen, select **System Settings**.

Step 2 View the current firmware program version next to **Firmware Version**.

Figure 7-7 Firmware version

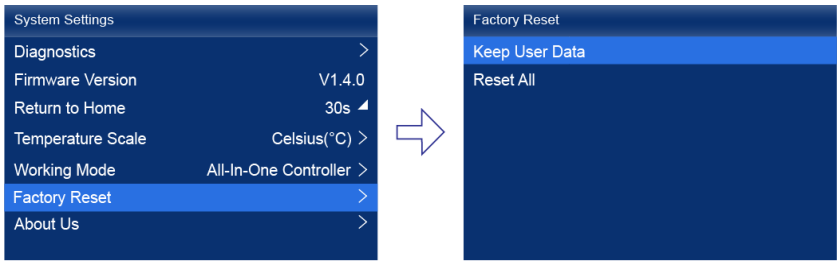


7.7 Reset to Factory Settings

Reset part or all of the device data to the factory settings.

Step 1 On the main menu screen, choose **System Settings** > **Factory Reset**.

Figure 7-8 Factory reset



Step 2 Do any of the following according to the data you want to reset.

- Reset part of the data

  Reset all the data except the imported files, network parameters, language settings, and device name.

  a. Select **Keep User Data**.

  b. Select **Yes** in the displayed dialog box.

  The device restarts automatically while the data is being reset.

- Reset all the data (This action cannot be undone.)

  Reset all the data to factory settings.

  c. Select **Reset All**.

  d. Select **Yes** in the displayed dialog box.

  The device restarts automatically while the data is being reset.

8 Basic System Settings

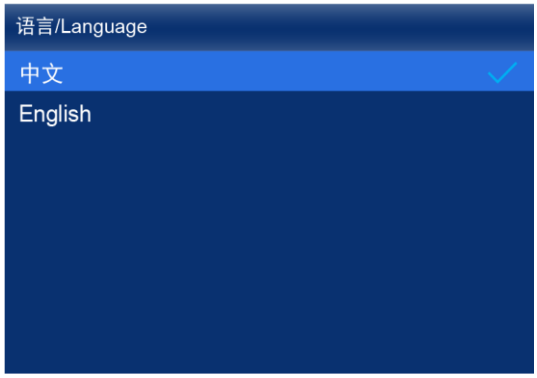
8.1 Set Language

Change the system language of the device.

Step 1 On the main menu screen, select **语言/Language**.

Step 2 Choose **English** or **中文** as required.

Figure 8-1 Language



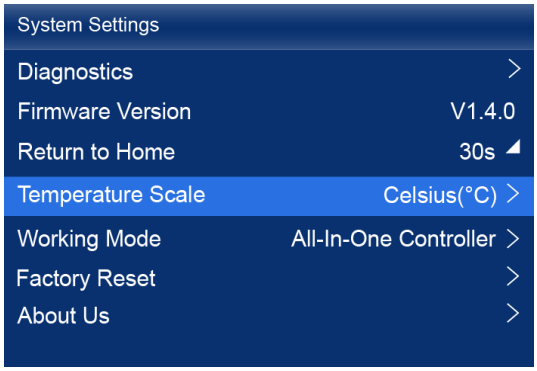
8.2 Set Temperature Scale

Change the system temperature scale of the device.

Step 1 On the main menu screen, choose **System Settings** > **Temperature Scale**.

Step 2 Select **Celsius (℃)** or **Fahrenheit (℉)** as needed.

Figure 8-2 Temperature scale

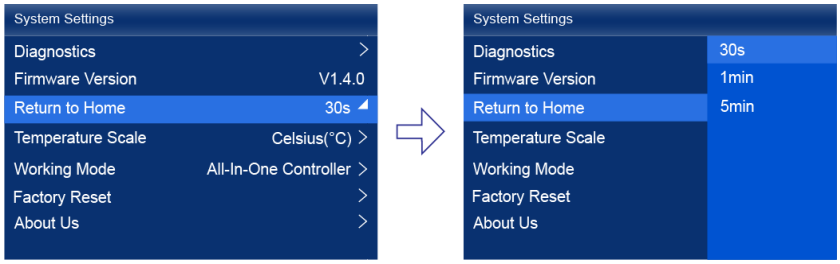


8.3 Set Session Timeout

Specify a certain amount of time for session timeout after which the LCD will return to the home screen from another screen automatically if no action is performed during the specified time.

Step 1 On the main menu screen, choose **System Settings** > **Return to Home**.

Figure 8-3 Session timeout value



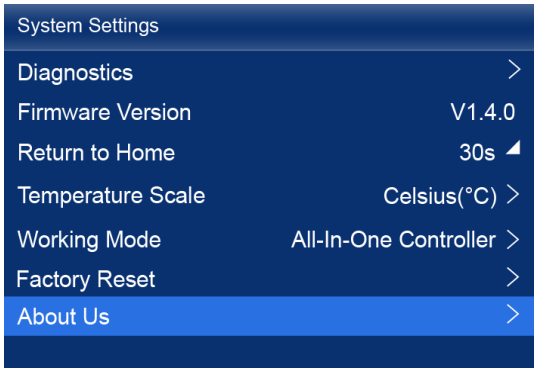
Step 2 Select **30s**, **1min** or **5min** from the drop-down options as required.

8.4 View Service Information

View the service information of NovaStar, allowing users to ask questions and give feedback.

Step 1 On the main menu screen, choose **System Settings** > **About Us**.

Figure 8-4 About us



Step 2 View the official website, technical support email address and service hotline of NovaStar.

9 Product Specifications

Electrical Specifications	Power input	100–240V~, 50/60Hz, 1.5A
	Max power consumption	25 W
Operating Environment	Temperature	–20°C to +45°C
	Humidity	0% RH to 80% RH, non-condensing
Storage Environment	Temperature	–30°C to +80°C
	Humidity	0% RH to 95% RH, non-condensing
Physical Specifications	Dimensions	254.3 mm × 50.6 mm × 290.0 mm
	Net weight	2.1 kg
	Gross weight	3.1 kg Note: It is the total weight of the product, accessories, and packing materials packed according to the packing specifications.
Packing Information	Outer box	387.0 mm × 173.0 mm × 359.0 mm, kraft paper box
	Packing box	362.0 mm × 141.0 mm × 331.0 mm, white cardboard box
	Accessories	• 1x Power cord • 1x Ethernet cable • 1x HDMI cable • 1x Supporting bracket A (with nuts), 1x Supporting bracket B (without nuts) • 1x Connecting piece • 12x M3*8 screws • 1x Certificate of Approval
IP Rating		IP20 (Please prevent the product from water intrusion and do not wet or wash the product).

The amount of power consumption may vary depending on various factors such as product settings, usage, and environment.

10 Video Source Specifications

Input	Resolution		Color Space	Sampling	Bit Depth	Integer Frame Rate (Hz)
HDMI 1.3	2K1K	2560×1440	RGB / YCbCr	4:4:4	10bit	24/25/30
					8bit	
			YCbCr	4:2:2	8/10bit	
		1920×1080	RGB / YCbCr	4:4:4	10bit	24/25/30/48/50
					8bit	24/25/30/48/50/60
			YCbCr	4:2:2	8/10bit	

Note

The table above only displays a selection of common resolutions and integer frame rates. Decimal frame rates are also supported, allowing for automatic frame rate adaptation from the highest frame rate of each resolution down to 23.98/29.97/47.95/59.94/71.93/119.88Hz.

11 Ethernet Port Load Capacity

The formula of calculating the load capacity per Ethernet port and the detailed parameters are as follows.

Load capacity × 24 × Frame rate < 1000 × 1000 × 1000 × 0.95

Max Load Capacity per Ethernet Port (Pixels)	
Frame Rate / Bit Depth	8bit
24 Hz	1,649,306
25 Hz	1,583,333
30 Hz	1,319,444
50 Hz	791,667
60 Hz	659,722
120 Hz	329,861

Note

- The load capacity of a single Ethernet port can only achieve its maximum when the load width is 128 pixels or more. If the load width is less than that, the load capacity will be reduced accordingly, calculated as (128 - load width) × load height.
- The customized KU20 program supports 10-bit output when it works with the A10s Pro receiving card. If needed, please contact NovaStar for customization.

12 Copyright

Statement

Thank you for choosing NovaStar's product. 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 the contact information given in this document. We will do our best to solve any issues, as well as evaluate and implement any suggestions.

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