# CX40 Pro

LED Display Controller

# User Manual

# Change History

| Document Version | Release Date | Description |
|---|---|---|
| V1.5.1 | 2026-04-30 | Updated the load capacity loss description. |
| V1.5.0 | 2025-09-30 | • Added support for 3D feature.<br>• HDMI 2.0 input supports YCbCr 4:2:0 color sampling format.<br>• Supports Art-Net and central control protocol and viewing of device MAC address.<br>• Supports SPDIF audio output. |
| V1.4.0.B5 | 2024-07-26 | • Supports importing 3D LUT files with an accuracy of 33x33x33 / 65x65x65.<br>• Improved document information. |
| V1.0.1 | 2023-07-04 | • Added descriptions for low latency.<br>• Updated the supported driver ICs for frame rate adaptive. |
| V1.0.0 | 2023-01-12 | First release |

# Contents

Change History ..... 1
Contents ..... 2
**1** Introduction ..... 4
**2** Appearance ..... 5
2.1 Front Panel ..... 5
2.2 Rear Panel ..... 6
**3** Applications ..... 9
**4** Front Screen Panel ..... 11
4.1 UI Introduction ..... 11
4.1.1 Home Screen ..... 11
4.1.2 Main Menu ..... 13
4.2 Screen ..... 14
4.2.1 Set Brightness, Color Temperature and Gamma ..... 14
4.2.2 Set Screen Status ..... 14
4.3 Input ..... 15
4.3.1 Set Internal Source ..... 15
4.3.2 Check Input Source Information ..... 16
4.3.3 Set EDID ..... 17
4.3.4 Set HDR ..... 18
4.4 Communication ..... 19
4.4.1 Network ..... 19
4.4.2 MAC Address ..... 20
4.4.3 Protocol ..... 20
4.5 Settings ..... 21
4.5.1 Configure LCD Screen ..... 21
4.5.2 Setting Language ..... 22
4.5.3 Set Temperature Scale ..... 23
4.5.4 Check Firmware Information ..... 23
4.5.5 Factory Reset ..... 24
4.6 Maintenance ..... 24

4.6.1 Diagnostics ..... 24
4.6.2 View and Export Logs ..... 25
4.6.3 Check Device Status ..... 26
**5** VMP Operations ..... 27
**6** Product Specifications ..... 28
**7** Video Source Specifications ..... 29
**8** Ethernet Port Load Capacity ..... 31
**9** Copyright ..... 33

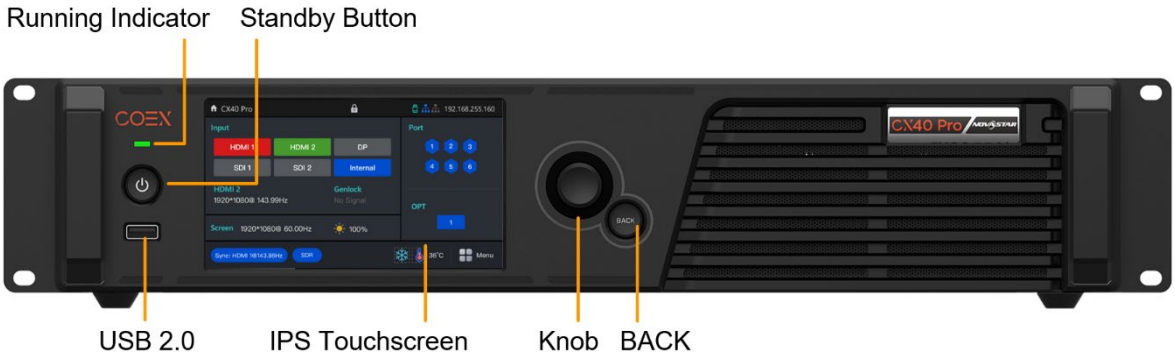
# 1 Introduction

The CX40 Pro is a 4K LED display controller in the brand-new control system COEX series of Xi'an NovaStar Tech Co., Ltd. (hereinafter referred to as NovaStar). This controller offers rich video input connectors (HDMI 2.0, DP 1.2 and 12G-SDI) and supports 5Gbps output via Ethernet port and 40Gbps remote transmission via optical port.

The CX40 Pro can also work with the brand-new software VMP (Vision Management Platform) to provide a better operation and control experience. Featuring a 5.5-inch touch LCD, it makes user operation and control much easier.

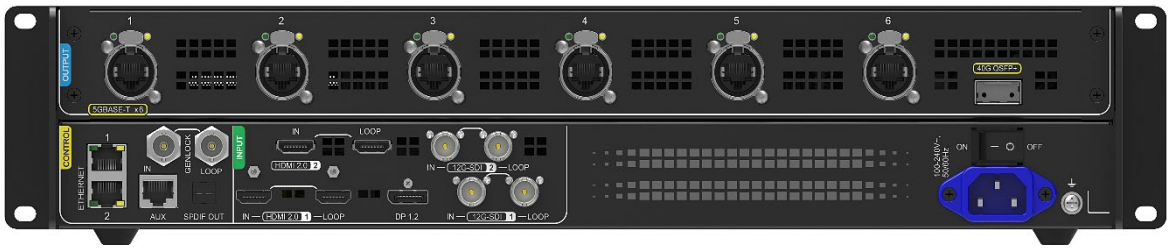
# 2 Appearance

## 2.1 Front Panel




| Name | Function |
|---|---|
| Running indicator | • Solid red: Standby.<br>• Solid blue: The device is being powered on.<br>• Solid green: The device is running normally.<br>• Flashing red: The device is running abnormally. |
| Standby button | • Press the button to power on or power off the device.<br>• 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.<br>• Only the NTFS and FAT32 file systems are supported. Others are not supported. |
| IPS touchscreen | A 5.5-inch screen that is for displaying the device status, settings, and sending commands. |
| Knob | • On the home screen, press the knob to enter the main menu screen.<br>• 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.<br>• 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



| Inputs | | | |
|---|---|---|---|
| Type | Qty | Description | |
| HDMI 2.0-1 IN | 1 | Resolutions | Max resolution: 4096×2160@60Hz/8192×1080@60Hz (Forced)<br>Min resolution: 800×600@60Hz |
| | | Max width/height (Forced) | Max width: 8192 pixels (8192×1080@60Hz)<br>Max height: 8192 pixels (1080×8192@60Hz) |
| | | Frame rates | 23.98/24/25/29.97/30/47.95/48/50/59.94/60/71.93/72/75/100/119.88/120/143.86/144/240 Hz |
| | | HDR | Support HDR10 and comply with the SMPTE ST 2084 and SMPTE ST 2086 standards.<br>Support HLG. |
| | | EDID management | Support standard resolutions, up to 3840×2160@60Hz.<br>Support custom input resolutions. |
| | | HDCP | HDCP 2.2 compliant, backwards compatible with HDCP 1.4/HDCP 1.3. |
| | | Interlaced signal inputs | Not supported. |
| HDMI 2.0-2 IN | 1 | Resolutions | Max resolution: 4096×2160@60Hz/8192×1080@60Hz (Forced)<br>Min resolution: 800×600@60Hz |
| | | Max width/height (Forced) | Max width: 8192 pixels (8192×1080@60Hz)<br>Max height: 7680 pixels (1080×7680@60Hz) |
| | | Frame rates | 23.98/24/25/29.97/30/47.95/48/50/59.94/60/71.93/72/75/100/119.88/120/143.86/144/240 Hz |
| | | HDR | Support HDR10 and comply with the SMPTE ST 2084 and SMPTE ST 2086 standards. |

| | | | |
|---|---|---|---|
| | | | Support HLG. |
| | | EDID management | Support standard resolutions, up to 3840×2160@60Hz.<br>Support custom input resolutions. |
| | | HDCP | HDCP 2.2 compliant, backwards compatible with HDCP 1.4/HDCP 1.3. |
| | | Interlaced signal inputs | Not supported. |
| DP 1.2 | 1 | Resolutions | Max resolution: 4096×2160@60Hz/8192×1080@60Hz (Forced)<br>Min resolution: 800×600@60Hz |
| | | Max width/height (Forced) | Max width: 8192 pixels (8192×1080@60Hz)<br>Max height: 8192 pixels (1080×8192@60Hz) |
| | | Frame rates | 23.98/24/25/29.97/30/47.95/48/50/59.94/60/71.93/72/75/100/119.88/120/143.86/144/240 Hz |
| | | EDID management | Support standard resolutions, up to 3840×2160@60Hz.<br>Support custom input resolutions. |
| | | HDCP | HDCP 1.3 compliant. |
| | | Interlaced signal inputs | Not supported. |
| 12G-SDI IN | 2 | Standards | Support ST-2082 (12G), ST-2081 (6G), ST-424 (3G) and ST-292 (HD) standard video inputs. Support 3G-Level A. |
| | | Resolution | Max resolution: 4096×2160@60Hz<br>Min resolution: 720×480i@59.94Hz |
| | | Frame rates | 23.98/24/25/29.97/30/47.95/48/50/59.94/60 Hz |
| | | Interlaced signal inputs | Support interlaced signal inputs, including 1080i/576i/480i. |
| | | Cables | Recommend using the CANARE-12G SDI coaxial cable. Cables up to 50 meters are supported. |
| Outputs | | | |
| Type | Qty | Description | |
| 5GBASE-T×6 | 6 | 5Gbps Ethernet ports.<br>• Max device load capacity: 9 million pixels<br>• Max output width/height: 16,384 pixels | |

| | | |
|---|---|---|
| | | • The maximum load capacity per port is as follows. For details, please refer to Ethernet Port Load Capacity<br>– 8bit@60Hz: 2,951,200 pixels<br>– 10bit@60Hz: 2,213,200 pixels<br>– 12bit@60Hz: 1,475,600 pixels |
| 40G QSFP+ | 1 | 40Gbps optical port with a transmission rate of 41.25Gbps.<br>Note<br>The product doesn't include an optical module by default. If you need one, it's recommended to choose a compatible NovaStar product. |
| HDMI 2.0 LOOP | 2 | HDMI loop through. Up to 8 devices can be cabled in one loop. |
| 12G-SDI LOOP | 2 | SDI loop through. Up to 8 devices can be cabled in one loop. |
| SPDIF OUT | 1 | Digital audio output connector allows for using the HDMI 2.0_2 input source as the audio output. |
| Controls | | |
| Type | Qty | Description |
| ETHERNET | 2 | Gigabit Ethernet control ports. Support TCP/IP protocol and star connection.<br>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 CX40 Pro can be cascaded. |
| GENLOCK | 1 | A pair of Genlock signal connectors. Support Bi-Level, Tri-Level, and Blackburst.<br>• IN: Accept the sync signal<br>• LOOP: Loop the sync signal<br>The Genlock input signal supports a frame rate range from 23.98 Hz to 60 Hz. For standard Genlock signal generators, up to 20 CX40 Pro can be cascaded. |
| AUX | 1 | An auxiliary connector for connecting to central control devices (RS232). |
| Power | | |
| 100-240V~, 50/60Hz | 1 | An AC power input connector and switch. |

Note

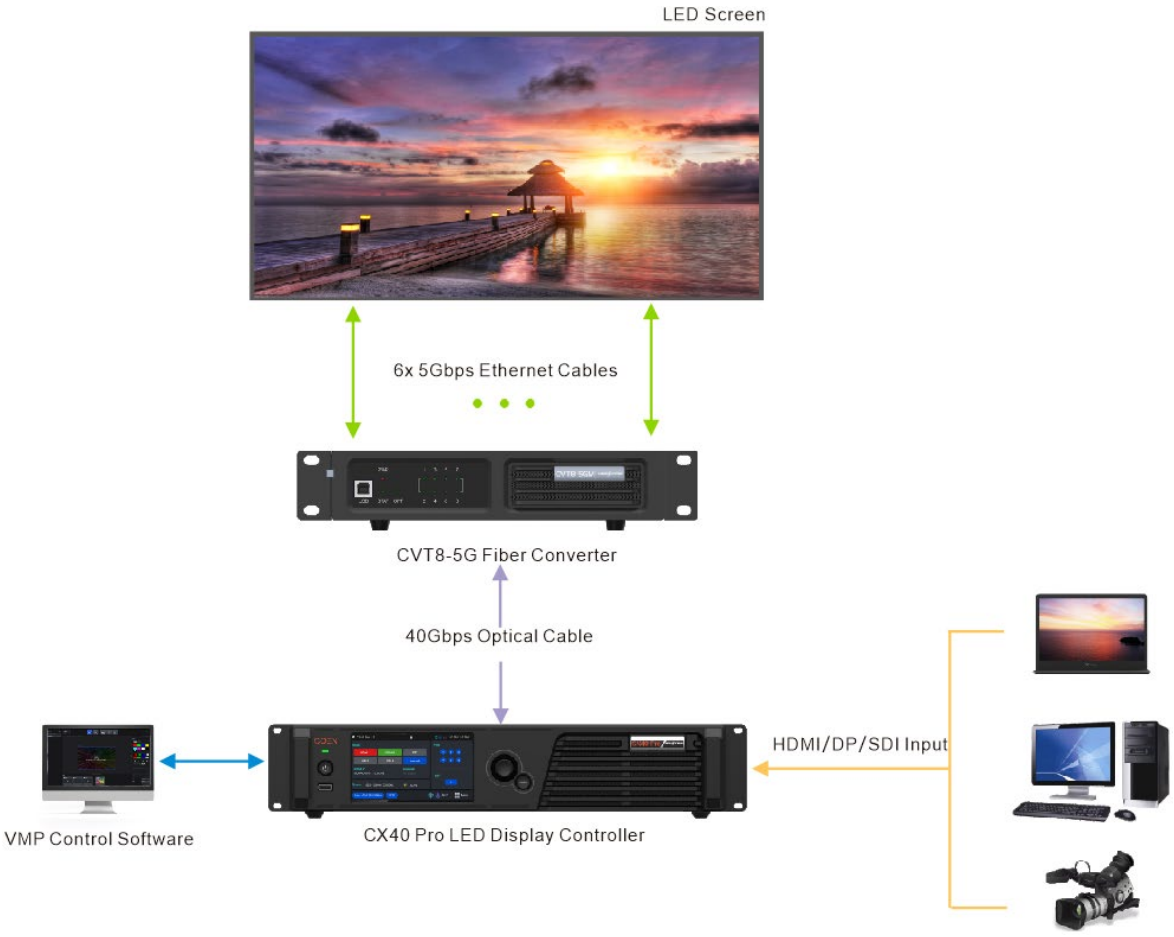
The maximum input resolution and maximum width and height of HDMI and DP connectors must be obtained by setting the graphics card.

# 3 Applications

The CX40 Pro has two typical applications.

## Application 1: Ethernet Output

## Application 2: Long-Distance Transmission via OPT Ports



# 4 Front Screen Panel

## 4.1 UI Introduction

### 4.1.1 Home Screen

After the device is powered on, the home screen is displayed as follows, displaying device related information. The CX40 Pro is equipped with a touch LCD on which users can tap related areas to directly enter the corresponding settings page, making operating more convenient.

Figure 4-1 Home screen

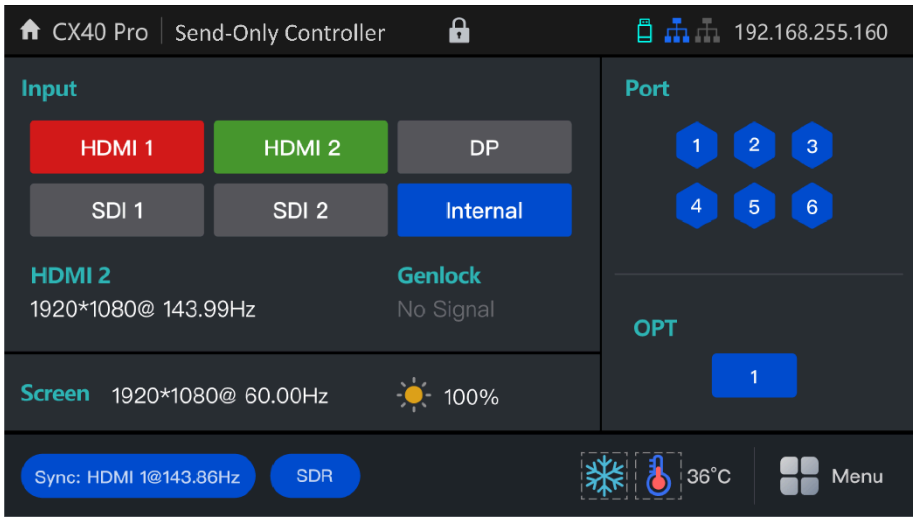



Table 4-1 Home screen descriptions

| Item | Content | Description |
|---|---|---|
| Top Line | CX40 Pro | The device name.<br>The name can be changed in VMP. |
| | Send-Only Controller | The current working mode of the device.<br>• All-In-One Controller: The video processing and sending functions are available.<br>• Send-Only Controller: Only the video sending function is available. |
| |  | The device button and touchscreen lock status.<br>• When the icon is displayed: The buttons are locked. |

| Item | Content | Description |
| --- | --- | --- |
| | | • When the icon is not displayed: The buttons are unlocked.<br>Hold down the knob and **BACK** button simultaneously for 5s or longer to lock or unlock the buttons and screen. |
| |  | The connection status of the Ethernet ports.<br>• Blue: Connected<br>• Gray: Disconnected |
| | 192.168.255.160 | The device IP address. |
| Input | HDMI 1, HDMI 2, DP, SDI, Internal | The device input source type and status.<br>• Green: The signal is normal.<br>• Blue: The signal is normal, but not used.<br>• Red: The signal is abnormal.<br>• Gray: The signal is abnormal and not used. |
| | HDMI 2<br>1920*1080@143.99Hz | The resolution and frame rate of the currently available input source.<br>If multiple input sources are available, the resolution and frame rate of each input source will be displayed one by one. If the input is used by the layer, the layer number will be displayed below. |
| Screen | 1920*1080@60Hz | The screen resolution and frame rate. |
| |  | The screen brightness. |
| Port | 1–6 | The statuses of the Ethernet output ports.<br>• Blue: Connected<br>• Gray: Disconnected |
| OPT | 1 | The statuses of the OPT port<br>• Blue: Connected<br>• Gray: Disconnected |
| Bottom Line | Sync: HDMI1@143.86HZ | The sync signal currently used and the signal status.<br>• **Sync: Active Input**: Sync with the frame rate of the current input source.<br>• **Sync: Genlock**: Sync with the frame rate of the Genlock signal.<br>• **Sync: Internal**: Sync with the frame rate of the internal clock of the device.<br>Color code: |

| Item | Content | Description |
| --- | --- | --- |
| | | • Blue: The signal is normal.<br>• Red: The signal is abnormal. |
| | SDR | The dynamic range of the currently processed signal.<br>• SDR: Standard dynamic range.<br>• HDR10: High dynamic range.<br>• HLG: High dynamic range. |
| | 3D | The 3D function status.<br>• Icon displayed: The 3D function is turned on.<br>• Icon not displayed: The 3D function is turned off. |
| |  | The output display status.<br>•  : The display is frozen.<br>•  : The display is blacked out<br>• Icon not displayed: The display is normal. |
| |  | The temperature inside the chassis. |

## 4.1.2 Main Menu

On the home screen, tap the menu icon at the bottom right or press the knob to enter the main menu page.

Figure 4-2 Main menu

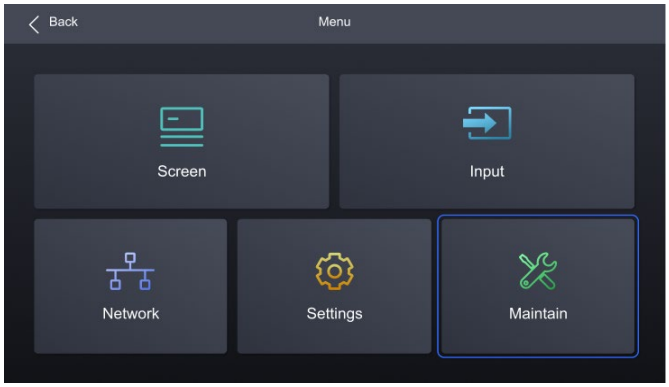



Table 4-2 Main menu description

| Module | Description |
| --- | --- |
|  | Show screen name, sync signal source, and brightness. Set brightness, color temperature, gamma, as well as enable black screen or freeze screen. |

| Module | Description |
| --- | --- |
| | Set internal source, check external input source information, and configure EDID and HDR parameters for external input sources. |
| | Configure network parameters and third party protocol. |
| | Set LCD screen timeout and brightness, set system language and temperature scale, check firmware information, and restore factory settings. |
| | Perform device diagnostics, view and export logs, and check device status. |

# 4.2 Screen

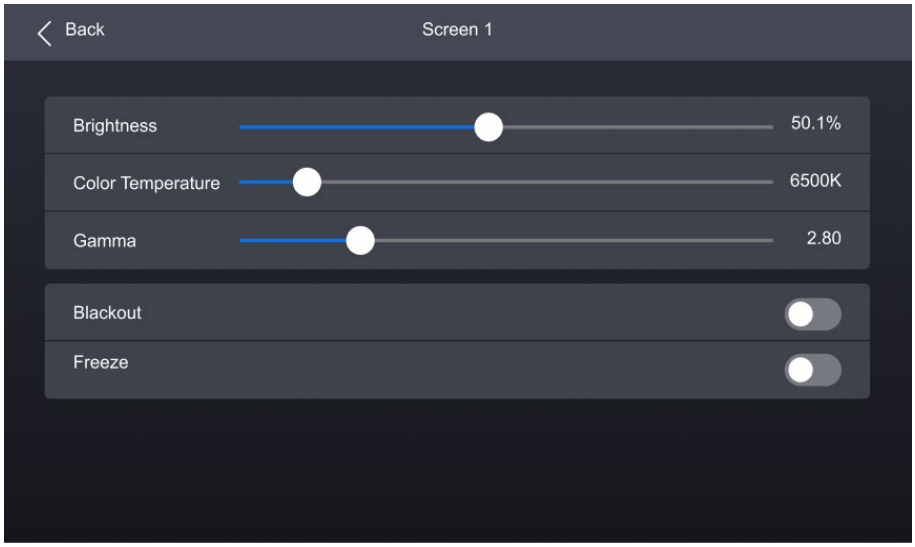
## 4.2.1 Set Brightness, Color Temperature and Gamma

Step 1 Select **Screen** from the main menu to access the screen list.

The list displays screen names, sync signal sources, and brightness.

Step 2 Select a screen to open the parameter settings.

Figure 4-3 Set brightness, color temperature and gamma




Step 3 Adjust the values for brightness, color temperature and gamma.

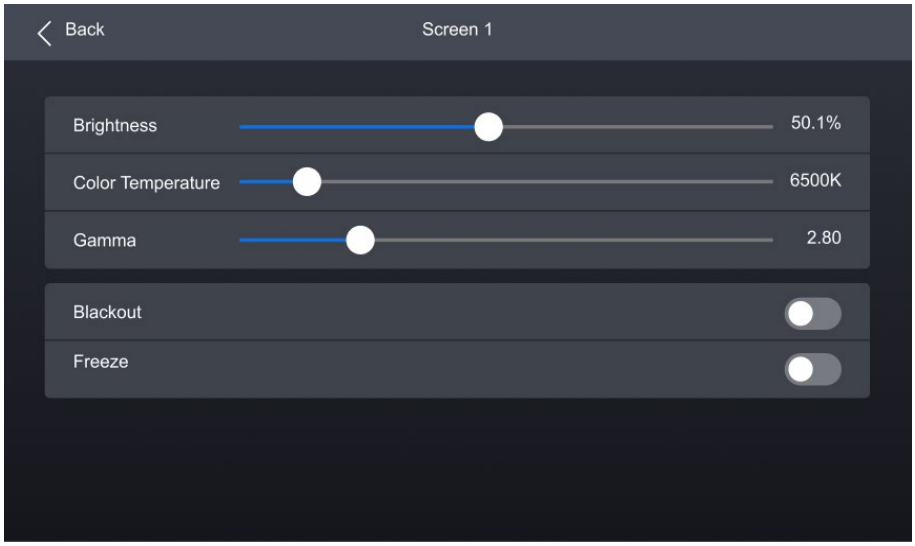
## 4.2.2 Set Screen Status

Step 1 Select **Screen** from the main menu to access the screen list.

The list displays screen names, sync signal sources, and brightness.

Step 2 Select a screen to open the parameter settings.

Figure 4-4 Set screen status




Step 3 Select **Blackout** or **Freeze** and then press the knob to toggle on or off the switch.

- : Enabled. The screen display will turn black or freeze, but the playback will not be interrupted.
- : Disabled.

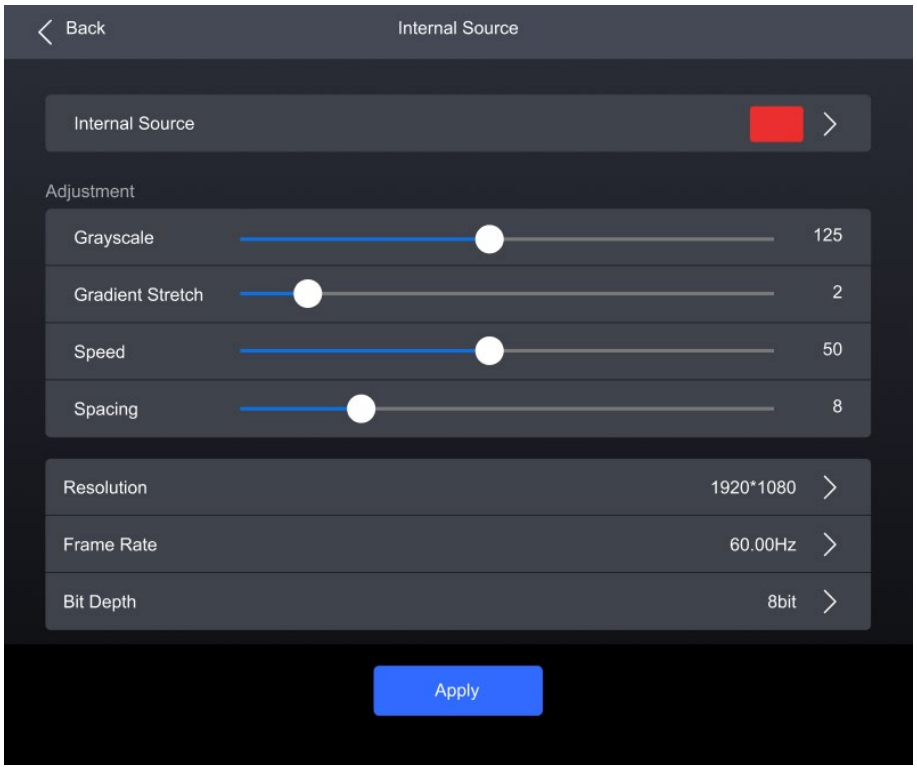
# 4.3 Input

## 4.3.1 Set Internal Source

Step 1 Select **Input** from the main menu to access the input source list.

Step 2 Select **Internal Source** to open the parameter settings.

Figure 4-5 Input source




Step 3 Select **Internal Source**, navigate to the sub-interface, and then select an image.

Step 4 Press **BACK** to return to the parameter settings.

Step 5 Set the **Grayscale**, **Gradient Stretch**, **Speed**, and **Space**. The adjustable parameters for each image may vary based on the interface.

Step 6 Select **Resolution**, **Frame Rate**, and **Bit Depth** in sequence and set a value for each in the pop-up dialog box.

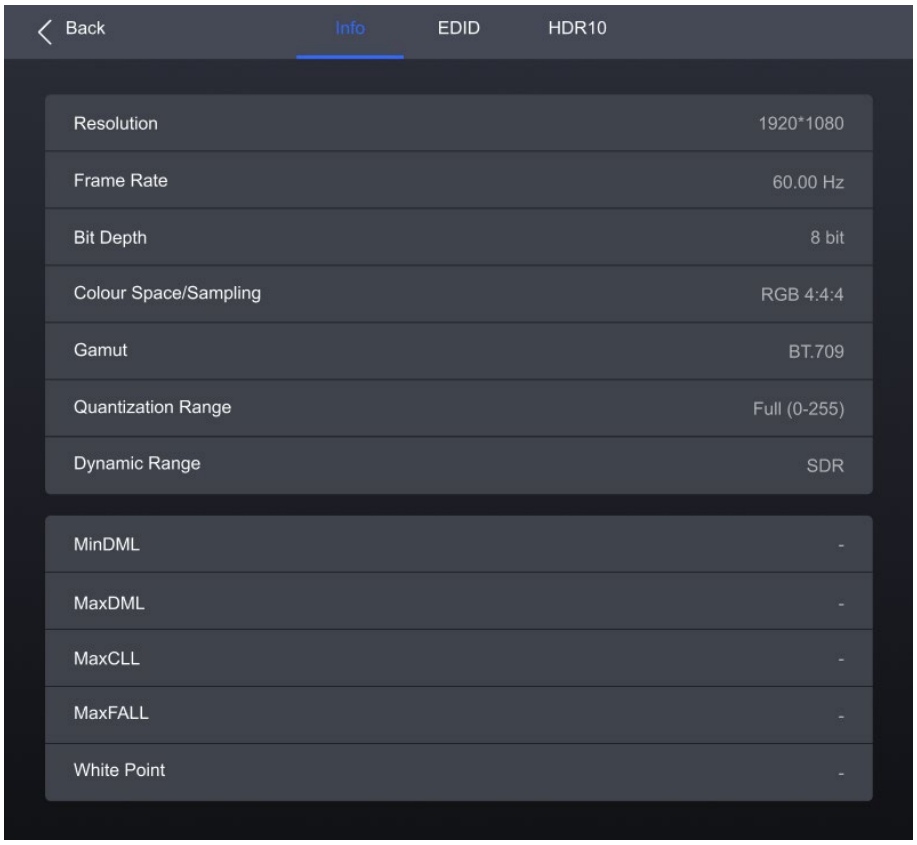
Step 7 After the settings are done, click **Apply**.

## 4.3.2 Check Input Source Information

Step 1 Select **Input** from the main menu to access the input source list.

Step 2 Select an input source to access the **Information** tab.

Figure 4-6 Input source information




Step 3 Check the input source information.

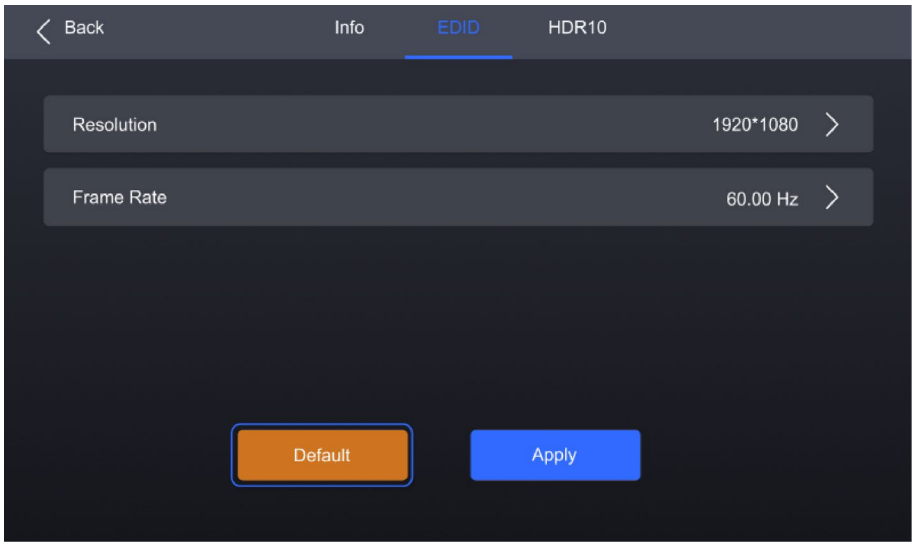
## 4.3.3 Set EDID

Step 1 Select **Input** from the main menu to access the input source list.

Step 2 Select an input source to open the parameter settings.

Step 3 Navigate to the **EDID** tab.

Figure 4-7 EDID




Step 4 Select **Resolution** and **Frame Rate** in sequence and set a value for each in the pop-up dialog box.

Step 5 After the settings are done, click **Apply**.

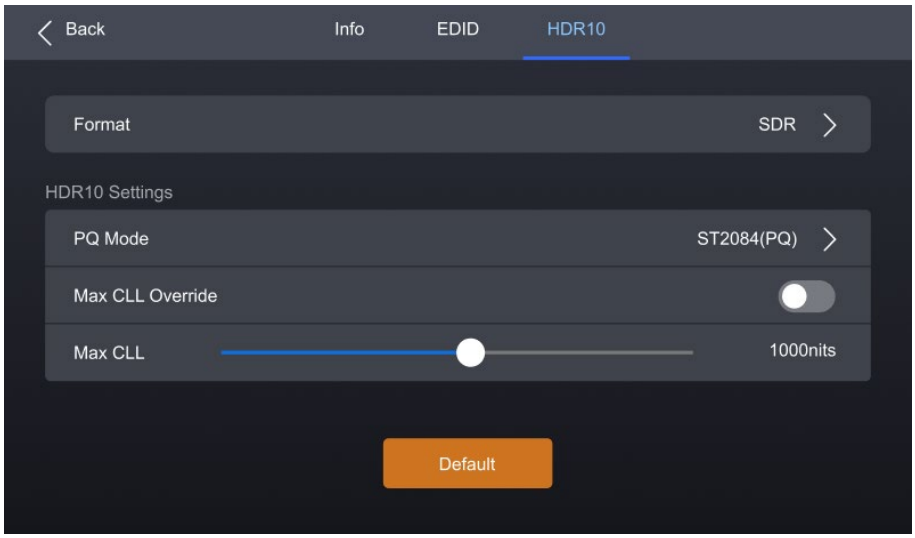
## 4.3.4 Set HDR

Step 1 Select **Input** from the main menu to access the input source list.

Step 2 Select an input source to open the parameter settings.

Step 3 Navigate to the **HDR10** tab.

Figure 4-8 HDR10




Step 4 Select **Format** and then select **Auto**, **HDR10**, **HLG**, or **Close** from the pop-up dialog box.

Step 5 For HDR10, please set the relevant parameters.

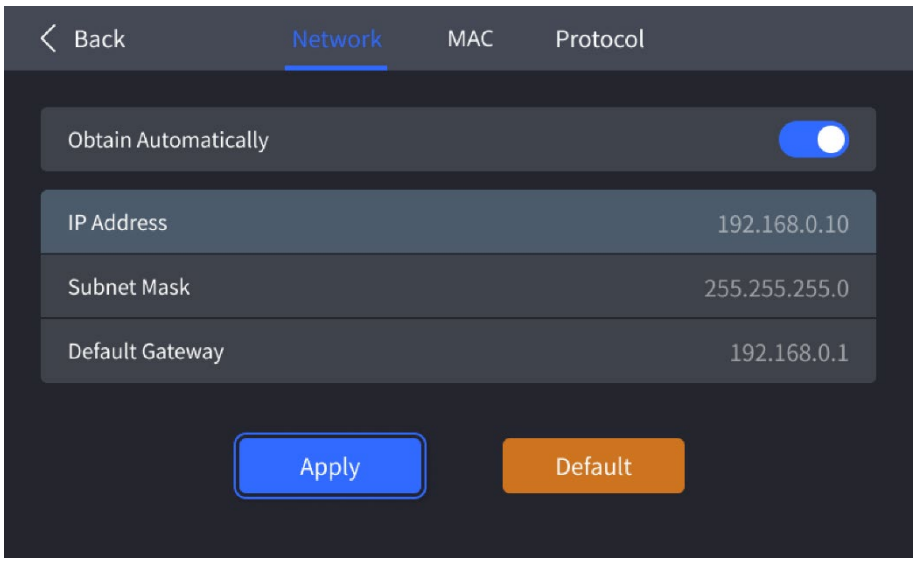
- **PQ Mode:** The mapping method of video source brightness.
  - ST2084 (PQ): This mode 1:1 maps the brightness of the video source. The part that exceeds the maximum screen brightness will still be displayed as the maximum brightness.
  - ST2086 (Linear mapping): This mode linearly maps the brightness of the video source. It globally adjust the video source brightness according to the maximum screen brightness to ensure that the ratio of the brightness of the entire source content remains unchanged.
- **Max CLL Override**: Enable or disable Max CLL override.
- **Max CLL**: The max content light level.

# 4.4 Communication

## 4.4.1 Network

Step 1 Select **Communication** > **Network** from the main menu to access the network settings interface.

Figure 4-9 Network




Step 2 Toggle on or off **Obtain Automatically**.

- : The device automatically obtain an IP address.
- : You need to manually set an IP address for the device.

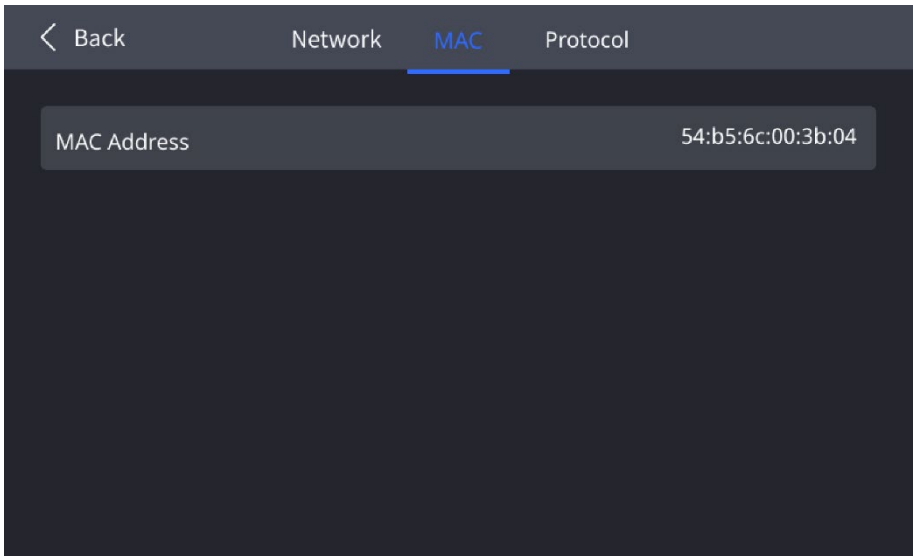
Step 3 If **Obtain Automatically** is disabled, you need to set an **IP Address**, **Subnet Mask** and **Default Gateway**. If it is enabled, this step is not required.

Step 4 After the settings are done, click **Apply**.

## 4.4.2 MAC Address

Step 1 Select **Communication** > **MAC** from the main menu to access the MAC address interface.

Figure 4-10 MAC address

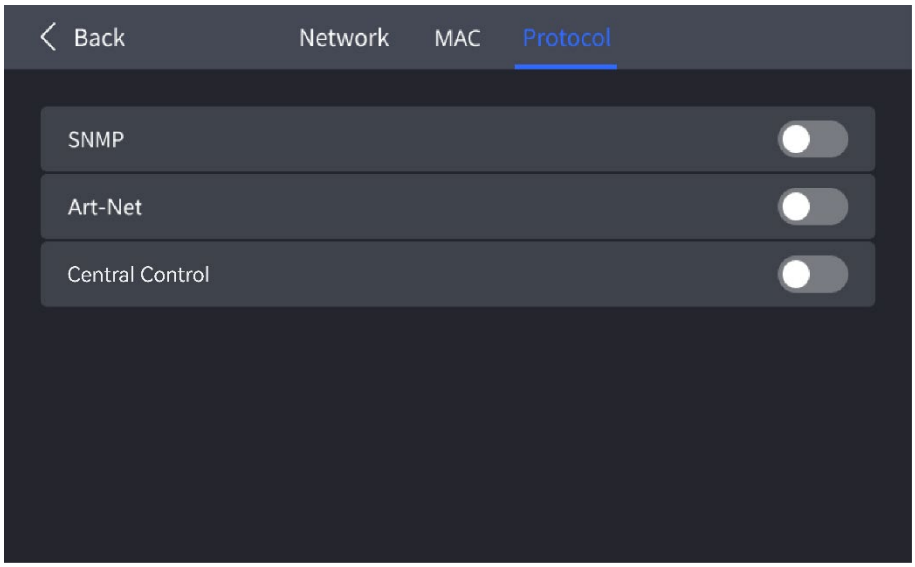



Step 2 You can view the device MAC address here. It can serve as a unique identifier to locate each device in situations like network communication, device management, and security control.

## 4.4.3 Protocol

Step 1 Select **Communication** > **Protocol** from the main menu to access the protocol settings interface.

Figure 4-11 Protocol




Step 2 Toggle on or off **SNMP**, **Art-Net**, or **Central Control**.

- : Enable the protocol.
- : Disable the protocol.

Note

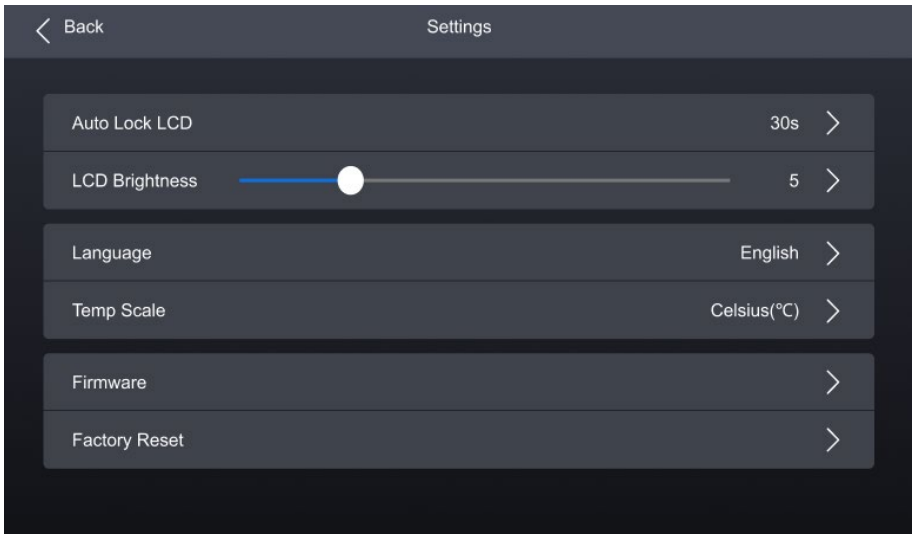
For more details, please refer to *SNMP Instructions*, *Art-Net Instructions*, and *Central Control Instructions*.

# 4.5 Settings

## 4.5.1 Configure LCD Screen

Step 1 Select **Settings** from the main menu to access the system settings interface.

Figure 4-12 Configure LCD screen




Step 2 Select **Auto Lock LCD** and set a value in the pop-up dialog box.

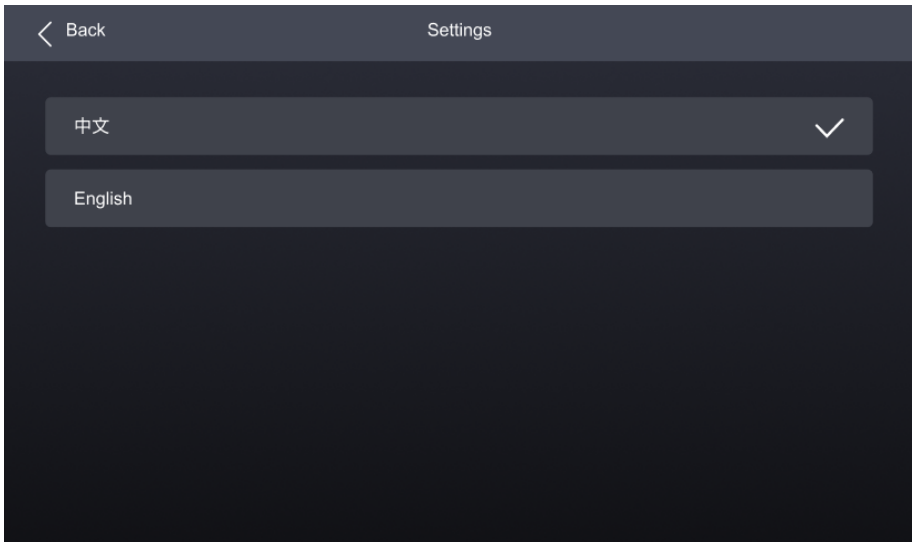
Step 3 Select **LCD Brightness** and adjust the value.

## 4.5.2 Setting Language

Step 1 Select **Settings** from the main menu to access the system settings interface.

Step 2 Select **语言/Language** to open the sub-interface.

Figure 4-13 Language settings



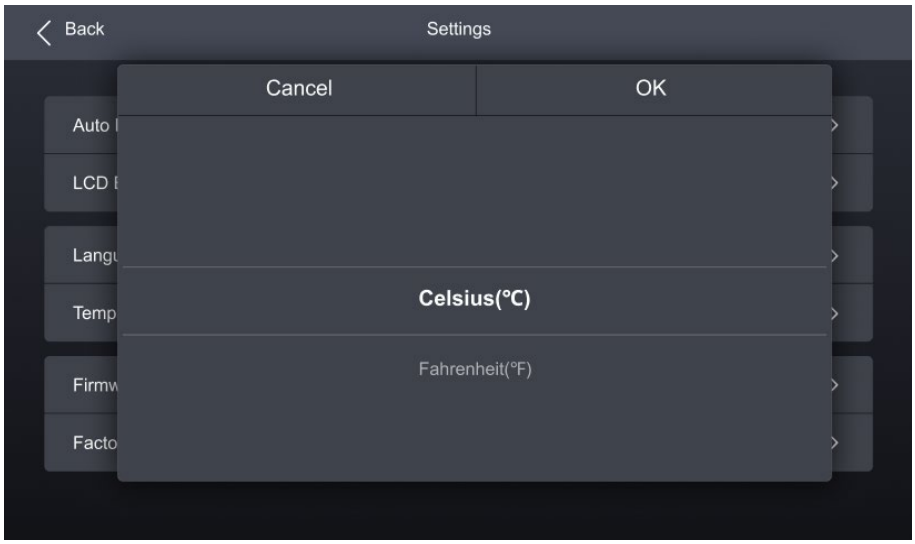

Step 3 Select **中文** or **English**.

## 4.5.3 Set Temperature Scale

Step 1 Select **Settings** from the main menu to access the system settings interface.

Step 2 Select **Temp Scale** and then select **Celsius (℃)** or **Fahrenheit (℉)** from the pop-up dialog box.

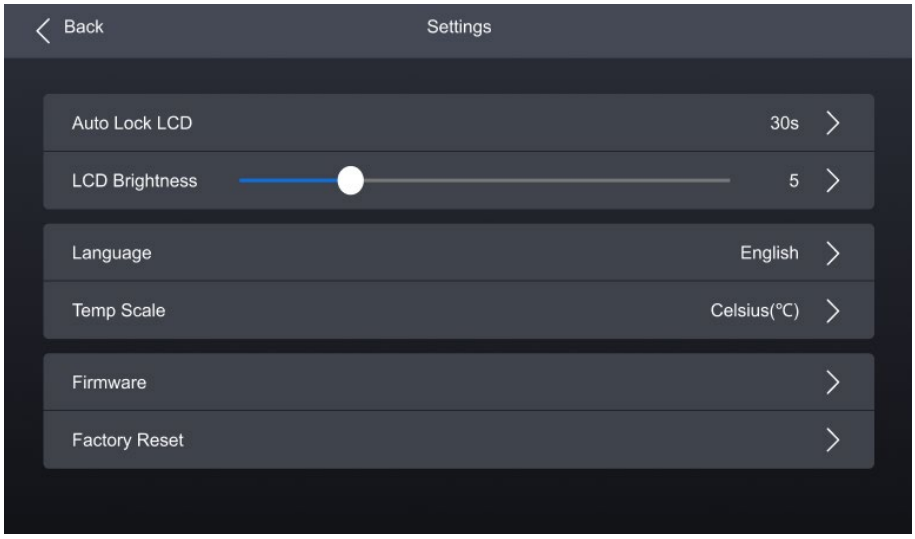
Figure 4-14 Set temperature scale




## 4.5.4 Check Firmware Information

Step 1 Select **Settings** from the main menu to access the system settings interface.

Figure 4-15 Check firmware information




Step 2 Select **Firmware** to open the sub-interface.

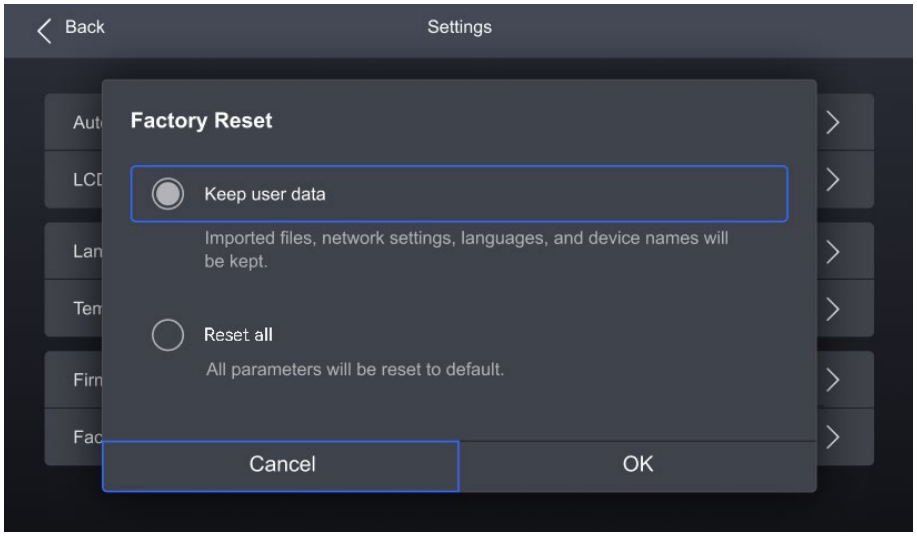
Step 3 Select **Controller**, **Input Card**, and **Output Card** to check the related information.

### 4.5.5 Factory Reset

Step 1 Select **Settings** from the main menu to access the system settings interface.

Step 2 Select **Factory Reset** and then select **Keep user data** or **Reset All** from the pop-up dialog box. Finally, select **OK**.

Figure 4-16 Factory reset




## 4.6 Maintenance

### 4.6.1 Diagnostics

#### Upon Powering UP

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

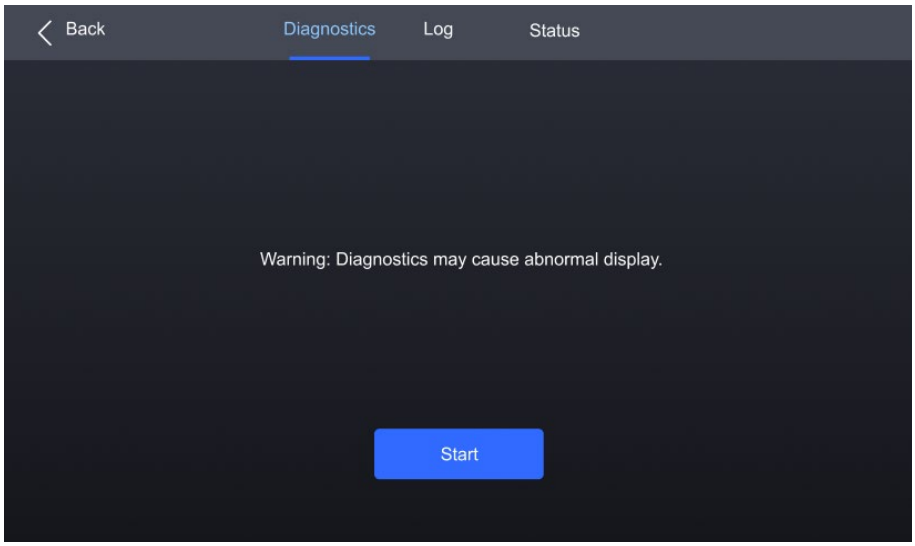
- Normal startup: All functions of the CX40 Pro are available for use.
- Abnormal startup: Depending on the displayed error message, you can choose to export the diagnostic results or continue to operate in a limited functionality state.

#### Maintenance

To export the diagnostics log, insert a USB drive to the USB port on the front panel of the device.

Step 1 Select **Maintain** from the main menu to access the settings interface.

Figure 4-17 Diagnostics




Step 2 Navigate to the **Diagnostics** tab and select **Start**.

Step 3 Once the diagnostic process is completed, select **Details** to check the diagnostic result. You can also select **Export** to export the result into a USB drive.

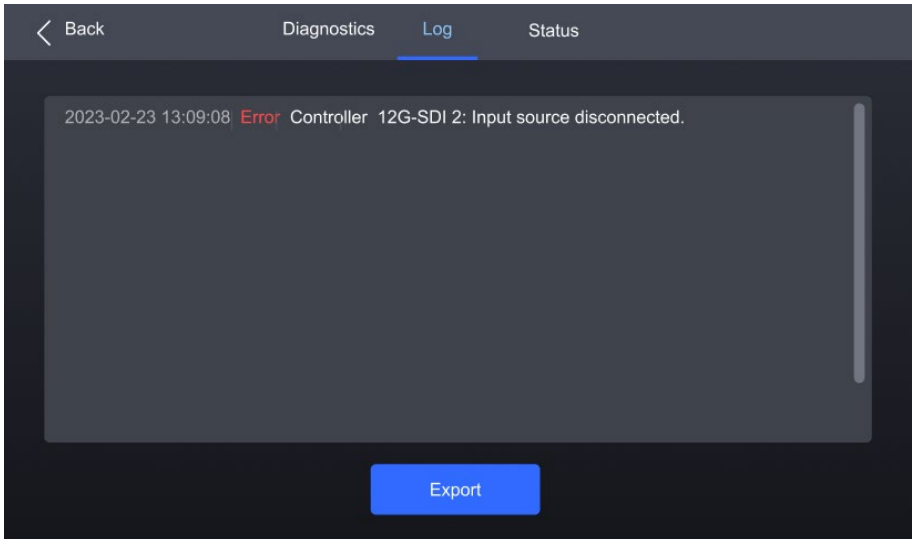
## 4.6.2 View and Export Logs

To export the logs, insert a USB drive to the USB port on the front panel of the device.

Step 1 Select **Maintain** from the main menu to access the settings interface.

Step 2 Navigate to the **Log** tab to check the device logs.

Figure 4-18 Device log



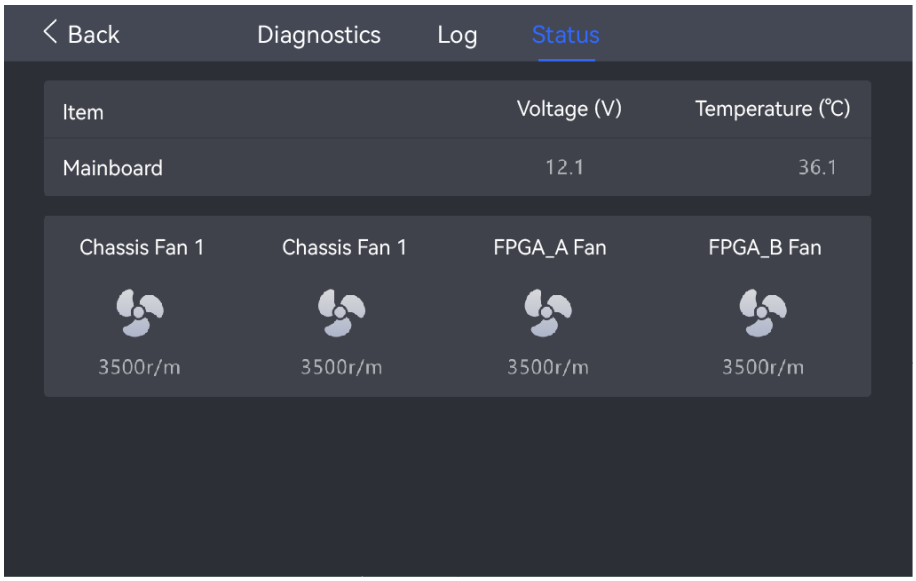

Step 3 Select **Export** to export the logs into a USB drive.

## 4.6.3 Check Device Status

Step 1 Select **Maintain** from the main menu to access the settings interface.

Step 2 Navigate to the **Status** tab to check the device status.

Figure 4-19 Check device status



# 5 VMP Operations

Users can only perform some basic operations on the CX40 Pro LCD screen. To perform more operations such as project management, input source configuration, screen configuration, screen calibration, color processing, screen adjustment, screen monitoring, preset management, and screen maintenance, please install Vision Management Platform (VMP) on the control PC and refer to the *Vision Management Platform User Manual*.

# 6 Product Specifications

| | | |
|---|---|---|
| Electrical Specifications | Power supply | 100-240V~, 50/60Hz |
| | Power consumption | 105 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 | 482.6 mm × 94.4 mm × 472.0 mm |
| | Net weight | 8.1 kg |
| | Gross weight | 11.1 kg<br>Note: It is the total weight of the product, accessories, and packing materials packed according to the packing specifications. |
| Packing Information | Packing box | 595.0 mm × 575.0 mm × 215.0 mm, kraft paper box |
| | Accessory box | 408.0 mm × 294.0 mm × 51.0 mm, white cardboard box |
| | Accessories | • 1x Power cord<br>• 1x Ethernet cable<br>• 1x HDMI cable<br>• 1x DP cable<br>• 1x Certificate of Approval |
| IP Rating | | IP20 (Please prevent the product from water intrusion and do not wet or wash the product). |
| Noise Level (typical at 25°C/77°F) | | 45 dB (A) |

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

# 7 Video Source Specifications

| Input | Resolution | | Color Space | Sampling | Bit Depth | Integer Frame Rate (Hz) |
|---|---|---|---|---|---|---|
| HDMI 2.0 | 4K | 4096×2160 (Forced) | RGB / YCbCr | 4:4:4 | 12bit | 24/25/30 |
| | | | | | 10bit | 24/25/30/48/50 |
| | | | | | 8bit | 24/25/30/48/50/60 |
| | | | YCbCr | 4:2:2 | 8/10/12bit | |
| | | | | 4:2:0 | 8/10/12bit | 30/48/50/60 |
| | | 3840×2160 | RGB / YCbCr | 4:4:4 | 12bit | 24/25/30 |
| | | | | | 10bit | 24/25/30/48/50 |
| | | | | | 8bit | 24/25/30/48/50/60 |
| | | | YCbCr | 4:2:2 | 8/10/12bit | |
| | | | | 4:2:0 | 8/10/12bit | 48/50/60 |
| | 2K1K | 2560×1440 | RGB / YCbCr | 4:4:4 | 12bit | 24/25/30/48/50/60/75 |
| | | | | | 10bit | 24/25/30/48/50/60/75/100 |
| | | | | | 8bit | 24/25/30/48/50/60/75/100/120 |
| | | | YCbCr | 4:2:2 | 8/10/12bit | |
| | | | | 4:2:0 | 8/10/12bit | 75/100/120 |
| | | 1920×1080 | RGB / YCbCr | 4:4:4 | 12bit | 24/25/30/48/50/60/72/75/100/120/144 |
| | | | | | 10bit | |
| | | | | | 8bit | 24/25/30/48/50/60/72/75/100/120/144/240 |
| | | | YCbCr | 4:2:2 | 8/10/12bit | |
| | | | | 4:2:0 | 8/10/12bit | 120/144/240 |
| DP 1.2 | 4K | 4096×2160 (Forced) | RGB / YCbCr | 4:4:4 | 12bit | 24/25/30/48/50 |
| | | | | | 10bit | 24/25/30/48/50/60 |
| | | | | | 8bit | 24/25/30/48/50/60/75 |
| | | | YCbCr | 4:2:2 | 8/10/12bit | |
| | | 3840×2160 | RGB / | 4:4:4 | 12bit | 24/25/30/48/50 |

| Input | Resolution | | Color Space | Sampling | Bit Depth | Integer Frame Rate (Hz) |
|---|---|---|---|---|---|---|
| | | | YCbCr | | 10bit | 24/25/30/48/50/60 |
| | | | | | 8bit | 24/25/30/48/50/60/75 (75 Hz needs to be forced) |
| | | | YCbCr | 4:2:2 | 8/10/12bit | |
| | 2K1K | 2560×1440 | RGB / YCbCr | 4:4:4 | 12bit | 24/25/30/48/50/60/75/100 |
| | | | | | 10bit | 24/25/30/48/50/60/75/100/120 |
| | | | | | 8bit | 24/25/30/48/50/60/75/100/120/144 (144 Hz needs to be forced) |
| | | | YCbCr | 4:2:2 | 8/10/12bit | |
| | | 1920×1080 | RGB / YCbCr | 4:4:4 | 12bit | 24/25/30/48/50/60/75/100/120/144 (144 Hz needs to be forced) |
| | | | | | 10bit | |
| | | | | | 8bit | 24/25/30/48/50/60/75/100/120/144/240 (240 Hz needs to be forced) |
| | | | YCbCr | 4:2:2 | 8/10/12bit | |
| 12G-SDI | 4K | 4096×2160 | YCbCr | 4:2:2 | 10bit | 24/25/30/48/50/60 |
| | | 3840×2160 | | | | |
| | 2K1K | 2048×1080 | | | | |
| | | 1920×1080 | | | | |

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 23.98/29.97/47.95/59.94/71.93/119.88/143.86 Hz.
- When using YCbCr 4:2:0 input, all frame rates need to be forced. Standard graphics cards only support a 4K resolution at 50/60 Hz. Other resolutions and frame rates require a source device that supports this color space and sampling to be forced.

# 8 Ethernet Port Load Capacity

When working with the XA50 Pro and CA50E receiving cards, the formula of calculating the load capacity per Ethernet port and the detailed parameters are as follows:

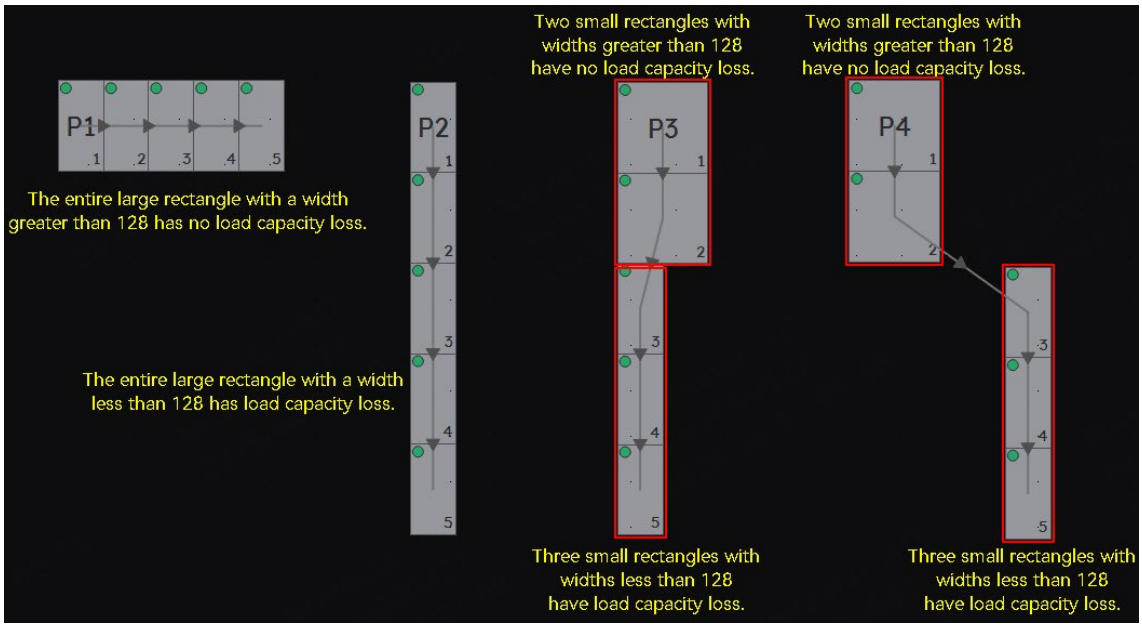
- 8bit: Load capacity × 24 × Frame rate < 5G × 0.85
- 10bit: Load capacity × 32 × Frame rate < 5G × 0.88
- 12bit: Load capacity × 48 × Frame rate < 5G × 0.85

| Max Load Capacity per Ethernet Port (Pixels) | | | |
|---|---|---|---|
| Frame Rate / Bit Depth | 8bit | 10bit | 12bit |
| 24 Hz | 7,378,000 | 5,728,280 | 3,689,000 |
| 25 Hz | 7,082,800 | 5,499,149 | 3,541,440 |
| 30 Hz | 5,902,400 | 4,582,624 | 2,951,200 |
| 50 Hz | 3,541,440 | 2,749,574 | 1,770,720 |
| 60 Hz | 2,951,200 | 2,291,312 | 1,475,600 |
| 120 Hz | 1,475,600 | 1,145,656 | 737,800 |
| 144 Hz | 1,229,600 | 954,713 | 612,374 |
| 240 Hz | 737,800 | 572,828 | 368,900 |

Note

- To achieve the maximum load capacity, the width of each rectangular load area within a single Ethernet port must be at least 128 pixels. If the width of a rectangular load area within the Ethernet port is less than 128, the loss in capacity is calculated as (128 - width of the rectangular load area) × height of the rectangular load area. The total load capacity loss for the Ethernet port is the sum of the losses for all rectangular load areas within the port.
- When using the Ethernet port, pair it with a CAT5E cable for a maximum length of 100 meters.

Figure 8-1 Load capacity loss example



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