MCTRL700 Pro

LED Display Controller

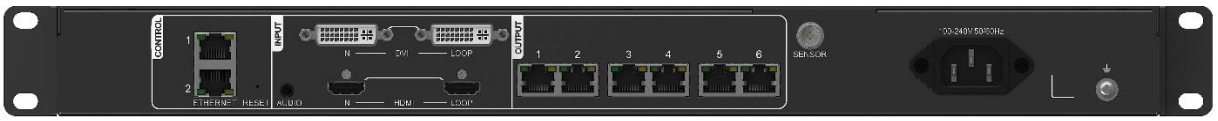
Quick Start Guide

Contents

1 Overview

The MCTRL700 Pro is an LED display controller developed by Xi'an NovaStar Tech Co., Ltd. (hereinafter referred to as NovaStar). It supports 1x HDMI input, 1x DVI input, 1x AUDIO input, and 6x Ethernet outputs. The maximum load capacity of a single controller is 1920×1200@60Hz. It supports connections to a control computer and device cascading through gigabit Ethernet ports, ensuring faster data transmission and higher stability.

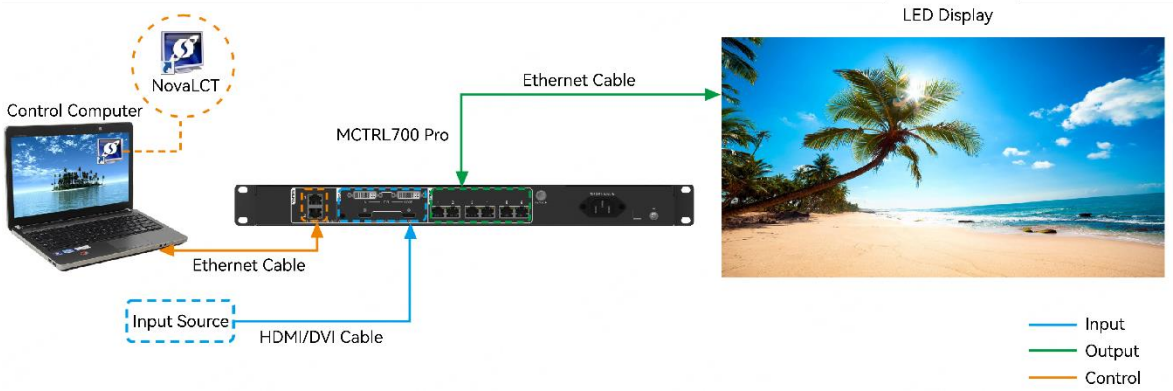
The MCTRL700 Pro offers a comprehensive upgrade over the traditional MCTRL series controllers. This document outlines the key differences. For details on additional features and operations, please refer to the *NovaLCT LED Configuration Tool for Synchronous Control System User Manual*.



2 Device connection

2.1 Hardware Connection

Connect the control computer with NovaLCT installed to the MCTRL 700 Pro with Ethernet cable, as shown in the figure below.



2.2 Software Settings

Step 1 Ensure that the MCTRL700 Pro is properly connected to the control computer.

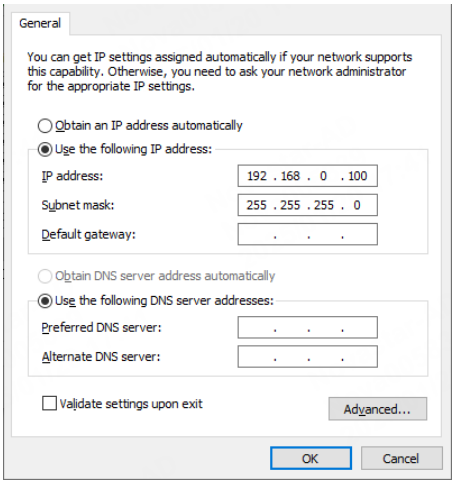
Step 2 On the computer with NovaLCT installed, open the **Network and Sharing Center**.

Step 3 Click **Change adapter** settings.

Step 4 On the displayed window, right click **Local Area Connection** and go to **Properties** > **Internet Protocol Version 4 (TCP/IPv4)** to enter the properties page.

Step 5 Select **Use the following IP address**, and set the computer's IP to a range within 192.168.0.2 to 192.168.0.254. Click **OK** to confirm.

Figure 2-1 Configuring IP address

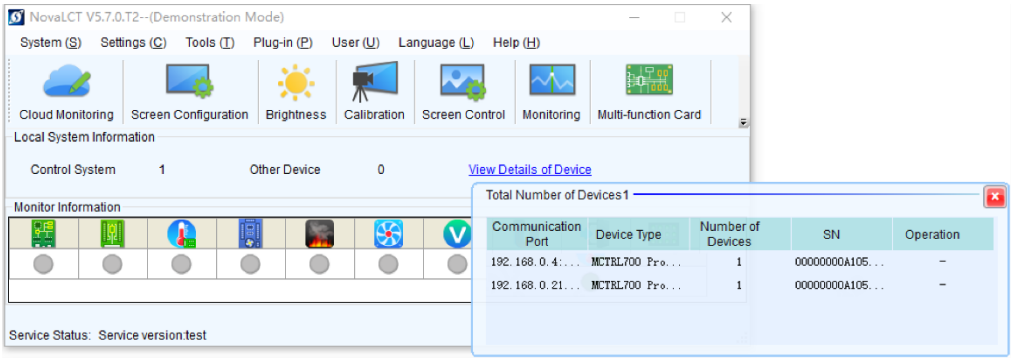


Note

The default IP address for the MCTRL700 Pro is 192.168.0.10. Make sure not to use this address when configuring the computer's IP.

Step 6 Run NovaLCT and click **View Details of Device** to confirm that the MCTRL700 Pro is connected.

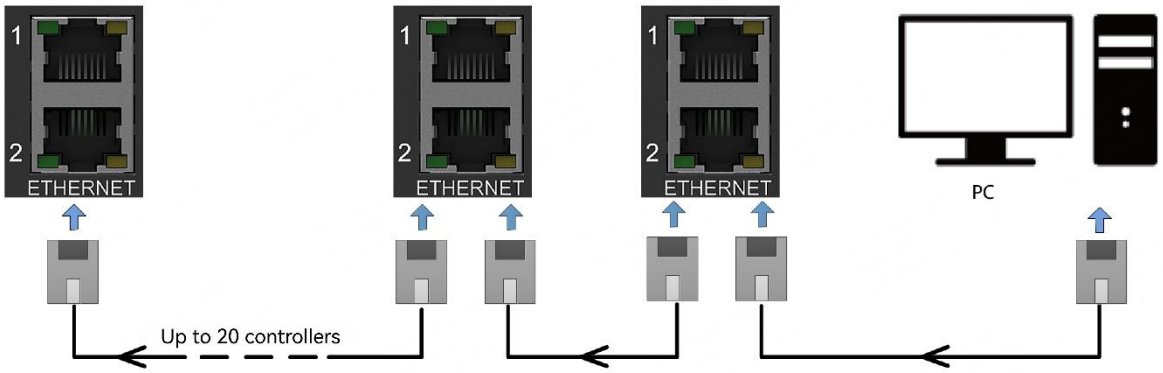
Figure 2-2 Viewing details of device



2.3 Cascading Multiple Controllers

To control multiple MCTRL700 Pro controllers simultaneously, follow the figure below to cascade them via the ETHERNET ports. Up to 20 controllers can be cascaded. Additionally, ensure that the IP addresses of all cascaded devices are set within the same network segment but are not identical. For detailed instructions, please refer to 3.2 IP Settings.

Figure 2-3 Cascading devices



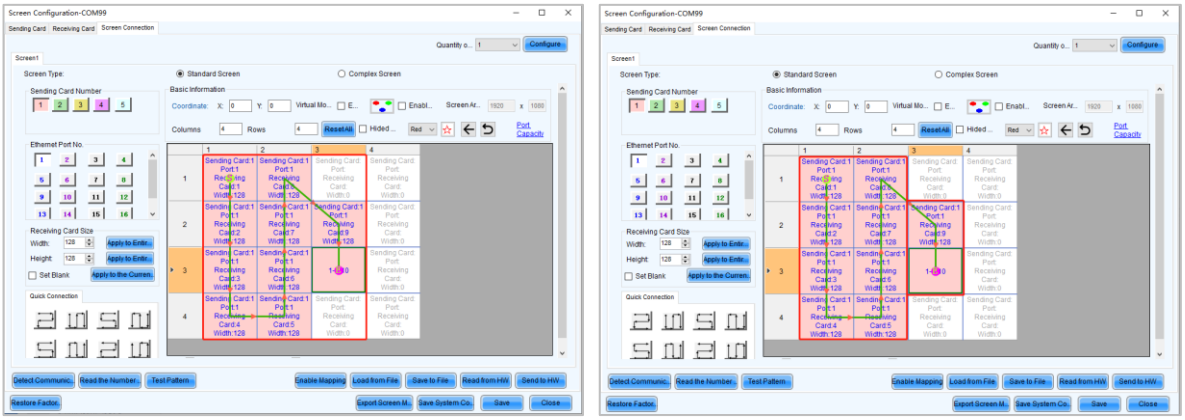
3 NovaLCT Operations

The MCTRL700 Pro offers a comprehensive upgrade from the traditional MCTRL series controllers. This document outlines the key differences when used with NovaLCT (version 5.7.0 or later). For more detailed information on screen configuration, brightness adjustment, calibration, display control, monitoring, and other functions, please refer to the *NovaLCT LED Configuration Tool for Synchronous Control System User Manual*.

3.1 Free Layout

When configuring LED screens with the MCTRL700 Pro, there are no rectangle restrictions for irregularly shaped screens. This means that any blank areas are not included in the load capacity calculation. The load capacity used by Ethernet ports is determined by the total number of pixels from all connected cabinets.

Figure 3-1 Traditional load calculation / Free layout



3.2 IP Settings

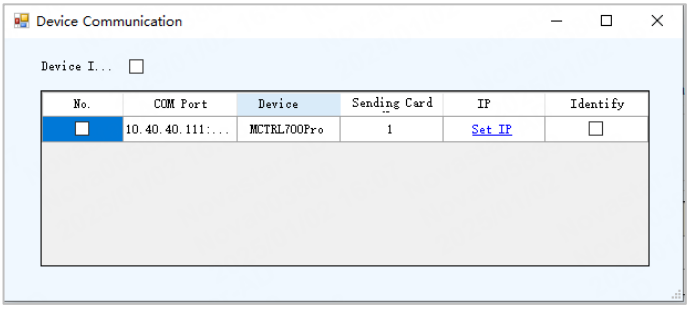
The MCTRL700 Pro allows you to set its IP address using NovaLCT. You can also reset it to the factory default IP by pressing the reset button.

Step 1 On the menu bar, choose **User** > **Advanced Synchronous System User Login**. Enter the password and click **Login**.

The default password is "admin".

Step 2 Choose Tools > Device Communication.

Figure 3-2 Device communication



Step 3 Click **Set IP** and configure the device's IP address.

3.3 Device Identify

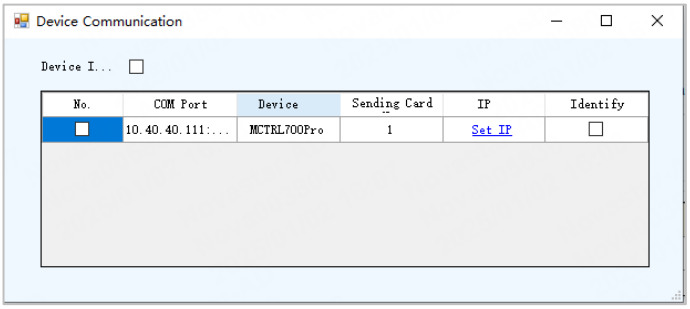
When there are multiple MCTRL700 Pro controllers in the setup, you can quickly identify each controller by their IP addresses.

Step 1 On the menu bar, choose **User** > **Advanced Synchronous System User Login**. Enter the password and click **Login**.

The default password is "admin".

Step 2 Choose Tools > Device Communication.

Figure 3-3 Device communication

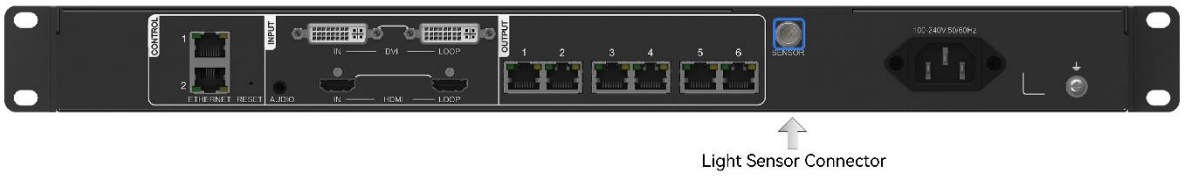


Step 3 Depending on whether you need to locate a single controller or multiple controllers, you can use the Identify feature. Once activated, the red light on the target controllers(s) will start flashing, allowing you to easily identify their positions.

- To identify multiple controllers: Select **Identify Device** and then choose the numbers of the controllers you want to find.
- To identify a single controller: Select **Identify** for the specific controller you want to find.

3.4 Automatic Brightness Adjustment with Light Sensor

This feature allows you to connect a light sensor directly to the controller. Once connected, it will measure the current ambient brightness, and you can use NovaLCT to set the LED screen to automatically adjust its brightness based on the surrounding light conditions.



Step 1 Ensure that the light sensor is connected to the controller.

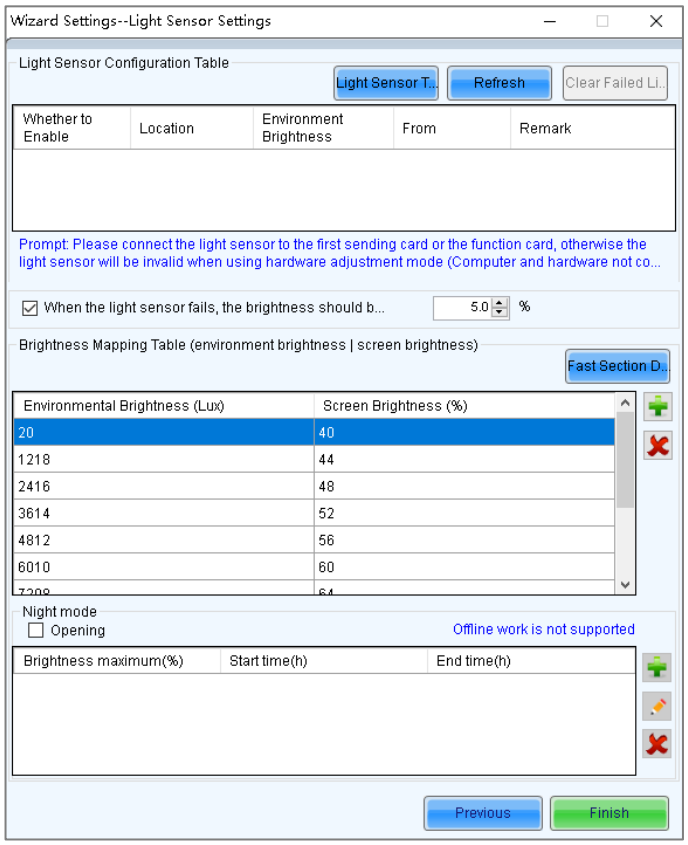
Step 2 On the menu bar, choose **User** > **Advanced Synchronous System User Login**. Enter the password and click **Login**.

The default password is "admin".

Step 3 Click  or choose **Settings** > **Brightness** on the menu bar.

Step 4 Select Auto Adjustment.

Step 5 Click **Wizard Settings** > **Light Sensor Configuration** to set up the light sensor information.



1. Click **Light Sensor Test** to test the light sensors connected to the control system.
2. (Optional) Select When the light sensor fails, the brightness should be adjusted to and set a brightness value.

   If this option is not selected, the screen brightness will keep the last updated brightness value when the light sensor fails.
3. Click  or  , or click **Fast Section Division** to set the brightness mapping table.
4. Fast section division can equally divide the ambient brightness range and screen brightness range into the specified number of segments.

5. (Optional) Select **Opening** to enable night mode and set the maximum brightness of the specified time period.

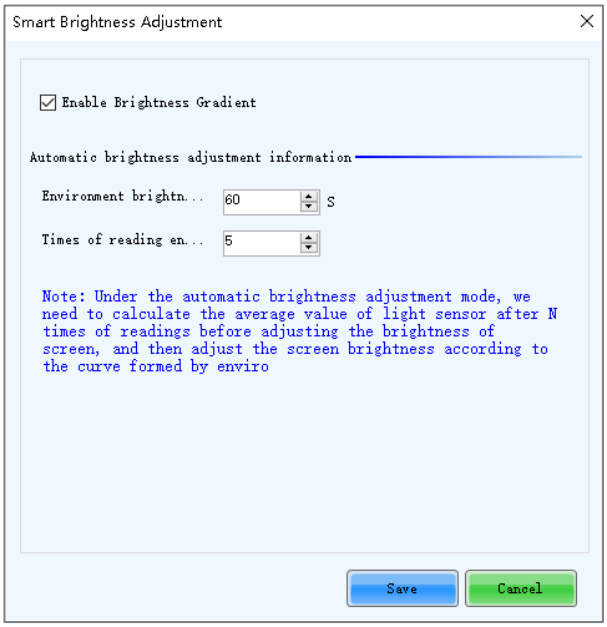
   When surrounding lights interfere with the light sensor or an exception occurs when the light sensor is collecting ambient brightness data, screen brightness may be too high. This can be avoided in night mode. If the start time and end time are the same, night mode takes effect all the time.

6. Click **Finish**.

Step 6 Once the settings are done, click **Save**.

Step 7 (Optional) Set the advanced parameters of auto brightness adjustment.

1. On the taskbar, click  and choose **Brightness Advanced Settings**.



2. Select **Enable Brightness Gradient**. Screen brightness will gradually change to the target value.
3. Set the cycle and number of times for the light sensor to measure ambient brightness.

   For example, if the cycle is 60 seconds and number of times is 5, the light sensor will measure ambient brightness every 60 seconds. After 5 times of measurement, NovaLCT will calculate the average of the measured values without the maximum and minimum ones. This average value is ambient brightness. If multiple light sensors are connected, NovaLCT will calculate the average of all the ambient brightness values.

4. Click **Save**.

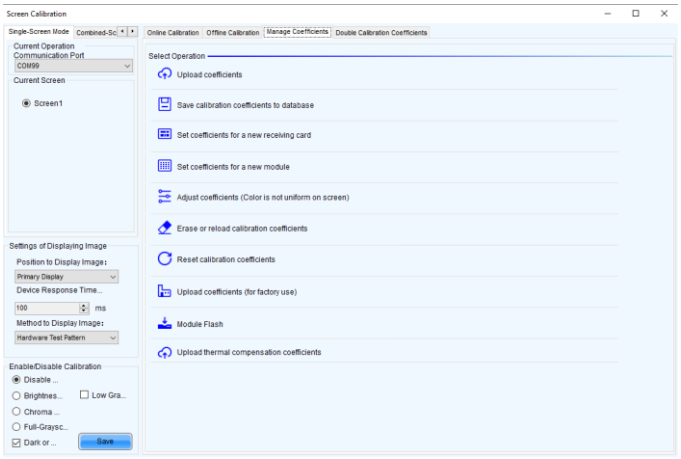
3.5 Calibration

3.5.1 Upload Coefficients

The MCTRL700 Pro has significantly improved the speed of uploading calibration coefficients, making it more than 10 times faster than traditional MCTRL series controllers.

For example, while uploading calibration coefficients takes 7 minutes with the traditional MCTRL series, the MCTRL700 Pro can complete the same upload in just 40 seconds.

Figure 3-4 Upload coefficients



3.5.2 Checkerboard Test Pattern

The MCTRL700 Pro supports checkerboard test pattern through calibration software, allowing compatibility with a broader range of calibration options, such as full-grayscale calibration and low-grayscale calibration.

3.6 Firmware Update

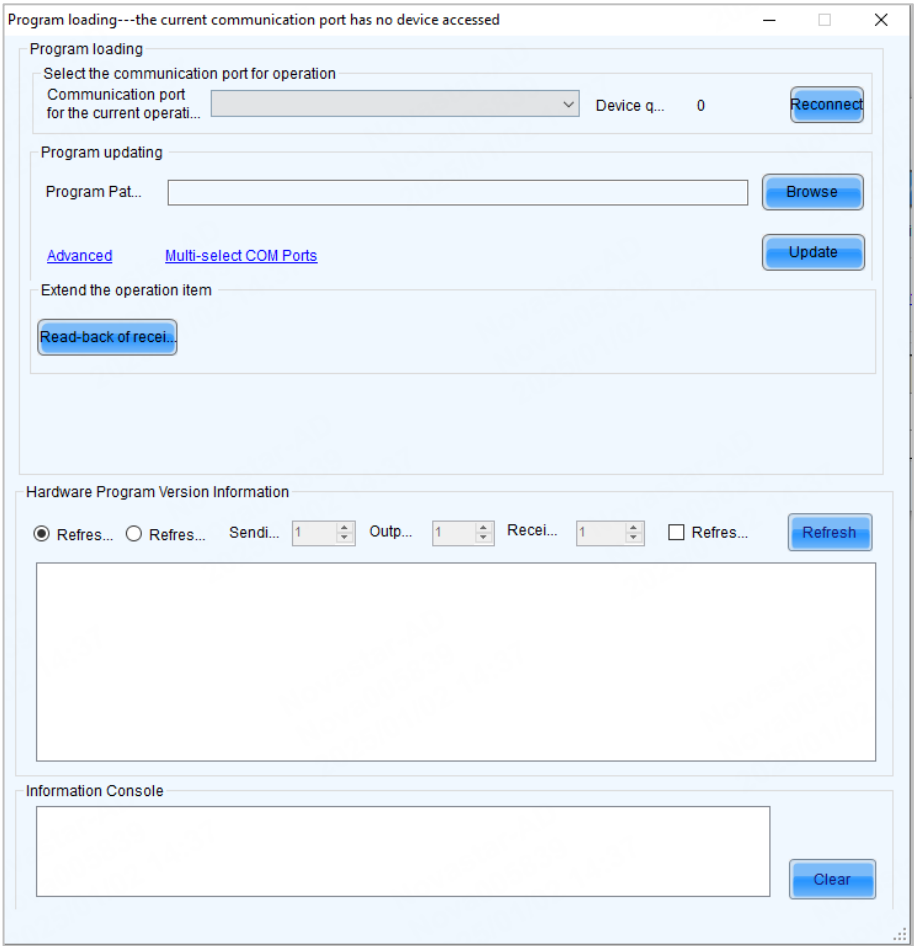
Step 1 On the menu bar, choose **User** > **Advanced Synchronous System User Login**. Enter the password and click **Login**.

The default password is "admin".

Step 2 Click 

, or type "admin" or "123456" to open the program loading interface.

Figure 3-5 Program loading



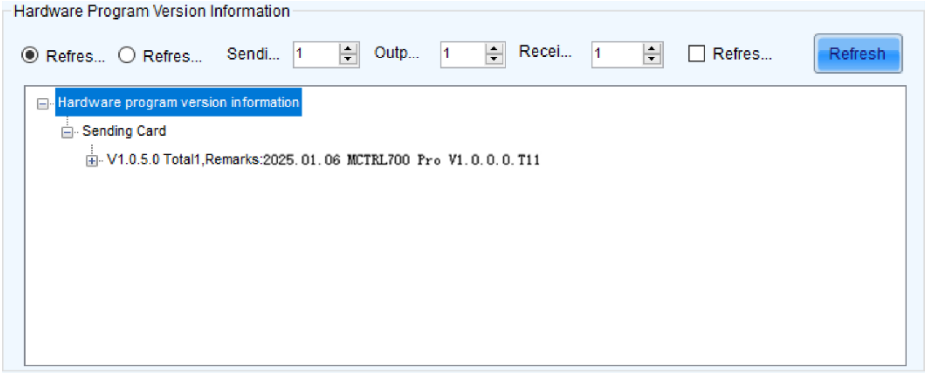
Step 3 Choose a communication port.

If you need to reconnect the controller, click **Reconnect**.

Step 4 Specify the viewing range and click **Refresh** to view the current program version of the hardware.

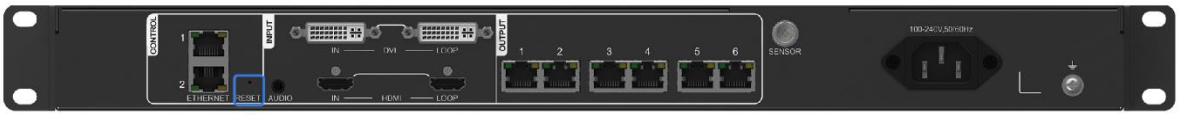
- Refresh All: View the program versions of all the sending cards and receiving cards.
- Refresh Specified: View the program versions of the specified sending cards and receiving cards.

Figure 3-6 View program version



Step 5 Click **Browse**, select a program package (*.nuzip), and click **OK**.

4 Reset Button



Reset Button

4.1 IP Reset

Press and hold the reset button for 3s to reset the controller IP address to its factory default setting (192.168.0.10).

A successful reset is indicated when the red STATUS indicator on the front panel flashes 4 times per second for 3 seconds.

- Subnet mask: 255.255.255.0
- Device IP: 192.168.0.10

4.2 System Soft Reboot

Press and hold the reset button for 10s to perform a soft reboot of the system.

A successful reboot is indicated when the red STATUS indicator on the front panel turns off for 600 milliseconds and then turns back on.

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