

Hikrobot Co., Ltd.

Analog Light Controller

User Manual

HIKROBOT

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Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
 Danger	Indicates a hazard with a high level of risk, which if not avoided, will result in death or serious injury.
 Caution	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
 Note	Provides additional information to emphasize or supplement important points of the main text.

Available Model

This manual is applicable to the Analog Light Controller.

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Chapter 1 Safety Instruction

The safety instructions are intended to ensure that the user can use the device correctly to avoid danger or property loss. Read and follow these safety instructions before installing, operating and maintaining the device.

1.1 Safety Claim

- To ensure personal and device safety, when installing, operating, and maintaining the device, follow the signs on the device and all safety instructions described in the manual.
- The note, caution and danger items in the manual do not represent all the safety instructions that should be observed, but only serve as a supplement to all the safety instructions.
- The device should be used in an environment that meets the design specifications, otherwise it may cause malfunctions, and malfunctions or component damage caused by non-compliance with relevant regulations are not within the scope of the device's quality assurance.
- Our company will not bear any legal responsibility for personal safety accidents and property losses caused by abnormal operation of the device.

1.2 Safety Instruction



Caution

- Do not install the device if it is found that the device and accessories are damaged, rusted, water ingress, model mismatch, missing parts, etc., when unpacking.
- Avoid storage and transportation in places such as water splashing and rain, direct sunlight, strong electric fields, strong magnetic fields, and strong vibrations.
- Avoid dropping, smashing or vigorously vibrating the device and its components.
- It is forbidden to install the indoor device in an environment where it may be exposed to water or other liquids. If the device is damp, it may cause fire and electric shock hazard.
- Place the device in a place out of direct sunlight and ventilation, away from heat sources such as heaters and radiators.
- This is a Class A device. In the living environment, this device may cause radio interference. In this case, the user may be required to take practical measures against the interference.
- In the use of the device, you must be in strict compliance with the electrical safety regulations of the nation and region.
- Use the power adapter provided by the official manufacturer. The power adapter must meet the Limited Power Source (LPS) requirements. For specific requirements, please refer to the device's technical specifications.
- Do not cover the device's plug or outlet for disconnecting power supply.
- It is strictly forbidden to wire, maintain, and disassemble the device is powered on. Otherwise, there is a danger of electric shock.

- Make sure that the device is installed in good condition, the wiring is firm, and the power supply meets the requirements before powering on the device.
- If the device emits smoke, odor or noise, please turn off the power and unplug the power cord immediately, and contact the dealer or service center in time.
- If the device does not work properly, please contact your dealer or the nearest service center. Never attempt to disassemble the device yourself. We shall not assume any responsibility for problems caused by unauthorized repair or maintenance.
- Please dispose of the device in strict accordance with the relevant national or regional regulations and standards to avoid environmental pollution and property damage.

Note

- Check whether the device's package is in good condition, whether there is damage, intrusion, moisture, deformation, etc. before unpacking.
- Check the surface of the device and accessories for damage, rust, bumps, etc. when unpacking.
- Check whether the quantity and information of the device and accessories are complete after unpacking.
- Store and transport the device according to the storage and transport conditions of the device, and the storage temperature and humidity should meet the requirements.
- It is strictly prohibited to transport the device in combination with items that may affect or damage the device.
- Quality requirements for installation and maintenance personnel:
 - Qualification certificate or working experience in weak current system installation and maintenance, and relevant working experience and qualifications. Besides, the personnel must possess the following knowledge and operation skills.
 - The basic knowledge and operation skills of low voltage wiring and low voltage electronic circuit connection.
 - The ability to comprehend the contents of this manual.
- Please read the manual and safety instructions carefully before installing the device.
- Please install the device strictly according to the installation method in this manual.
- Do not contact the device with strong acids, alkalis, oils, greases or organic solutions such as thinners.

1.3 Electromagnetic Interference Prevention

- Make sure that the shielding layer of cables is intact and 360° connected to the metal connector when using shielded cables.
- Do not route the device together with other equipment (especially servo motors, high-power devices, etc.), and control the distance between cables to more than 10 cm. Make sure to shield the cables if unavoidable.
- The control cable of the device and the power cable of the industrial light source must be wired separately to avoid bundled wiring.
- The power cable, data cable, signal cable, etc. of the device must be wired separately. Make sure to ground them if the wiring groove is used to separate the wiring and the wiring groove is metal.

- During the wiring process, evaluate the wiring space reasonably, and do not pull the cables hard, so as not to damage the electrical performance of the cables.
- The unused cables of the device must be insulated.
- To avoid the accumulation of static electricity, ensure that other equipment (such as machines, internal components, etc.) and metal brackets on site are properly grounded.
- During the installation and use of the device, high voltage leakage must be avoided.
- Use a figure-eight bundle method if the device cable is too long.
- When connecting the device and metal accessories, they must be connected firmly to maintain good conductivity.
- Use a shielded network cable to connect to the device. If you use a self-made network cable, make sure that the shielding shell at the aviation head is well connected to the aluminum foil or metal braid of the shielding cable.

Chapter 2 Overview

2.1 Introduction

The analog series light controller supports stepless dimming and outputting multichannel light sources. It provides trigger input connectors, device management interface, etc. It helps users realize fast and convenient deployment of vision light source on site.

2.2 Key Feature

- Adopts constant voltage control and supports stepless dimming.
- Adopts knob control on control panel, and plug and play.
- Provides multichannel opto-isolated inputs.
- Supports installation via slide rail or screw hole.
- Supports overcurrent, overload, and short circuit protection.

Note

- Refer to the device's specifications for detailed parameters.
 - The key feature may differ by device models.
-

Chapter 3 Appearance

Note

- Appearance here is for reference only. Refer to the device's specification for detailed dimension information.
- The specific appearance may differ by device models. Here we take MV-LE100-120W24-4D as an example to introduce appearance, and the actual device you purchased shall prevail.

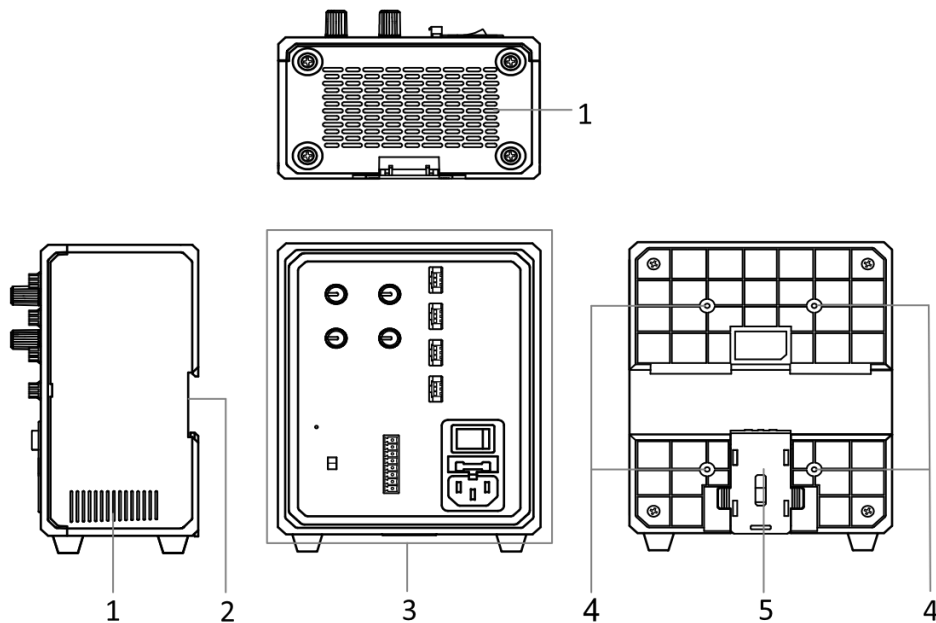


Figure 3-1 Appearance

Table 3-1 Component Description

No.	Name	Description
1	Ventilation Hole	It is used to cool the device.
2	Slide Rail Slot	It is used to install the device, and you should use standard Din35 slide rail.
3	Control Panel	It provides functions of power supply, trigger input connector, indicator, knob, etc. Refer to section Control Panel for details.  Note The control panel may differ by device models.
4	Screw Hole	It is used to install the device, and you should use M3 screws.
5	Plastic Pallet	It is used to fix the Din35 slide rail.

Chapter 4 Device Installation and Connection

4.1 Installation Preparation

You need to prepare following accessories before installation.

Table 4-1 Accessories

No.	Name	Quantity	Description
1	Power Cord	1	It refers to the suitable power cord, and you should select it according to the device's power supply and power consumption. Refer to the device's specifications for details. • PoE (Power over Ethernet) device with 24 W output power: No power supply interface. The power is provided via connection of network interface. • Device with 24 W output power: 24 VDC power cord that you need to purchase separately. 8-pin power supply socket is included in the package. • Device with 48 W output power: 24 VDC power cord that you need to purchase separately. 2-pin power supply socket is included in the package. • Device with 60 W, 120 W, 200 W or 500 W output power: AC power cord is included in the package.
2	Communication Port Cable	1	It is used to adjust the device's parameters via software. • Devices with 48 W or 120 W output power: Do not support adjust the device's parameters via software. • Devices with 60 W, 200 W or 500 W output power: These devices have a serial port cable in their package. • Device with 24 W-PoE output power: Ethernet cable with speed at 100 Mbit/s that you need to purchase separately.
3	I/O Terminal	1	It is used to connect trigger input interface for wiring.  Note • The power socket of device with 24 W output power shares the same 8-pin power supply socket with I/O socket. • Device with 24 W-PoE output power: Do not support I/O socket.
4	Screw Package	1	It refers to M3 × 7 screws, and they are included in the package.

4.2 Install Device

Before You Start

- Make sure that the device in the package is in good condition and all accessories are included.
- Make sure that all related devices are powered off during the installation.

The device supports two installation methods, including installation via slide rail or screw hole. You should select the installation method according to actual demands.

- Device with 24 W output power and PoE device with 24 W output power: Installation via slide rail.
- Device with 500 W output power: Installation via screw hole (bottom side).
- Other devices: Installation via slide rail or screw hole (rear side).

4.2.1 Installation via Slide Rail

Steps

1. Pull the plastic pallet downward, and insert Din35 slide rail into the device's slide rail slot, as shown below.

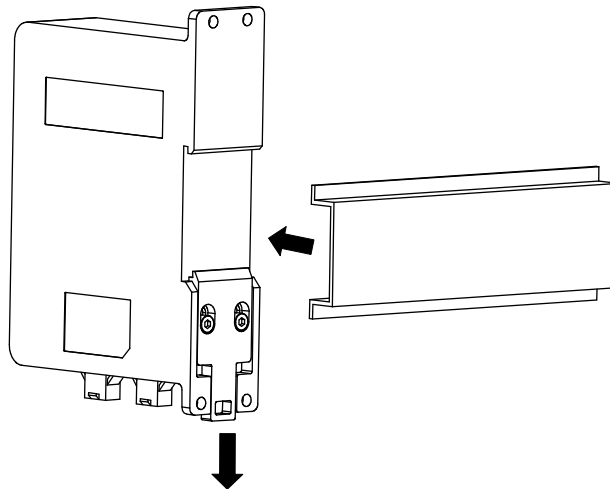


Figure 4-1 Installation of Device with 24 W Output Power via Slide Rail

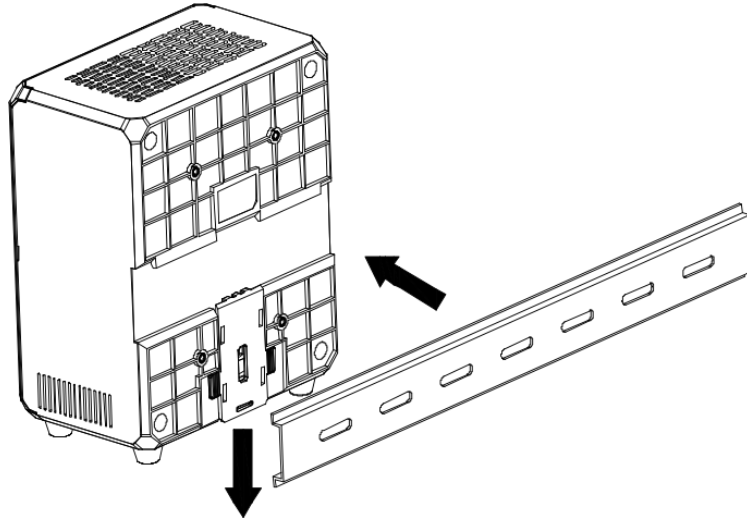


Figure 4-2 Installation of Other Devices via Slide Rail

2. Push the plastic pallet upward and make sure that Din35 slide rail is fixed firmly.

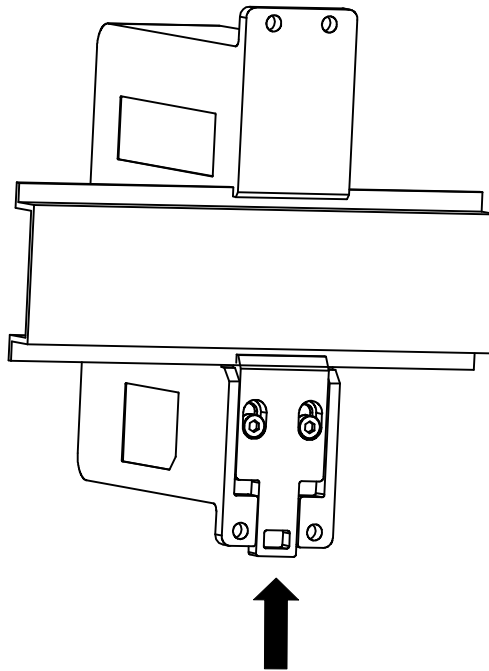


Figure 4-3 Fix Slide Rail of Device with 24 W Output Power

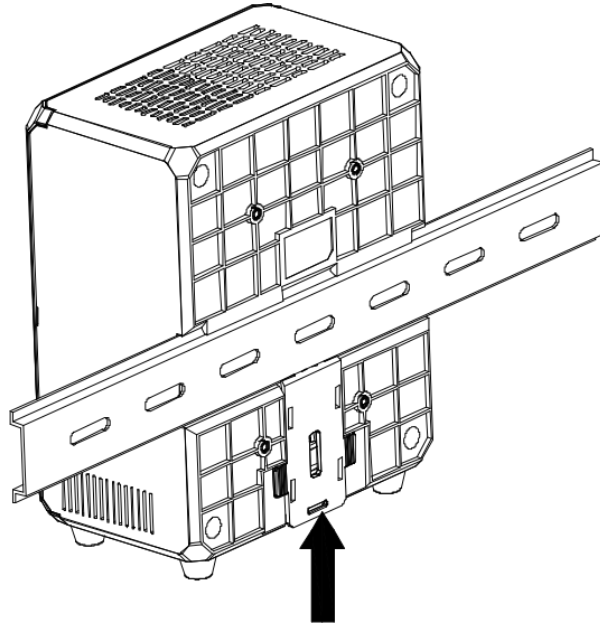


Figure 4-4 Fix Slide Rail of Other Devices

4.2.2 Installation via Screw Hole

The device supports installation via screw hole. According to different types of devices, installation includes rear side and bottom side.

Installation via Screw Hole (Rear Side)

Use four supplied screws to fix the device to the installation position, as shown below.

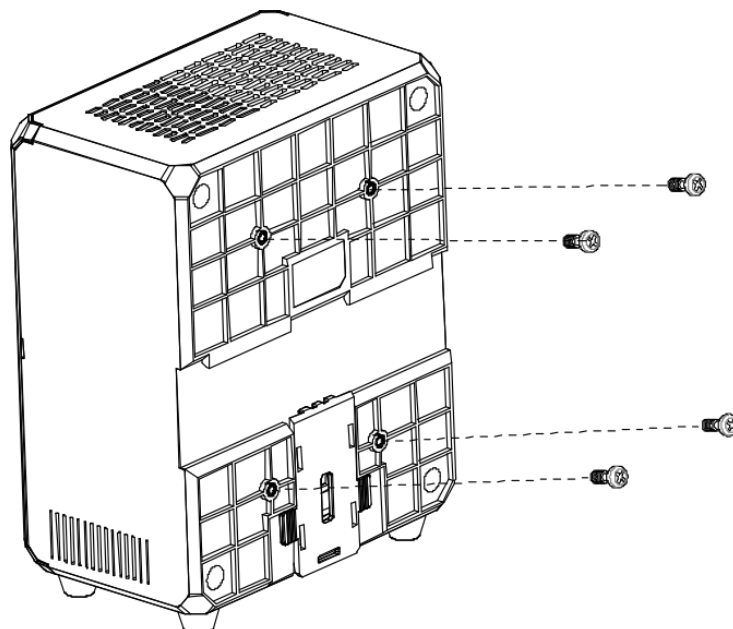


Figure 4-5 Installation via Screw Hole (Rear Side)

Installation via Screw Hole (Bottom Side)

Remove the device's four rubber pads first, and use four supplied screws to fix the device from bottom side to the installation position, as shown below.

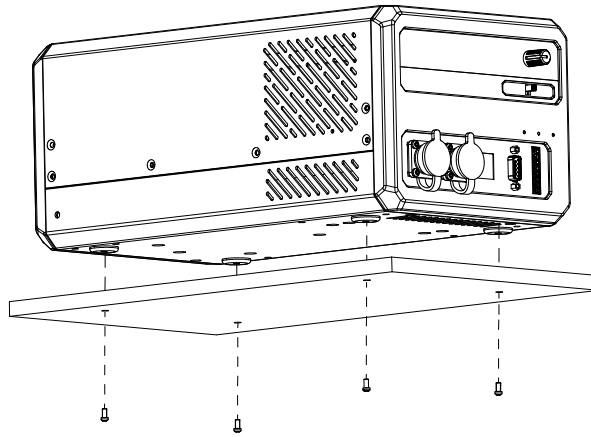


Figure 4-6 Installation via Screw Hole (Bottom Side)

4.3 Connect Device

Steps

1. Insert external light sources to the device's light source interface according to actual demands.
2. Use power cord to connect the device to a power supply.

Note

- Regarding devices with 60 W, 120 W, 200 W or 500 W output power, you need to press the power switch after connection.
- Regarding PoE devices with 24 W output power, power is provided via network interface.

3. (Optional) Use serial port cable to connect the device according to actual demands.

Note

- Devices with 60 W, 200 W or 500 W output power support connection via serial port cable.
 - PoE device with 24 W output power supports connection via network cable.
 - Just adjust brightness adjustment knob on panel if you need to adjust the brightness of the light source under solid mode without cable connection.
 - For PC that does not support RS-232 interface, you should use RS-232 to USB cable, and contact the cable manufacturer for the corresponding drive.
-

Chapter 5 Device Control Panel and Wiring

5.1 Control Panel

The device's control panel is shown below.

 Note

The control panel may differ by device models.

The analog series light controller currently has five types of devices. Refer to the table below for detailed relation between device type and models.

Table 5-1 Device Type and Model

No.	Device Type	Device Model	Appearance
1	Type I	MV-LE100-24W24-2	Figure 5-1
2	Type II	MV-LE100-48W24-2	Figure 5-2
3	Type III	MV-LE100-60W24-4D	Figure 5-3
4	Type IV	MV-LE100-120W24-4	Figure 5-4
5	Type V	MV-LE100-200W24-2BD	Figure 5-5
6	Type VI	MV-LE100-500W24-1ED	Figure 5-6
7	Type VII	MV-LE100-24W24-2T-PoE	Figure 5-7

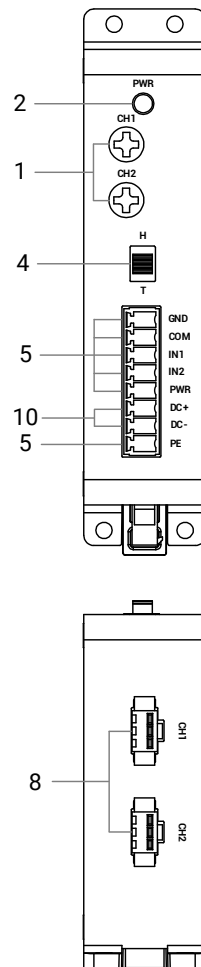


Figure 5-1 Control Panel (Type I Device)

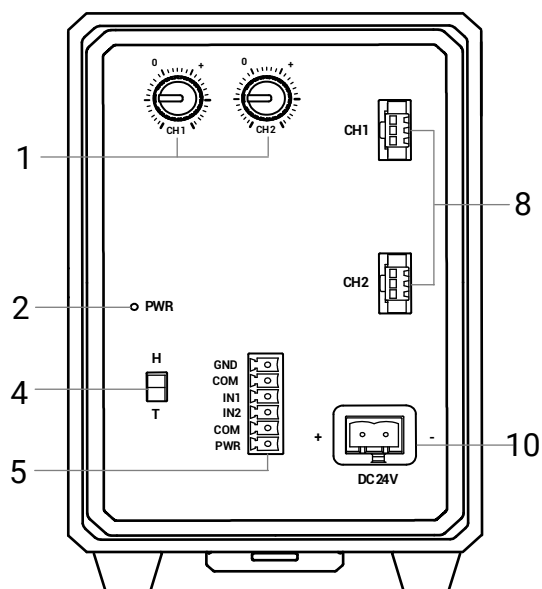


Figure 5-2 Control Panel (Type II Device)

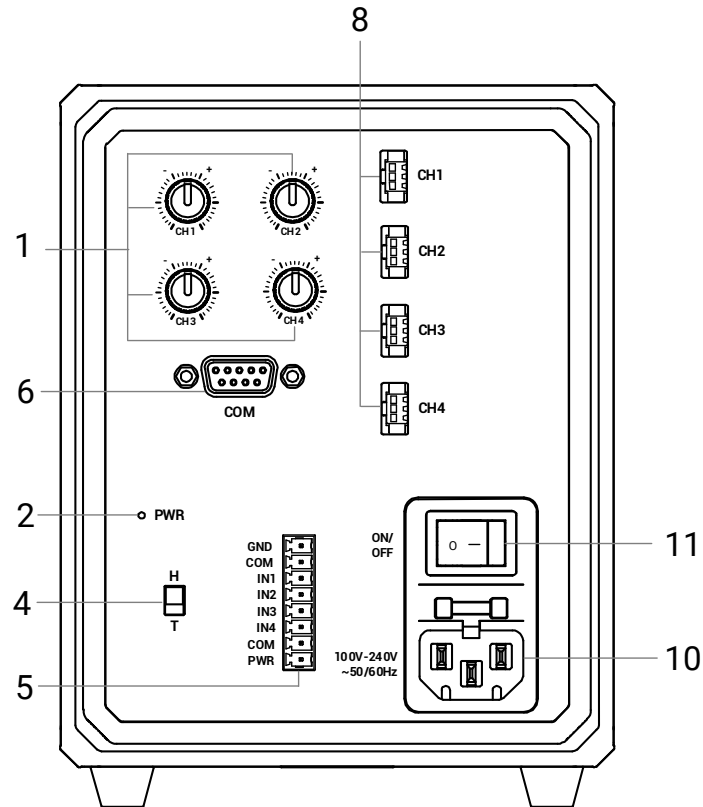


Figure 5-3 Control Panel (Type III Device)

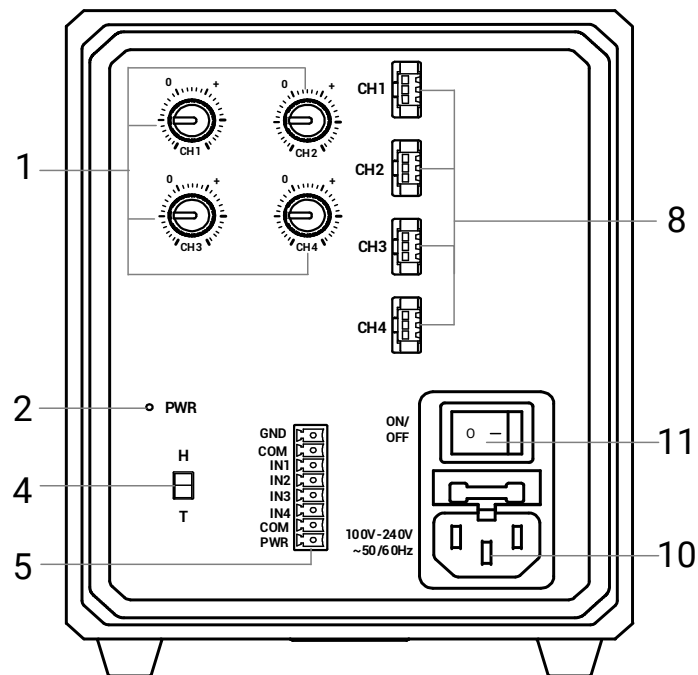


Figure 5-4 Control Panel (Type IV Device)

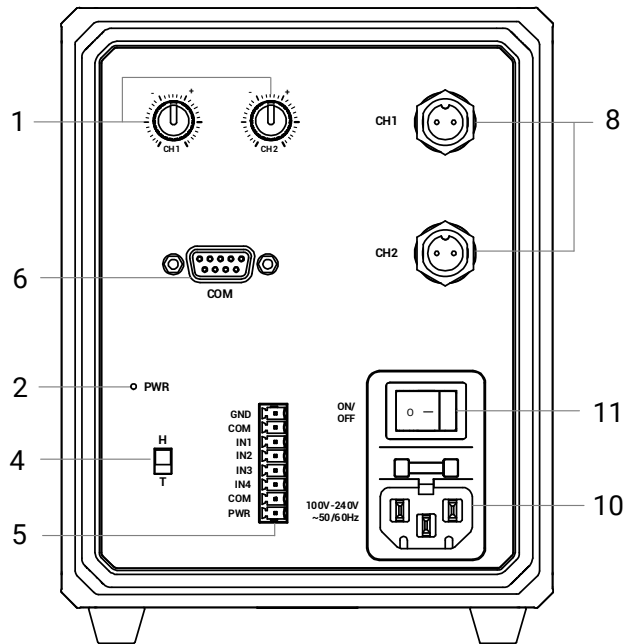


Figure 5-5 Control Panel (Type V Device)

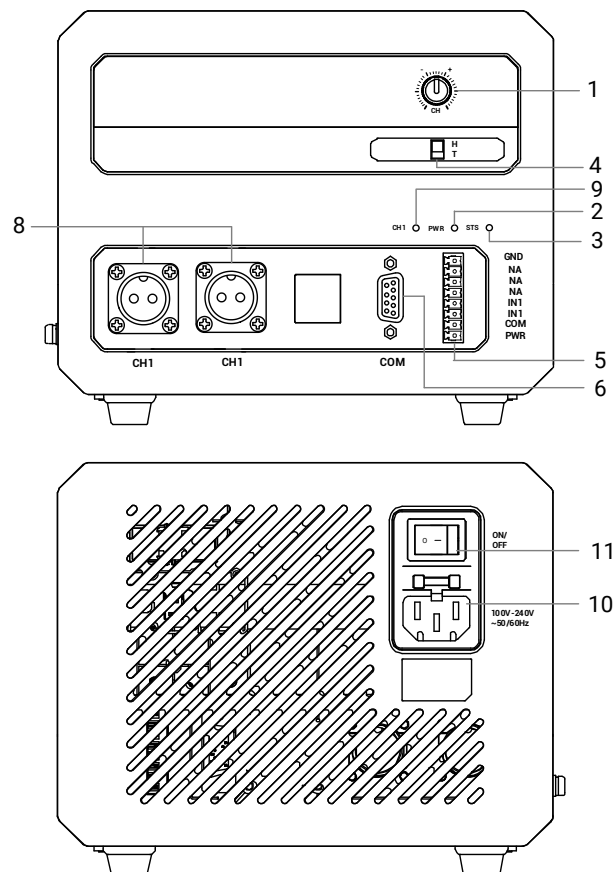


Figure 5-6 Control Panel (Type VI Device)

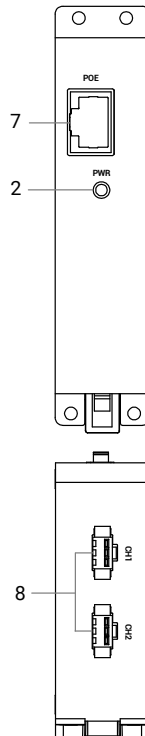


Figure 5-7 Control Panel (Type VII Device)

Table 5-2 Control Panel Description

No.	Name	Description
1	Brightness Adjustment Knob	It adjusts the light source's brightness. • Type VI device: It has one knob that corresponds to CH1. • Type I, type II, type V and type VII devices: They have two knobs that correspond to CH1 and CH2. Note The brightness adjustment knob of Type I device is a cross-shaped trimmer potentiometer. • Type III and type IV devices: They have four knobs that correspond to CH1 to CH4 light source interfaces.
2	PWR Indicator	It is a power indicator, and it is solid red when the device power connection is normal.
3	STS Indicator	It is a status indicator, is solid green when the device operates normally. Otherwise, the indicator is solid red.
4	Work Mode Switch	It sets the work mode of the light source, including H position and T position. • H position: It is the solid mode. The light source turns off when the device receives external valid signals. • T position: It is the unlit (trigger) mode. The light

No.	Name	Description
		source turns on when the device receives external valid signals.  Note For type I device, you can enter user calibration mode by flipping the Work Mode Switch 5 times in succession. In the user calibration mode, use the Brightness Adjustment Knob to calibrate the brightness of light source to the desired level. Then restart the device to apply the new settings.
5	Trigger Input Interface	It provides trigger input function. Refer to section <i>错误! 未找到引用源。</i> for details.
6	RS-232 Serial Port	It provides trigger input function.
7	Network Interface	It is a Fast Ethernet interface (100 Mbit/s), which provides data transmission and power supply via PoE technology.  Note Insert the network cable into the RJ45 port. Use a PSE (Power Sourcing Equipment) that complies with the IEEE 802.3af standard and the IEEE 802.3at standard to power the device. The max. output power of the light controller may differ when it is powered by PSE complying with different standard. • For a PSE complying with IEEE 802.3af standard: The max. output power for light controller is 12 W. • For a PSE complying with IEEE 802.3at standard: The max. output power for light controller is 20 W.
8	Light Source Interface	It is used to connect external light sources. Refer to section Light Source Interface for details. • Type I, type II, type V, type VI, and type VII devices: They have two light source interfaces (CH1 and CH2). • Type III and type IV devices: They have four light source interfaces (CH1 to CH4).  Note The amount and appearance of light source interface may differ by device models.
9	Light Source Indicator	It is the status indictor of the light source. The type VI device's light source indicator corresponds to the CH1 interface.

No.	Name	Description
		- The indicator is solid green when the device's work mode is solid mode. - The indicator is flashing green when the device's work mode is trigger mode.
10	Power Interface	It is used to connect the power cord to power the device. Note Do not replace the fuse in power interface by yourself if it is damaged. If necessary, contact technical support for help.
11	Power Switch	It is used to power on or off the device. Note - Turn on the switch to connect the device to the power supply (corresponding to pressing the button in the "I" position). - Turn off the switch to disconnect the device from the power supply (corresponding to pressing the button in the "O" position).

5.2 RS-232 Serial Port

The device has one RS-232 serial port that can be connected to external devices like PC via common 9-pin female connector for data transmission. You can refer to the table below for the specific pin name and function.

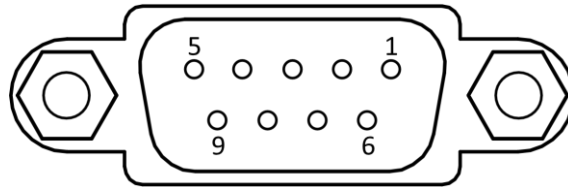


Figure 5-8 9-Pin Female Connector

Table 5-3 Pin Definitions of 9-Pin Female Connector

Pin No.	Name	Function
2	TX	Transmit data
3	RX	Receive data
5	GND	Signal ground

5.3 Trigger Input Interface

5.3.1 Pin Definition

The pin definition of trigger input interface may differ by device models. There are five types of pin definitions in total, and you can refer to the following section for details.

Type I Device

The pin definition of the type I device is shown below.

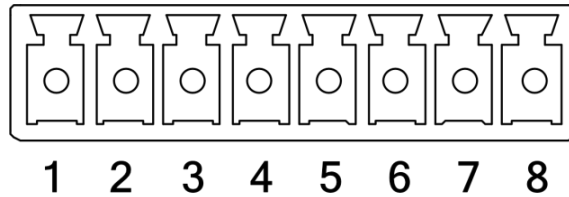


Figure 5-9 Trigger Input Interface of Type I Device

Table 5-4 Pin Definitions of Trigger Input Interface of Type I Device

Pin No.	Signal Name	Function
1	PE	Chassis ground
4	PWR	24 V power positive
5	IN2	CH2 opto-isolated signal input
6	IN1	CH1 opto-isolated signal input
7	COM	Input common port (without polarity)
8	GND	External device power ground

Type II Device

The pin definition of the type II device is shown below.

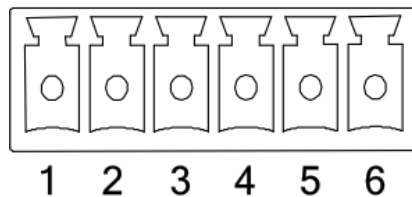


Figure 5-10 Trigger Input Interface of Type II Device

Table 5-5 Pin Definitions of Trigger Input Interface of Type II Device

Pin No.	Signal Name	Function
1	PWR	24 V power positive
2	COM	Input common port (without polarity)

Pin No.	Signal Name	Function
3	IN2	CH2 opto-isolated signal input
4	IN1	CH1 opto-isolated signal input
5	COM	Input common port (without polarity)
6	GND	External device power ground

Type III and Type IV Devices

The pin definition of the type III and type IV devices is shown below.

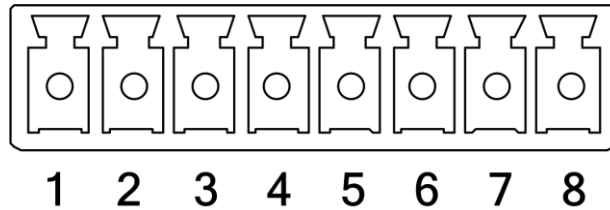


Figure 5-11 Trigger Input Interface of Type III and Type IV Devices

Table 5-6 Pin Definitions of Trigger Input Interface of Type III and Type IV Devices

Pin No.	Signal Name	Function
1	PWR	24 V power positive
2	COM	Input common port (without polarity)
3	IN4	CH4 opto-isolated signal input
4	IN3	CH3 opto-isolated signal input
5	IN2	CH2 opto-isolated signal input
6	IN1	CH1 opto-isolated signal input
7	COM	Input common port (without polarity)
8	GND	External device power ground

Type V Device

The pin definition of the type V device is shown below.

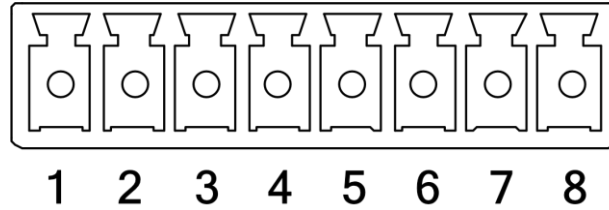


Figure 5-12 Trigger Input Interface of Type V Devices

Table 5-7 Pin Definitions of Trigger Input Interface of Type V Devices

Pin No.	Signal Name	Function
1	PWR	24 V power positive
2	COM	Input common port (without polarity)
5	IN2	CH2 opto-isolated signal input
6	IN1	CH1 opto-isolated signal input
7	COM	Input common port (without polarity)
8	GND	External device power ground

Type VI Device

The pin definition of the type VI device is shown below.

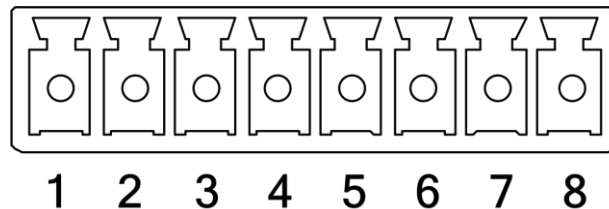


Figure 5-13 Trigger Input Interface of Type VI Device

Table 5-8 Pin Definitions of Trigger Input Interface of Type VI Device

Pin No.	Signal Name	Function
1	PWR	24 V power positive
2	IN_COM	Input common port (without polarity)
3	IN2	CH2 opto-isolated signal input
4	IN1	CH1 opto-isolated signal input
8	GND	External device power ground

5.3.2 Trigger Input Wiring

The device can receive input signal sent by external devices via trigger input interface. Here we take IN2 signal of type III device as an example to introduce trigger input wiring.

Note

- Trigger input wiring may differ by external device type.
- The voltage of VCC should not be large than 24 V. Otherwise, the output signal exception may occur.
- Do not connect the device's power interface to other interfaces. Otherwise, short circuit may occur.

PNP Device as Input Signal

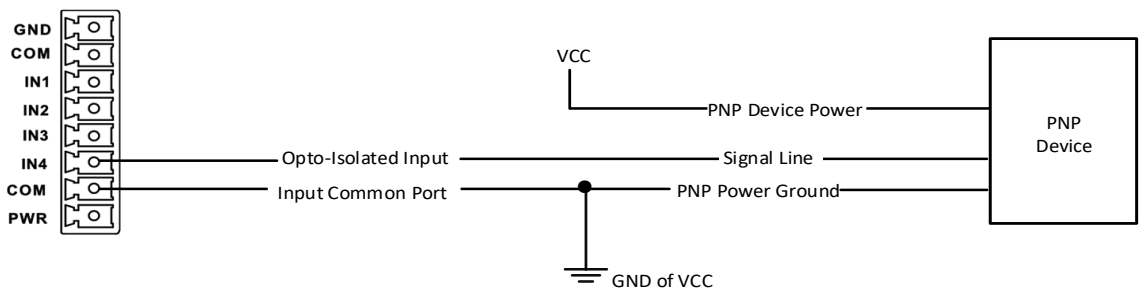


Figure 5-14 Input Signal Connecting PNP Device (Method One)

The wiring is as following if the analog light controller's PWR and GND are used to power the external device. The power supply is 24 V and max. output current is 150 mA.

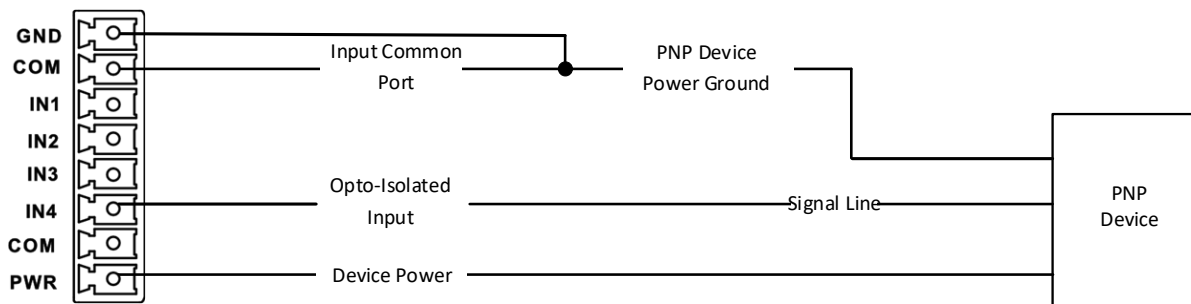


Figure 5-15 Input Signal Connecting PNP Device (Method Two)

NPN Device as Input Signal

The wiring is as following if the VCC of NPN device is 12 V or 24 V and without external resistor.

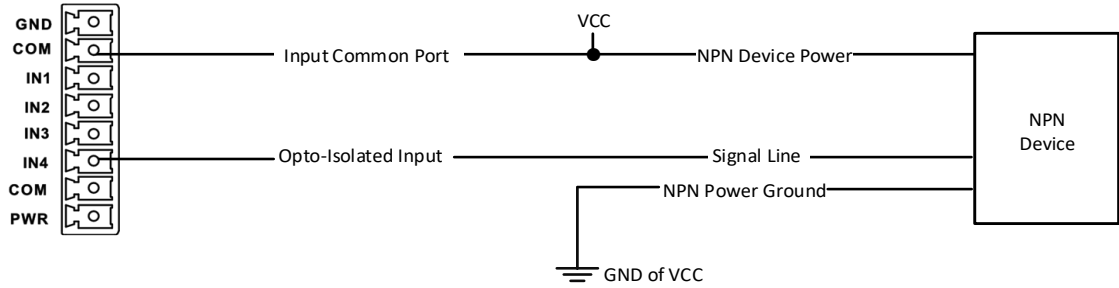


Figure 5-16 Input Signal Connecting NPN Device Without External Resistor

The wiring is as following if the VCC of NPN device is 12 V or 24 V and with pull-up resistance.

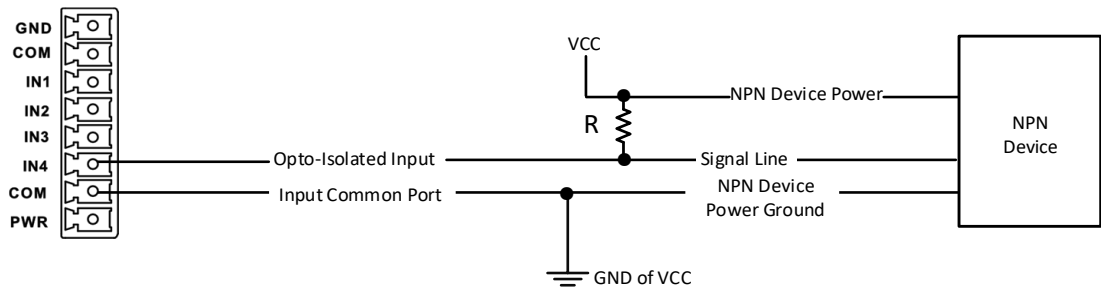


Figure 5-17 Input Signal Connecting NPN Device with Pull-Up Resistor

The resistance value (R) in figure 5-9 is different when the VCC of the device changes. Refer to the table below for details.

Table 5-9 Relation between VCC and Resistor

VCC	R	Trigger Threshold
12 VDC	1 KΩ	7.2 VDC
24 VDC	4.7 KΩ	17.6 VDC

5.4 Light Source Interface

The device's light source interfaces can be connected to external light source devices via specific connector. There are three types of light source interfaces, including SMR-03V-BC, 12M-2F and 19M-2H light source interfaces.

Note

- The light source interface may differ by device models. Refer to the device's specifications for specific types.
- Type I, II, III, IV, and VII devices: Adopt the light source interface of SMR-03V-BC.
- Type V device: Adopts the light source interface of 12M-2F.
- Type VI device: Adopts the light source interface of 19M-2H.
- The shell of connected external light source devices should meet V-0 flame retardant.

SMR-03V-BC Interface

Type I, II, III, IV, and VII devices adopt SMR-03V-BC interface as their light source interface, and the appearance is shown below. You can refer to the table below for the specific pin name and function.

- Type I, type II and type VII devices have two light source interfaces that are CH1 and CH2.
- Type III and type IV devices have four light source interfaces that are CH1 to CH4.

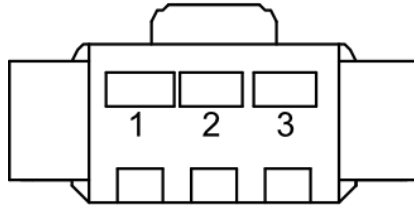


Figure 5-18 SMR-03V-BC Interface

Table 5-10 Pin Definitions of SMR-03V-BC Interface

Pin No.	Name	Function
1	LED+	Light source positive
2	--	--
3	LED-	Light source negative

12M-2F Interface

Type V adopts 12M-2F interface as its light source interface. You can refer to the table below for the specific pin name and function.

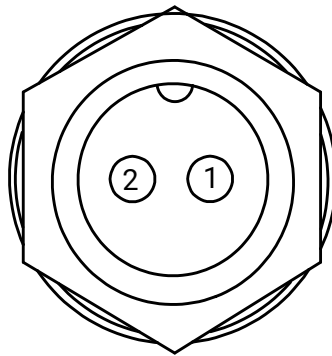


Figure 5-19 12M-2F Interface

Table 5-11 Pin Definitions of 12M-2F Interface

Pin No.	Name	Function
1	LED+	Light source positive
2	LED-	Light source negative

19M-2H Interface

Type VI adopts 19M-2H interface as its light source interface. You can refer to the table below for the specific pin name and function.

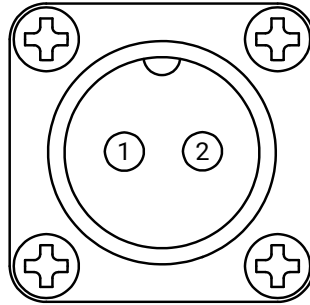


Figure 5-20 19M-2H Interface

Table 5-12 Pin Definitions of 19M-2H Interface

Pin No.	Name	Function
1	LED+	Light source positive
2	LED-	Light source negative

Chapter 6 MVS Client Software Operation

This section introduces how to use the MVS client software to set parameters of the device. Some devices support MVS client for parameter setting. See **Device Capability Set** for the appearance and model of the corresponding devices.

Table 6-1 Device Capability Set

No.	Device Type	Device Model	Appearance	Parameter setting in MVS client
1	Type I	MV-LE100-24W24-2	Table 5-1	Not support
2	Type II	MV-LE100-48W24-2	Figure 5-2	
3	Type III	MV-LE100-60W24-4D	Figure 5-3	Support
4	Type IV	MV-LE100-120W24-4	Figure 5-4	Not support
5	Type V	MV-LE100-200W24-2BD	Figure 5-5	Support
6	Type VI	MV-LE100-500W24-1ED	Figure 5-6	
7	Type VII	MV-LE100-24W24-2T-PoE	Figure 5-7	

6.1 Install MVS Client Software

Note

- The MVS client software is compatible with 32/64-bit Windows 7/10/11, 32/64-bit Linux, and Android 4.4 to 9.0 operating systems. Here we take Windows as an example.
- The graphic user interface may differ by different versions of the client software you use.
- The client software has integrated driver required by hardware, and no need to download and install other drivers.
- You can download the client software from en.hikrobotics.com.

Steps

1. Double click the MVS installation package.
2. Select the language.
3. Read and check **Terms of the License Agreement**.

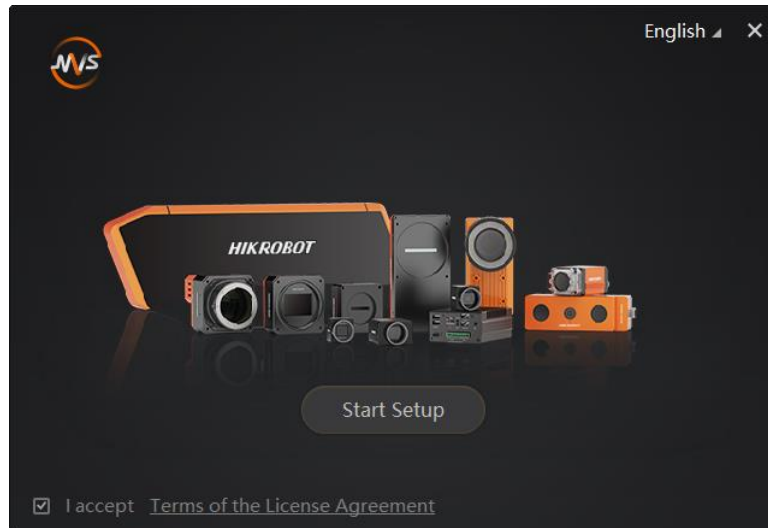


Figure 6-1 Installation Interface

4. Click **Start Setup**.
5. Select installation directory, driver and others.
 - **Select Driver:** You can check **GIGE**, **USB 3.0** and **PCIE** according to actual demands.
 - **Others:** Check **Enable built-in debug features** to make it easier to use breakpoints while the device is connected and streaming images. Check **Enable Jumbo Frame for All NICs** to enhance network transmission performance. Check **PCle-CML**, **PCle-CXP**, **PCIE-GEV**, **PCIE-XoF** to enumerate the corresponding frame grabbers.

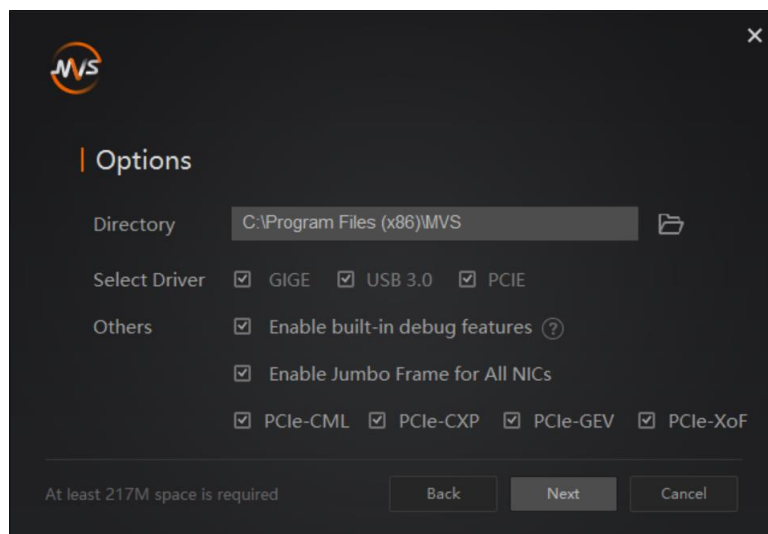


Figure 6-2 Installation Options

Note

- Regarding options, it is recommended to keep default settings.
 - **PCle-CML**, **PCle-CXP**, **PCIE-GEV**, **PCIE-XoF** can be checked only when **PCIE** is checked.
 - **PCle-CML**, **PCle-CXP**, **PCIE-GEV**, **PCIE-XoF** supports frame grabbers developed by our company only.
-

6. Keep default settings, and click **Next**.
7. Finish the installation according to the interface prompts.

6.2 Set PC Environment

To ensure stable client running and data transmission, you are recommended to set PC environment.

6.2.1 Turn off Firewall

Steps

Note

For different Windows versions, the path name or interface may differ. Please refer to the actual condition.

1. Go to Windows Firewall.
 - Windows 7 system: Click **Start** → **Control Panel** → **Windows Firewall**.
 - Windows 10 system: Click **Start** → **Control Panel** → **System and Security** → **Windows Defender Firewall**.
 - Windows 11 system: Click **Start** → **Settings** → **Privacy & security** → **Windows Security** → **Firewall & network protection**.
2. For Windows 7 and 10 system, click **Turn Windows Defender Firewall** on or off on the left. For Windows 11, select the network and turn off in **Microsoft Defender Firewall**.
3. Select **Turn off Windows Defender Firewall (not recommended)**.

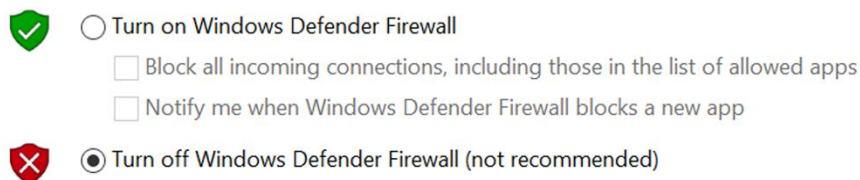


Figure 6-3 Windows Defender Firewall

4. Click OK.

6.2.2 Set PC Network

Steps

Note

For different Windows versions, the specific setting path and interface may differ. Please refer to the actual condition.

1. Go to PC network settings page: **Start** → **Control Panel** → **Network and Internet** → **Network and Sharing Center** → **Change adapter settings**.

2.2. Select NIC and set the IP obtainment mode.

- Select **Obtain an IP address automatically** to get an IP address of the PC automatically.
- Or select **Use the following IP address** to set an IP address for the PC manually.

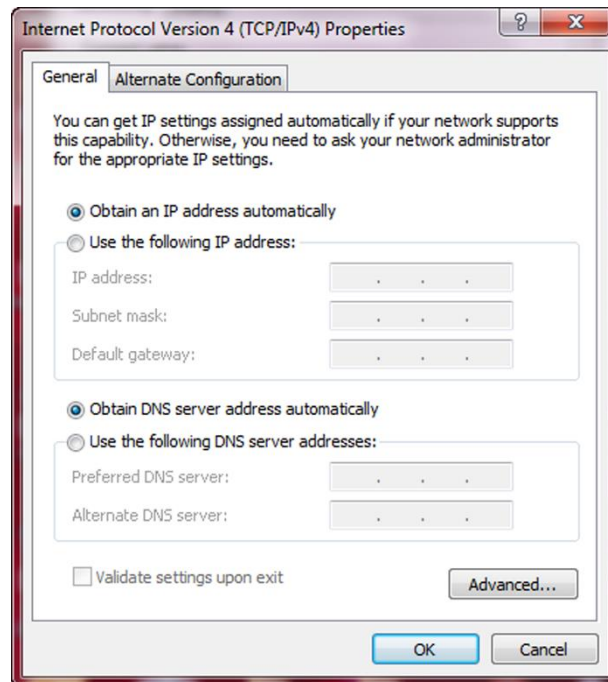


Figure 6-4 Set PC Network

6.3 Set Device Network

After the installation of the client software, if the device in the device list is unreachable, you should set the device's network.

Steps

1. Double click the client software to run it.
2. Click  in device list to search the device.
3. Select a device to be connected.
4. Right click the device, and click **Modify IP**.
5. Set **IP Address**, **Subnet Mask**, and **Default Gateway**.
6. Click **OK**.

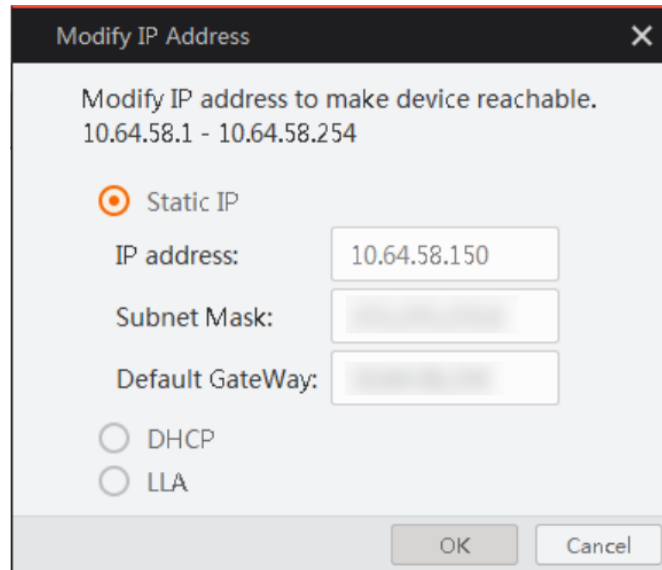


Figure 6-5 Set Device Network

6.4 Operate MVS Client Software

Note

Here we take devices with network interface as an example to introduce how to operate the MVS client software.

Steps

1. Double click the client software  to run it.
2. Click  in **GigE** to search the device.

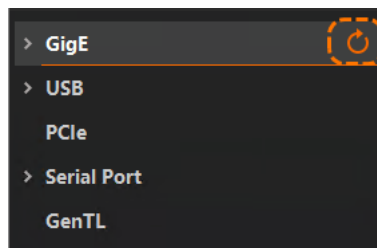


Figure 6-6 Search Device

Note

You can click  in **Serial Port** to search devices with serial port.

3. Double click the device or click  to connect the device to the client software. The main window of the client software is shown below.

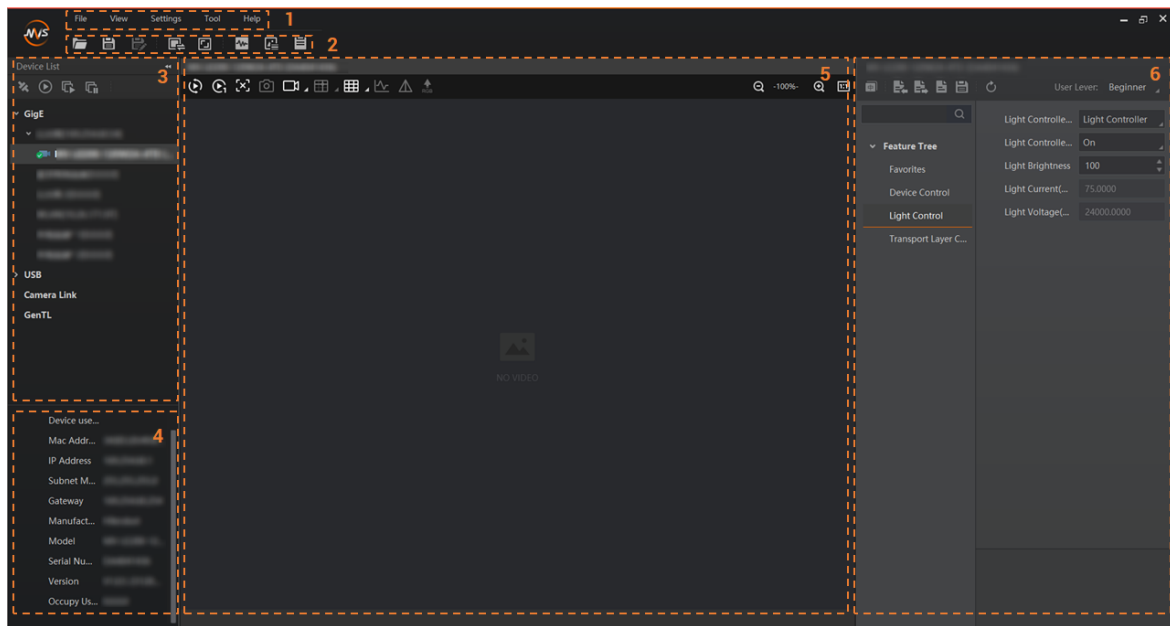


Figure 6-7 Main Window

Note

For specific main window of the client software, please refer to the actual device you got.

Table 6-2 Main Window Description

No.	Name	Description
1	Menu Bar	The menu bar displays function modules, including File, View, Settings, Tool, and Help.
2	Control Toolbar	The control toolbar provides quick operations for the device.
3	Device List Panel	This panel displays device list, and you can connect or disconnect device, modify device IP address, etc.
4	Device Information Panel	This panel displays the detailed device information.
5	Display Window	This area displays the images in real-time. You can click different icons to capture and save image, record, etc.
6	Feature Panel	It displays the device's features.

4. Click  in the device's feature panel to unfold the specific parameters, and set them according to actual demands.

Note

The device's feature tree and parameters may differ by device models.

Table 6-3 Feature Tree Description

Feature Name	Description
Device Control	You can view device information, edit its name, reset the device, etc.
Light Control	You can set the device's brightness and work mode.
Digital IO Control	You can set the different input and output signals.
Counter and Timer Control	You can view and set the timer-related parameters.
Transport Layer Control	You can set the transmission protocol parameters for light controllers.

6.5 Set Light Control

The light control configures brightness and work mode for different light source interfaces.

Before You Start

Make sure light sources are connected to the corresponding interfaces and other wirings completed.

Steps

1. Select correct channel from **Light Controller Selector** according to light source wirings.

Note

- **Light Controller 1** to **Light Controller 4** is corresponding to CH1 to CH4.
- The type III devices have 4 light source interfaces (CH1 to CH4)
- The type V, and type VII devices have two light source interfaces (CH1 and CH2).
- Type VI device has only one light source interface (CH1).

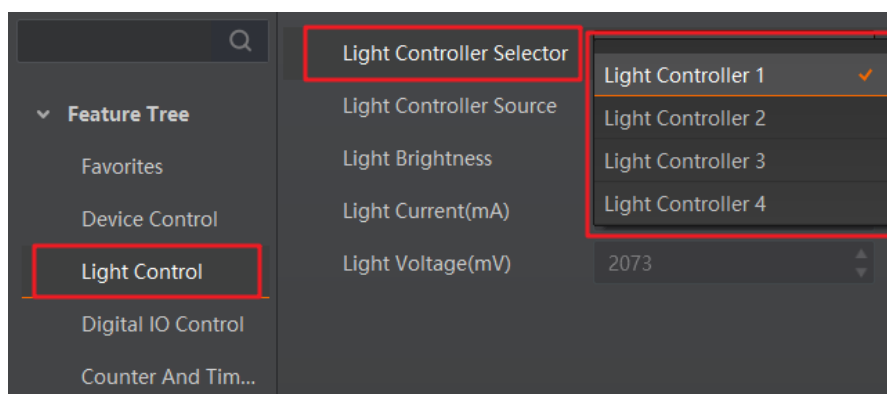


Figure 6-8 Light Controller Selector

2. Select different work modes from **Light Controller Source**. The work modes differ by device models.

- The type III, type V, and type VI devices only support input work modes, which means that light source is controlled by triggering the input interface. By selecting different light source channel, corresponding input parameter automatically displays on the box of light controller source, as shown in the figure below.

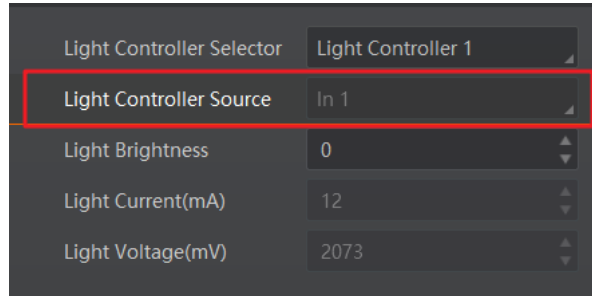


Figure 6-9 Light Controller Source

- The type VII device supports multiple work modes. Click **Light Controller Source** to select corresponding work mode, as shown in the figure below. For detailed description about work modes, see the table below.

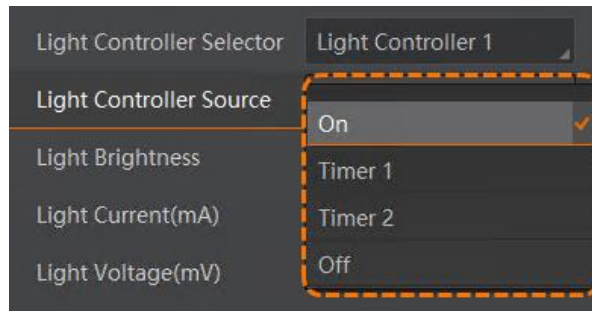


Figure 6-10 Multiple Work Modes of Type VII Device

Table 6-4 Work Mode Description

Work Mode	Description
On	The light source is in solid status.
Timer 1/2	Use timer 1/2 trigger signals to control light source output.
Off	The light source is turned off.

- Set **Light Brightness** ranging from 0 to 255.

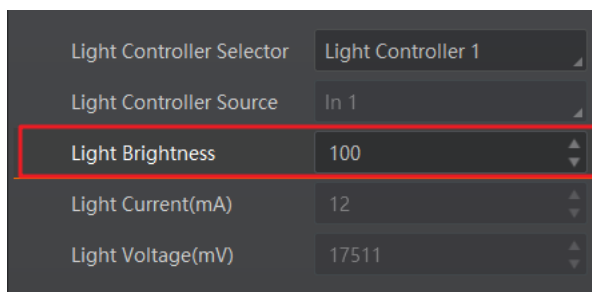


Figure 6-11 Set Light Brightness

6.6 Set Digital IO Control

The device can receive multi-channel input signals, and invert electrical level status of input signals. The final I/O signals can be used as output signal and signal source of light control.

- Type III device: It provides 4-channel input signals (In 1 to In 4)
- Type V device: It provides 2-channel input signals (In 1 and In 2)
- Type VI device: It provide 1-channel input signal (In 1)
- Type VII device: It does not support I/O control input, and the actual device model shall prevail.

Steps

1. Go to **Digital IO Control**, and select **Line Selector** from **In 1** to **In 4**.

Note

- Type III device supports input 1/2/3/4 corresponding to IN 1 to IN 4.
- Type V device supports input 1/2 corresponding to IN 1 and IN 2.
- Type VI device supports input 1 corresponding to IN1.

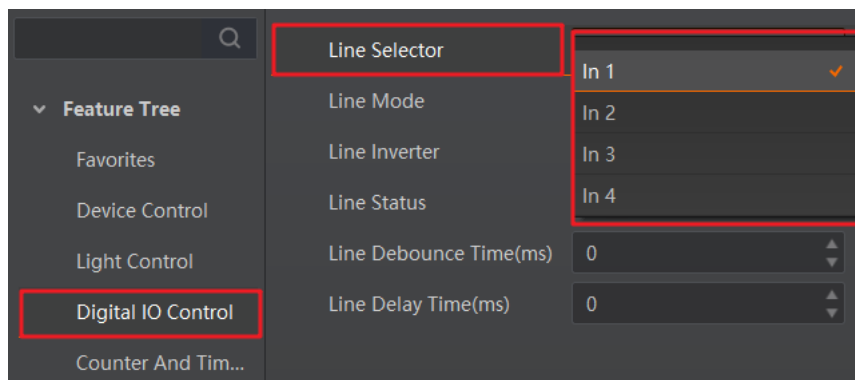


Figure 6-12 Set Line Selector

2. (Optional) Enable **Line Invert** to invert selected electrical level status of input signals.

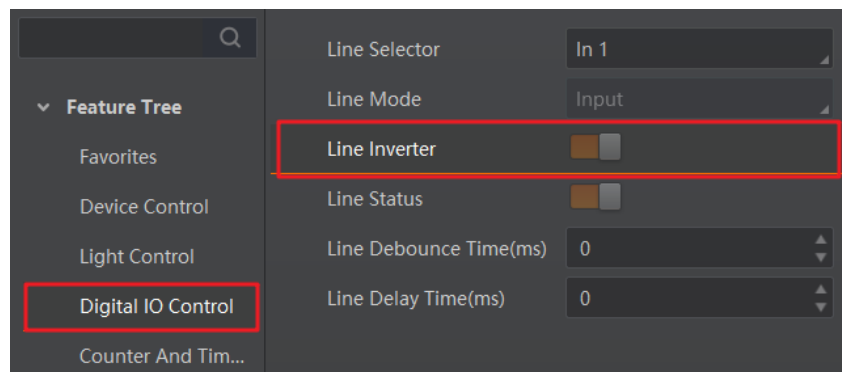


Figure 6-13 Enable Line Inverter

3. (Optional) Set **Line Debouncer Time** according to actual demands. The range is between 0 ms to 1000 ms.

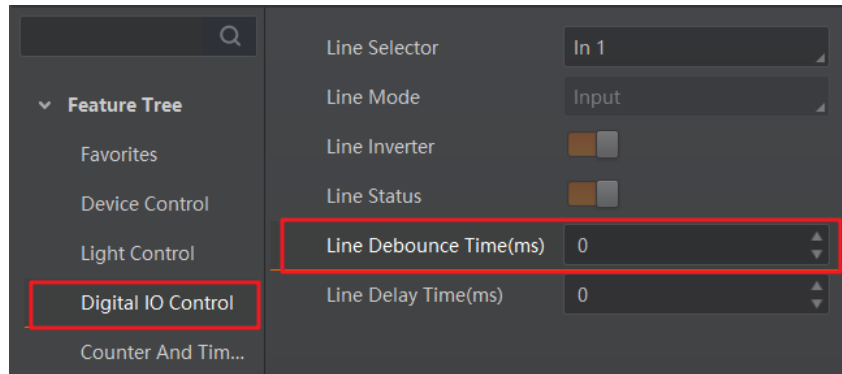


Figure 6-14 Set Line Debouncer Time

Note

The parameter of **Line Debouncer Time** may differ by device models.

4. (Optional) Set **Line Delay Time** according to actual demands.

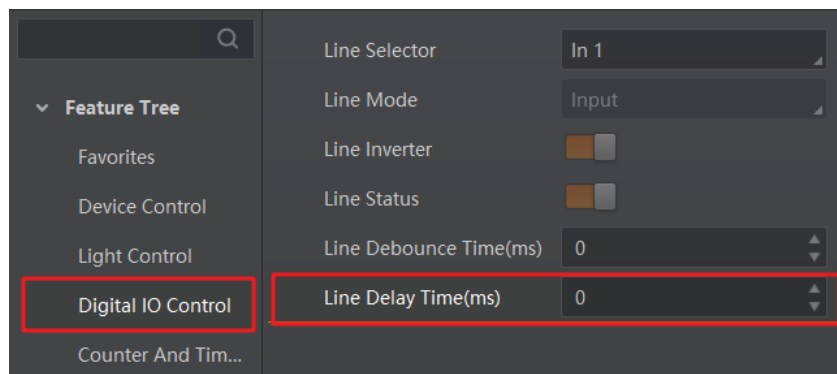


Figure 6-15 Set Line Delay Time

Note

The parameter of **Line Delay Time** may differ by device models.

6.7 Set Timer Control

The timer control can output the corresponding signal by setting the high level and low level duration of the timer signal, under the condition of the selected timer mode and corresponding parameters. You can go to **Counter and Timer Control** to set related parameters.

Before You Start

Make sure light sources are connected to the corresponding interfaces and other wirings completed.

Steps

1. Select one timer from **Timer Selector**.

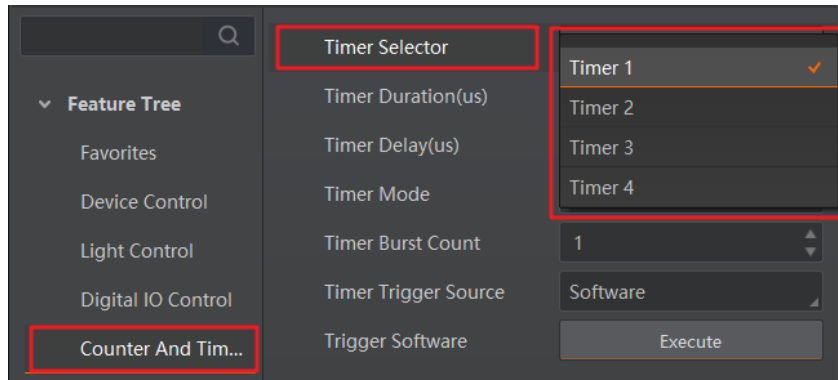


Figure 6-16 Select Timer Selector

Note

- Type III device supports timer 1/2/3/4, corresponding to CH1/CH2/CH3/CH4.
- Type V, and type VII device supports timer 1/2, corresponding to CH1/CH2.
- Type VI device only supports timer 1, corresponding to CH1.

2. Set **Timer Duration** and **Timer Delay** according to actual demands. The principle of timer output is shown below.

Note

The final output signal of the timer is related to level inverter, and you should set it according to actual demands.

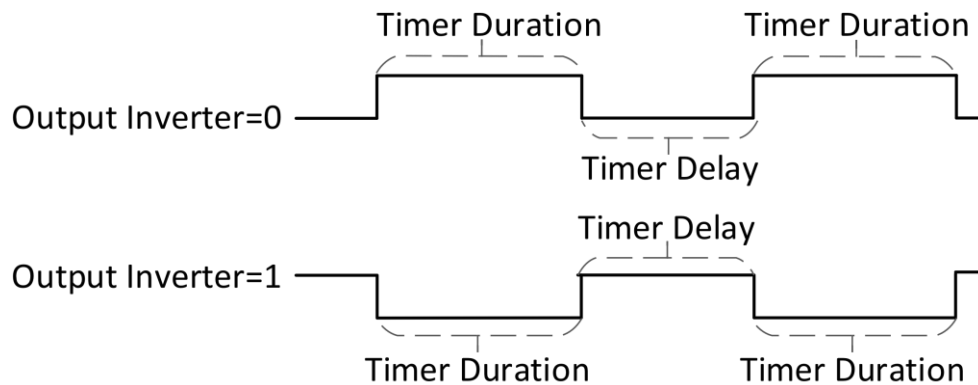


Figure 6-17 Principle of Timer Output

3. Set **Timer Mode** according to actual demands.

- Continuous: The device outputs signals continuously in accordance with configured **Timer Duration** and **Timer Delay**.
- Burst: If **Burst** is selected as **Timer Mode**, you need to follow steps below to set other parameters.

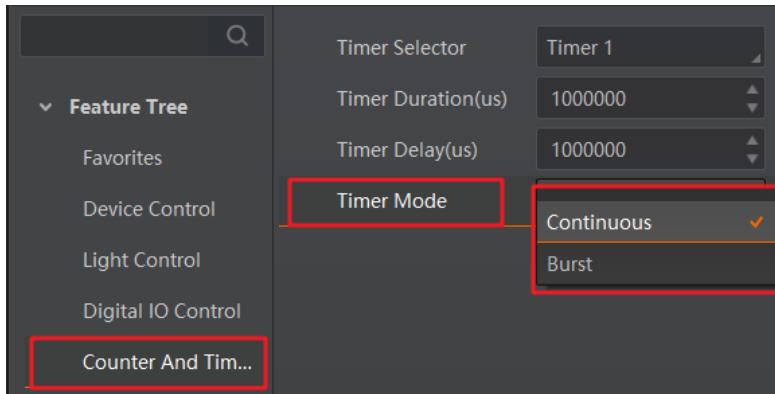


Figure 6-18 Select Timer Mode

4. Set **Timer Burst Count** to configure burst count of the light source.

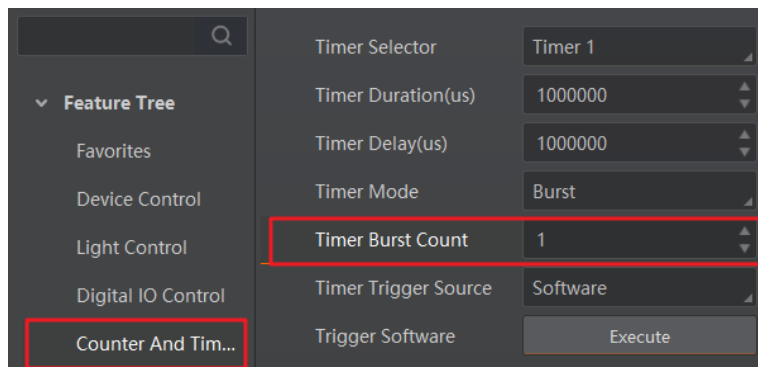


Figure 6-19 Set Timer Burst Count

5. Set **Timer Trigger Source** according to actual demands.

- If **Software** is selected as **Timer Trigger Source**, you can click **Execute** in **Trigger Software** to send trigger signals to the device.

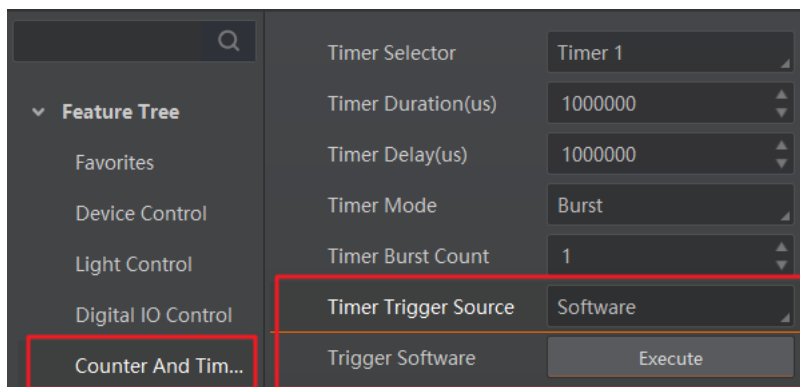


Figure 6-20 Software Trigger

- If **In 1 to In 4** is selected as **Timer Trigger Source**, the external device sends trigger signals to the device, and you can set trigger activation in **Timer Trigger Activation**.

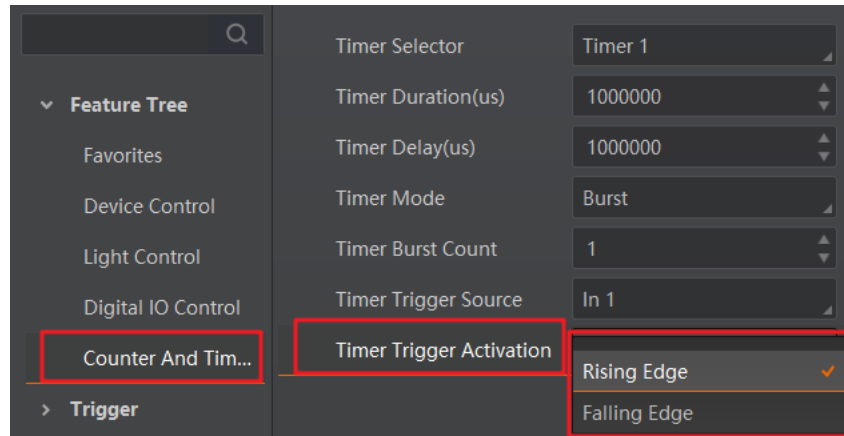


Figure 6-21 Set Hardware Trigger

Note

- Type III device supports In 1 to In 4.
- Type V device supports In 1 and In 2.
- Type VI device supports In 1 only.
- Type VII device does not support Timer Trigger Source.

6.8 View Device Control

You can go to **Device Control** to view the device's information, and detailed parameters are as follows.

Table 6-5 Device Control Parameters

Parameters	Read/Write	Description
Device Vendor Name	Read Only	It is the device's vendor name.
Device Model Name	Read Only	It is the device's model information.
Device Manufacturer Info.	Read Only	It is the device's manufacturer information.
Device Version	Read Only	It is the device's version information.
Device Serial Number	Read Only	It is the device's serial number.
Device User ID	Read/Write	It is the device name and it is empty by default. You can set it according to your preference. • If User ID is empty, the client software displays the device model (serial No.). • If you set it, the client software displays the User ID you set (serial No.).
Maximum Response Time	Device Read Only	It is the device's max. response time.

Parameters	Read/Write	Description
Device Manifest Table Address	Read Only	It is the endianness of the image data.
Device Uptime (s)	Read Only	It is the period of time when device is powered up.
Device Link Speed (Mbps)	Read Only	It is the device's link speed.
Device Temperature	Read Only	It displays the device's temperature in real time.
Board Device Type	Read Only	It is the device's type.
Device Command Timeout	Read Only	It counts the timeout of command.
Current Baudrate	Read/Write	It sets the baud rate of the device's serial port.
Device Reset	Read/Write	Click Execute to reset the device.
User Set Save	Read/Write	Click Execute to save the device's parameters.  Note If you do not manually save parameters after configuration, the configured parameters will be automatically saved after 2 minutes.
User Set Reset	Read/Write	Click Execute to reset the device's parameters.

6.9 View Transport Layer Control

You can go to **Transport Layer Control** to view the device's MAC address, IP address, GEV versions, and detailed parameters are as follows.

Note

The specific parameters of transport layer control may differ by device models, and the actual device you purchased shall prevail.

Table 6-6 Transport Layer Control Parameters

Parameters	Read/Write	Description
GEV Version Major	Read Only	It displays the major version of the GEV version.
GEV Version Minor	Read Only	It displays the minor version of the GEV version.
GEV Device Mode Is Big Endian	Read Only	It displays the byte order of the device register.
GEV Device Mode Character Set	Read Only	It displays the character set used in the device register.
GEV Interface Selector	Read Only	It is used to select network interface.

Parameters	Read/Write	Description
GEV MAC Address	Read Only	It displays the MAC address of network interface.
GEV Current IP Configuration LLA	Read Only	It is on by default. IP address can be acquired by light controller via LLA.
GEV Current IP Configuration Persistent IP	Read/Write	If it is enabled, and static IP mode is configured for light controller, static IP will be loaded.
GEV Current IP Address	Read Only	It displays the IP address of the current network interface.
GEV Current Subnet Mask	Read Only	It displays the subnet mask of the current network interface.
GEV Current Default Gateway	Read Only	It displays the default gateway of the current network interface.
GEV First URL	Read Only	It displays the first preferred URL for the XML profile.
GEV Second URL	Read Only	It displays the second preferred URL for the XML profile.
GEV Number Of Interfaces	Read Only	It displays the number of supported network interfaces.
GEV Persistent IP Address	Read/Write	It displays the static IP address of the current network interface. It takes effect only when static IP address is applied.
GEV Persistent Subnet Mask	Read/Write	It displays the static subnet mask linked to static IP address of the current network interface. It takes effect only when static IP address is applied.
GEV Persistent Default Gateway	Read/Write	It displays the static default gateway of the current network interface. It takes effect only when static IP address is applied.
GEV Message Channel Count	Read Only	It displays the number of supported message channels.
GEV Heartbeat Timeout (ms)	Read/Write	It displays the heartbeat timeout duration, unit: ms. With heartbeat detection mechanism, the camera checks whether the information transmission channel is normal. After heartbeat function is enabled and if there is no heartbeat response from SDK within the timeout duration,

Parameters	Read/Write	Description
		the status of an occupied camera will be cleared.
GEV CCP	Read/Write	It is used to control the application access permission for the device.

6.10 Update Firmware

You can use the MVS Tool Kit to update the device's firmware.

Note

The MVS Tool Kit is installed by default when you install the MVS client software.

Steps

1. Go to **All** → **Configuration Tool** → **Firmware Upgrade Tool** after running MVS Tool Kit.
2. Click  in **Camera Link** to enumerate devices.
3. Click  to select firmware upgrade package (dav file).
4. Click **Update** to start updating.

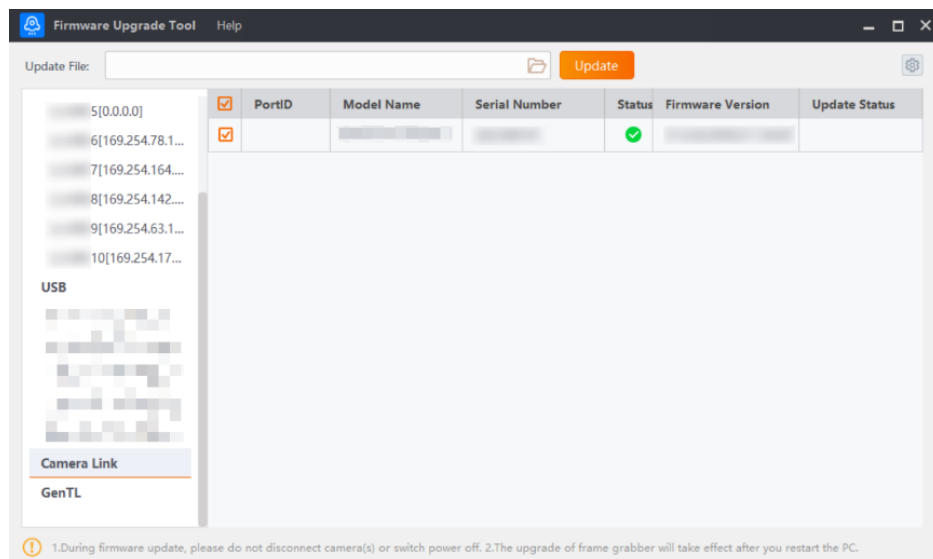


Figure 6-22 Update Firmware

Note

- The device will restart automatically after updating the firmware.
- The firmware updating process may take a few minutes, please wait patiently.
- During firmware updating, do not disconnect the device or switch power off.

Chapter 7 Light Controller

7.1 Main Window

After connecting light controller via network cable or serial port cable, you can use light controller configuration tool to set its parameters. The main window of the light controller configuration tool is shown below.

Note

.Net 3.5 and SDK runtime library of industrial camera are required when running light controller. You can contact technical support to get SDK runtime library.

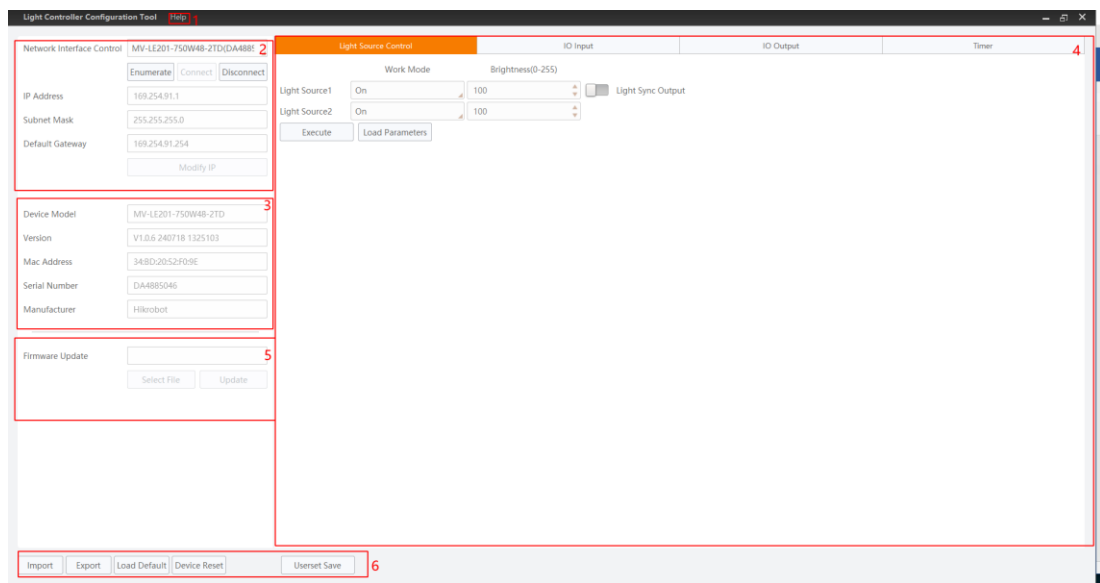


Figure 7-1 Main Window of Light Source Controller

Table 7-1 Main Window Description

No.	Area Name	Description
1	Menu	The operation provides assistance, allowing the selection of the tool's language (Chinese and English), and viewing the tool's version information.
2	Network Interface/Serial Port Control	You can connect/disconnect/enumerate device here via light controller after using network cable or serial port cable to connect the device physically. After connection, you can view device information.  Note The connection methods may differ by device models, and the actual device model shall prevail.

No.	Area Name	Description
3	Device Information	It displays detailed device information.
4	Control Parameters	You can configure the parameters for the device modules including light source control, IO input, and timer. For serial devices, you can also set device parameters through the serial command line.  Note • Analog Series Light Controller does not support IO output. • The supported modules may differ by device models, and the actual device model shall prevail.
5	Firmware Update	You can update the device's firmware here.  Note Disconnect device in Network Interface/Serial Port Control area before updating firmware.
6	Configuration Management	For importing, exporting, resetting, saving the current device parameters, as well as restarting the device or enabling multi-window mode: • Import Parameters: Import external parameter configuration files into the tool. • Export Parameters: Export parameter configuration files to the local system. • Reset parameters: The device resets parameters to default ones. • Restart device: The device restarts.  Note If you do not manually save parameters after configuration, the configured parameters will be automatically saved after 2 minutes.

7.2 Connect Device via Controller

After using network cable or serial port cable to connect the device physically, you can use digital light controller to connect the device and set related parameters.

- Type III, type V, and type VI devices: Only support serial port control.
- Type VII device: Only supports network interface control.

7.2.1 Network Interface Control via Controller

The network interface control module connects to the device via the network interface, and after a successful connection, parameter settings are made through the related modules on the right. The related modules are: light source control and timer.

Before You Start

Use network cable to connect the device to a switch or PC via network interface.

Steps

1. Run the light controller, and select **Network Interface**.

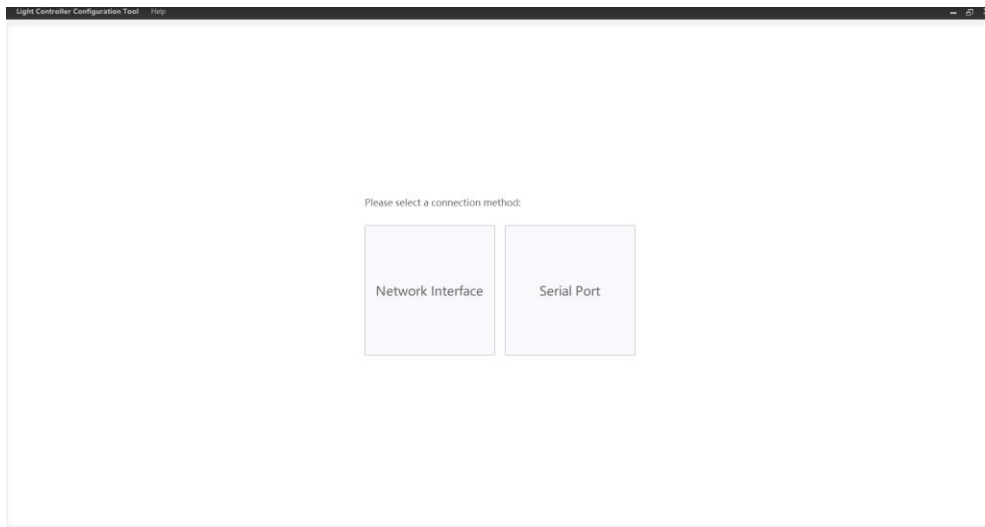


Figure 7-2 Select Network Interface

2. Click **Enumerate**, and select the device according to actual demands.
3. Click **Connect** and the controller will display the device information, and you can set parameters accordingly. Click **Disconnect** to disconnect the device.

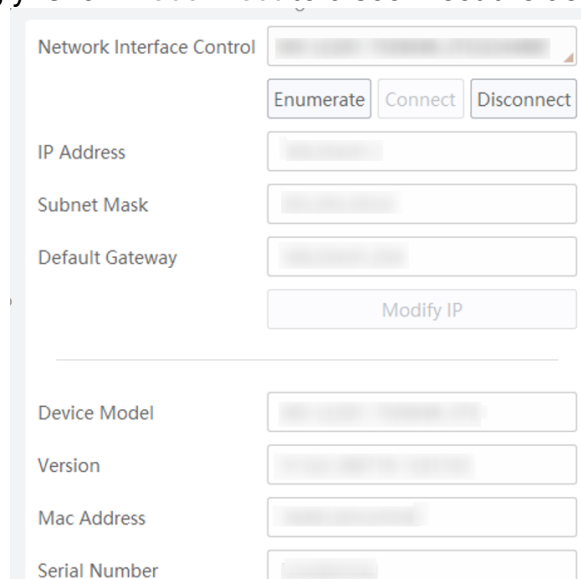


Figure 7-3 Network Interface Connection

4. If the light controller is in an unreachable state, it cannot be connected, and the IP of the light controller needs to be set manually. Click to modify the IP parameters, in the IP address modification dialog box, select Static IP, refer to the reachable subnet of the light controller (as shown in the red box below), set the IP address, subnet mask, and default gateway of the light controller, and click OK, as shown in the figure below.

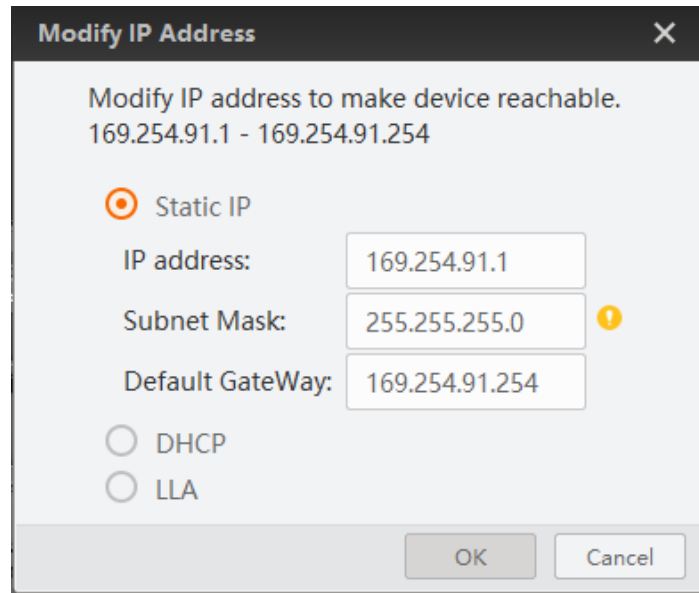


Figure 7-4 Modify IP Address

7.2.2 Serial Port Control via Controller

The serial port control module connects to the device via the serial port, and after a successful connection, parameter settings are made through the related modules on the right. The parameter control modules are: light source control, IO input, timer, and command line.

Before You Start

Use serial port cable to connect the device to a PC via serial port.

Steps

1. Run the digital light controller, and select **Serial Port**.

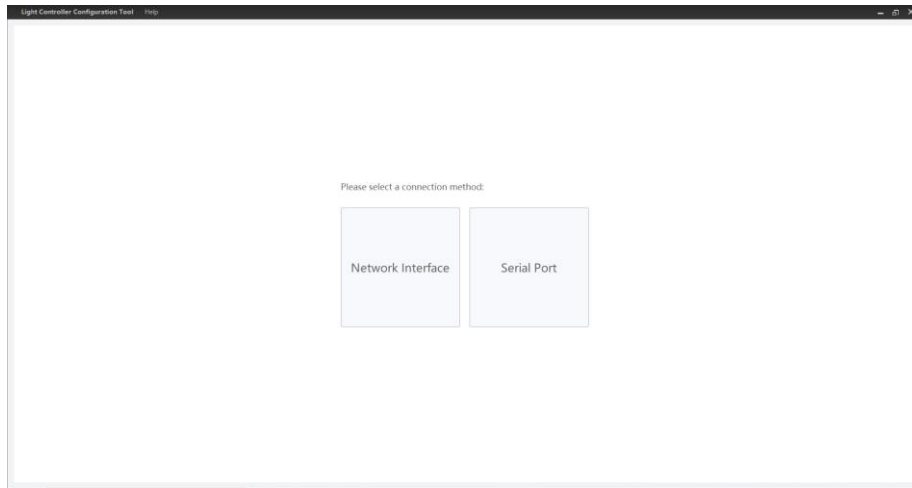


Figure 7-5 Select Serial Port

2. Click **Enumerate**, and select the device according to actual demands.
3. Select **Baud Rate** according to actual demands.
4. Click **Connect** and the controller will display the device information, and you can set parameters accordingly. Click **Disconnect** to disconnect the device.

The screenshot shows a configuration window for serial port connection. It includes dropdown menus for "Serial Port" (set to "COM3 (only command)"), "Baud Rate" (set to "9600"), "Data Bit" (set to "8"), "Stop Bit" (set to "1"), and "Check Bit" (set to "NoParity"). Below these are three buttons: "Enumerate", "Connect", and "Disconnect". A horizontal separator line follows. Below the line are five text input fields labeled "Device Model", "Version", "Serial Number", and "Manufacturer". Another horizontal separator line follows. At the bottom, there is a "Firmware Update" label next to a text input field, with "Select File" and "Update" buttons below it.

Figure 7-6 Serial Port Connection

7.3 Light Source Control

You can use the light source control module to set the light source brightness value and work mode, and at the same time, they can obtain the current parameters of the device, as shown in the figure below.

Figure 7-7 Light Source Control

Before You Start

Make sure that related wirings are completed and light source devices are connected. For more details, refer to section Connect Device.

Steps

1. Click **Load Parameters** to get the current parameters of the light source.
2. Select light source from Light Source 1 to Light Source 4 corresponding CH1 to CH4 according to actual demands.

Note

- The type IV and type VII devices have two light source interfaces (CH1 and CH2).
- The type V device has only one light source interface (CH1).

3. Select **Work Mode** according to actual demands.

Table 7-1 Work Mode Description

Work Mode	Description
On	The light source is in solid status.
Input 1/2/3/4	Use trigger input interface signal (IN 1/2/3/4) to control light source output.
Timer 1/2/3/4	Use timer 1/2/3/4 trigger signals to control light source output.
Off	The light source is turned off.

Note

- Type V device supports input 1/2 corresponding to IN 1 and IN 2, and timer 1/2.
- Type VI device only supports input 1 corresponding to IN 1, and timer 1.

- Type VII device only supports timer 1/2.
- After adjusting work mode of light source output via work mode switch on control panel, click **Load Parameters** to refresh your operations.

4. Set **Brightness** according to actual demands, and it ranges from 0 to 255.

Note

After setting brightness of light source via brightness adjustment knob on control panel, click **Load Parameters** to refresh your operations.

5. Click **Execute** to let the device execute configured parameters.

7.4 I/O Control Input

You can get electrical level status of input and invert the input level status in the I/O control input area.

Before You Start

Make sure that related wirings are completed and light source devices are connected. For more details, refer to section Connect Device.

Light Source Control		IO Input		IO
	Debouncer Time (ms)	Delay Time(ms)	Level Invert	Level Status
Input1	0	0	☐	Low Level
Input2	0	0	☐	Low Level
Input3	0	0	☐	Low Level
Input4	0	0	☐	Low Level

Figure 7-8 I/O Control Input

- Get Parameters: Click **Load Parameters** to get the input parameters.
- Delay Time: It delays the trigger signal received time, and the range is 0 ms to 1000 ms (unit: ms).
- Debouncer Time: It filters out unwanted short input signals respectively, and the range is 0 ms to 1000 ms (unit: ms).
- Invert Level: Check **Invert** to invert selected electrical level status of input signals.
- Status: Click **Refresh** to display the electrical level status of input signals, including High Level and Low Level.
- Apply: Click **Apply** to let the device execute configured parameters.

Note

- Type V device supports input 1/2 corresponding to IN 1 and IN 2.
- Type VI device supports input 1 corresponding to IN1.

- Type VII device here does not support I/O control input, and the actual device model shall prevail.

7.5 Timer

The timer acts as an internal clock and provides a continuous square wave based on trigger conditions. When the device' trigger source selects the timer, the device will generate the corresponding trigger square wave according to the configured delay time and pulse width to delay the trigger of the external device.

	Trigger Mode	Trigger Source	Trigger Activation	Trigger Amount	Strobe Pulse Width(us)	Delay Light(us)
Timer1	Continuous				1000000	1000000
Timer2	Burst	Software	Trigger Software	1	1000000	1000000
Timer3	Burst	In 1	Rising Edge	1	1000000	1000000
Timer4	Burst	In 2	Falling Edge	1	1000000	1000000

Execute Load Parameters

Figure 7-9 Timer Trigger

Before You Start

Make sure that related wirings are completed and light source devices are connected. For more details, refer to section Connect Device.

Steps

1. Click **Get Parameters** to get the current timer's parameters.
2. Select **Trigger Mode** according to actual demands, including continuous and discontinuous mode.

Note

In the continuous mode, the light source will strobe flash continuously. While in the discontinuous mode, the light source will strobe flash based on specific number.

3. Set **Pulse Width** and **Delay Time** according to actual demands.
4. Set following parameters when the trigger mode is discontinuous.
 - Trigger Quantity: It sets the light source's quantity of strobe flash.
 - Trigger Activation: It sets the trigger activation of the timer, including rising edge and falling edge.
 - Trigger Source: It sets the trigger signal source of the timer.

Table 7-2 Trigger Source of Timer

Trigger Source	Description
Software Trigger	Use software as the trigger signal of the timer.
Input 1/2/3/4	Use IN 1/2/3/4 input signal as the trigger signal of the timer.

Note

- Type V device supports input 1/2 corresponding to IN 1 and IN 2.
- Type VI device only supports input 1 corresponding to IN 1.
- Type VII device only supports setting trigger source as software trigger.
- You cannot set trigger activation if the trigger source is software trigger.

5. Click **Apply** to let the device execute configured parameters.

7.6 Command Line

When the light controller is connected to the device via a serial port, you can set the device parameters through the serial command line.

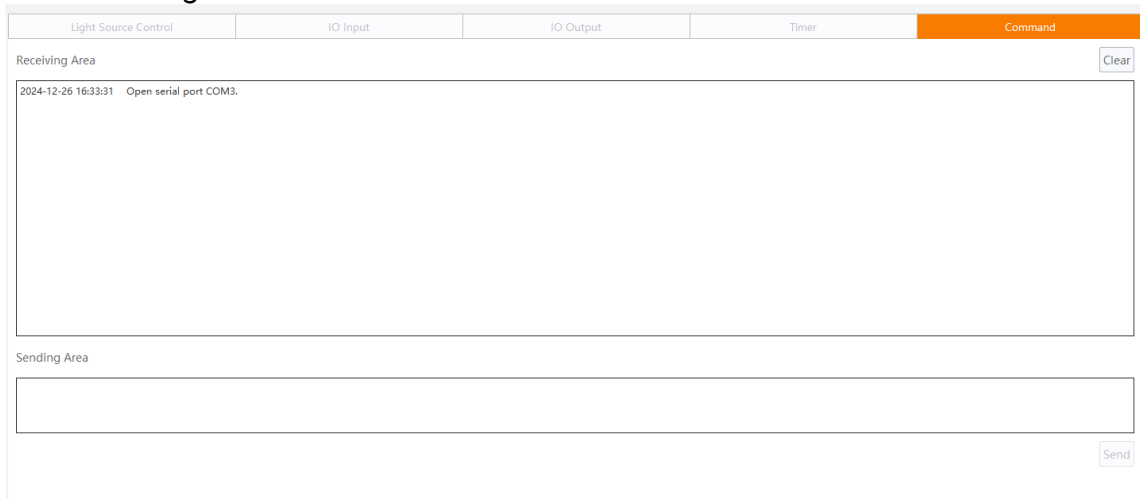


Figure 7-10 Serial Command Line

Before You Start

Make sure that related wirings are completed and light source devices are connected. For more details, refer to section Connect Device.

The tool has enumerated the line scan light controller.

Steps

1. Select the COM port with “only command” in the drop-down serial port, as shown in the figure below.

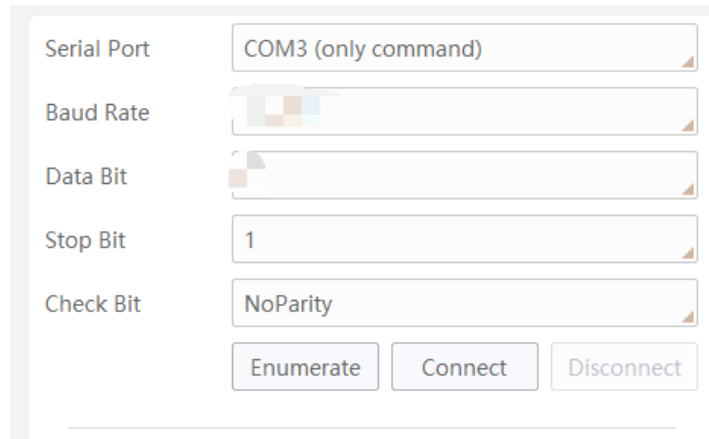
A screenshot of a serial port configuration window. It contains five dropdown menus: 'Serial Port' (set to 'COM3 (only command)'), 'Baud Rate' (set to '115200'), 'Data Bit' (set to '8'), 'Stop Bit' (set to '1'), and 'Check Bit' (set to 'NoParity'). Below these menus are three buttons: 'Enumerate', 'Connect', and 'Disconnect'.

Figure 7-11 Select COM Port

2. Click **Connect**, and a command line module will appear on the right side of the tool's interface.
3. Enter the corresponding serial port command in the send box, and after clicking **Send**, the receive area will display the corresponding content.
4. (Optional) Click **Clear** in the upper-right corner of the receive area to clear its contents.

7.7 Update Firmware

The device supports updating firmware via the light source controller.

Before You Start

Disconnect device in Network Interface/Serial Port Control area before updating firmware.

Steps

1. Click **Browse Files** to select firmware package (dav files).
2. Click **Update** to update the firmware.

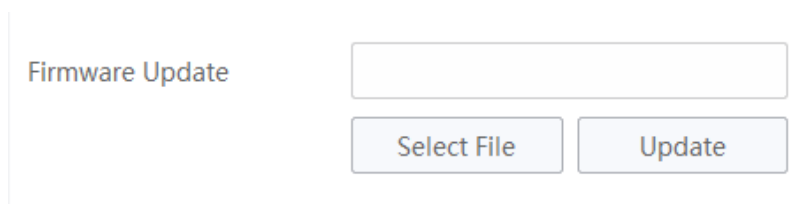
A screenshot of a firmware update interface. It features a label 'Firmware Update' on the left. To its right is a text input field. Below the input field are two buttons: 'Select File' and 'Update'.

Figure 7-12 Update Firmware

Note

The device will restart automatically after updating is completed.

Chapter 8 FAQ (Frequently Asked Question)

8.1 Why PWR indicator on the control panel is unlit?

Table 8-1 Question 1

Possible Cause	Solution
The device is not powered on or the power switch is not pressed.	Check the power wiring, and make sure that the PWR indicator is solid red after powering on the device.

8.2 Why light source devices cannot be turned on?

Table 8-2 Question 2

Possible Cause	Solution
There is no voltage in the external trigger signal.	Check if there is broken circuit, incorrect polarity, etc.
Incorrect external trigger wiring.	Make sure that the light source interface of the light controller corresponds to correct external light source devices.
Incorrect light source work mode setting.	Set the light source mode as solid, and increase the brightness at the same time.

8.3 Why light source devices cannot be triggered?

Table 8-3 Question 3

Possible Cause	Solution
There is no voltage in the external trigger signal.	Check if trigger signal types or wirings are correct.
Incorrect external trigger wiring.	Make sure that the trigger related wirings are correct.
The voltage of the external trigger signal is too low.	Increase the voltage of the trigger signal

8.4 Why light source lights off intermittently?

Table 8-4 Question 4

Possible Cause	Solution
The load is too high and power switch power supply executes overload protection.	Reduce the load on the controller.

Chapter 9 Revision History

Table 9-1 Revision History

Version	Document No.	Revision Date	Revision Details
V1.2.2	UD41829B	Feb. 27, 2025	• Edit Section Installation Preparation. • Add the description of PoE device to Section Control Panel. • Edit Section Operate MVS Client Software • Edit Section Set Light Control. • Edit Section View Device Control. • Add Section View Transport Layer Control. • Edit Section Update Firmware. • Add Section Network Interface Control via Controller to Connect Device via Controller. • Edit the structure of FAQ (Frequently Asked Question). • Edit Section Appendix A Serial Communication Command List.

Appendix A Serial Communication Command List

The serial port information used by the device as follows:

- Communication Protocol: RS-232
- Serial Baud Rate: 115200 bps
- Serial Data Bits: 8
- Serial Stop Bit: 1
- Serial Parity: None

Table A-1 Serial Communication Command List

Function	Start Symbol	Function Identifier	Channel Field	Data Field	End Symbol	Command	Description
Read Brightness	S	L	A to F	–	#	● Send: SLA# ● Return: LA0100	● Read the brightness of CH1. ● Reading the brightness of CH1 is 100.
						● Send: SLABCD# ● Return: LA0100B0080C0255D0 010	● Read the brightness of CH1 to CH4. ● Reading the brightness of CH1 to CH4 is 100, 80, 255, and 10.
Set Brightness	S	L	A to F	Brightness level: 0000 to 0255	#	● Send: SLA0100# ● Return: LA0100	● Set the brightness of CH1 to 100. ● Setting the brightness of CH1 to 100 succeeds.
						● Send: SLA0100B0080C0255D 0010# ● Return: LA0100B0080C0255D0 010	● Set the brightness of CH1 to CH4 to 100, 80, 255, and 10. ● Setting the brightness of CH1 to CH4 to 100, 80, 255, and 10 succeeds.
Set Continuous/Trigger/Strobe Mode	S	T	A to F	0000/0001/0002 (continuous/trigger/strobe)	#	● Send: ST0000# ● Return: T0000	● Set continuous mode ● Setting continuous mode succeeds
						● Send: ST0001# ● Return: T0001	● Set trigger mode ● Setting trigger mode succeeds
						● Send: ST0002# ● Return: T0002	● Set strobe mode ● Setting strobe mode succeeds
Set On/Off	S	W	A to F	0000/0001 (on/off)	#	● Send: SWA0000# ● Return: WA0000	● Set the status of CH1 to On. ● Setting the status of CH1 to On succeeds.
						● Send: SWA0001B0000C0001 D0001# ● Return: WA0001B0000C0001D 0001	● Set the status of CH1 to CH4 to Off, On, Off, and Off. ● Setting the status of CH1 to CH4 to Off, On, Off, and Off succeeds.
Read Trigger Debounce Time	S	G	A to F	–	#	● Send: SGA# ● Return: GA0001	● Read the trigger debounce time of CH1. ● Reading the trigger debounce time of CH1 is 1 ms
Set Trigger Debounce Time	S	G	A to F	0000 to 1000 (unit: ms)	#	● Send: SGA0100# ● Return: GA0100	● Set the trigger debounce time of CH1 to 100 ms. ● Setting the trigger debounce time of CH1 to 100 ms succeeds.
Read Trigger Delay Time	S	H	A to F	–	#	● Send: SHA# ● Return: HA0100	● Read the trigger delay time of CH1. ● Reading the trigger delay time of CH1 is 100 ms
Set Trigger Delay Time	S	H	A to F	0000 to 1000 (unit: ms)	#	● Send: SHA0100# ● Return: HA0100	● Set the trigger delay time of CH1 to 100 ms. ● Setting the trigger delay time of CH1 to 100 ms succeeds.
Set Trigger Level Inversion	S	I	A to F	0000/0001 (false/true)	#	● Send: SIA0001# ● Return: IA0001	● Set the trigger level inversion of CH1 to true. ● Setting the trigger level inversion of CH1 to true succeeds.
Read Trigger Level Status	S	J	A to F	–	#	● Send: SJA# ● Return: JA0001	● Read the trigger level status of CH1. ● Reading the trigger level status of CH1 is high.
Set IO Output Port Level Inversion	S	K	A to F	0000/0001 (false/true)	#	● Send: SKA0001# ● Return: KA0001	● Set the output port level inversion of CH1 to true. ● Setting the output port level inversion of CH1 to true succeeds.
Set IO Output Port Signal Source	S	M	A to F	0000/0001/0002 /0003 (on/in/timer/off)	#	● Send: SMA0002# ● Return: MA0002	● Set the IO output port signal source of CH1 to timer. ● Setting the IO output port signal source of CH1 to timer succeeds.
Read IO Output Port Level Status	S	N	A to F	–	#	● Send: SNA# ● Return: NA0001	● Read the IO output port level status of CH1. ● Reading the IO output port level status of CH1 is high.

Function	Start Symbol	Function Identifier	Channel Field	Data Field	End Symbol	Command	Description
Read Timer Duration	S	O	A to F	--	#	● Send: SOA# ● Return: OA0600	● Read the timer duration of CH1. ● Reading the timer duration of CH1 is 600 μs.
Set Timer Duration	S	O	A to F	0600 to 30000000 (unit: μ s)	#	● Send: SOA0600# ● Return: OA0600	● Set the timer duration of CH1 to 600 μs . ● Setting the timer duration of CH1 to 600 μs succeeds.
Read Timer Delay Time	S	P	A to F	--	#	● Send: SPA# ● Return: PA0600	● Read the timer delay time of CH1. ● Reading the timer delay time of CH1 is 600 μs.
						● Send: SPABCD# ● Return: PA0999B0888C0777D0666	● Read the timer delay time of CH1 to CH4. ● Reading the timer delay time of CH1 to CH4 is 999 μs, 888 μs, 777 μs, 600 μs.
Set Timer Delay Time	S	P	A to F	0600 to 30000000 (unit: μ s)	#	● Send: SPA0600# ● Return: PA0600	● Set the timer delay time of CH1. ● Setting the timer delay time of CH1 to 600 μs succeeds.
						● Send: SPA0999B0888C0777D0666# ● Return: PA0999B0888C0777D0666	● Set the timer delay time of CH1 to CH4 to 999 μs, 888 μs, 777 μs, 666 μs. ● Setting the timer delay time of CH1 to CH4 to 999 μs, 888 μs, 777 μs, 666 μs succeeds.
Set Count Value of the Timer under Burst Mode	S	R	A to F	0001 to 1023	#	● Send: SRA0100# ● Return: RA0100	● Set the count value of the timer under burst mode of CH1 ● Setting the count value of the timer under burst mode of CH1 to 100 succeeds.
Set the Trigger Source of the Timer under Burst Mode	S	V	A to F	0000/0001 (Software/in)	#	● Send: SVA0001# ● Return: VA0001	● Set the trigger source of the timer under burst mode for CH1 to in. ● Setting the trigger source of the timer under burst mode for CH1 to in succeeds.
Set Trigger Source of the Timer under Burst Mode to Trigger Once When it is Set to Software Trigger	S	X	A to F	0001	#	● Send: SXA0001# ● Return: XA0001	● Set the trigger source of the timer under burst mode for CH1 to trigger once when it is set to software trigger. ● Setting the trigger source of the timer under burst mode for CH1 to trigger once when it is set to software trigger succeeds.
Set the Trigger Edge When the Trigger Source of the Timer under Burst Mode is an External Signal	S	Y	A to F	0000/0001 (Rising Edge/Falling Edge)	#	● Send: SYA0001# ● Return: YA0001	● Set the trigger edge to Falling Edge when the trigger source of the timer under burst mode is an external signal. ● Setting the trigger edge to Falling Edge when the trigger source of the timer under burst mode is an external signal succeeds.
Save User Set/Restore Default	S	U	--	0000/0001 (save/reset)	#	● Send: SU0000# ● Return: U0000	● Save user parameters. ● Saving user parameters succeeds.
						● Send: SU0001# ● Return: U0001	● Restore user parameters to default. ● Restoring user parameters to default succeeds.
Read the Number of Light Source Channels	S	Z	--	000	#	● Send: SZ0000# ● Return: Z0004	● Read the number of light source channels. ● Reading the number of light source channels for controller is four.
Read/Set Error Return	--	L/P/T/W/U/G/H/I/J/K/M/N/O/Q/R/V/X/Y/Z	A to F or Empty	XXXX	--	Return: LAXXXX	An error occurs or invalid parameters are sent while searching/setting the brightness parameter of CH1.
						Return: PAXXXX	An error occurs or invalid parameters are sent while searching/setting the pulse width time parameter of CH1.
						Return: TAXXXX	An error occurs or invalid parameters are sent while searching/setting Solid/Trigger mode.
						Return: WAXXXX	An error occurs or invalid parameters are sent while searching/setting On/Off status of CH1.
						Return: UAXXXX	An error occurs or invalid parameters are sent while saving parameters or restoring default.
						Return: GAXXXX	An error occurs or invalid parameters are sent while setting the trigger debounce time of CH1.
						Return: HAXXXX	An error occurs or invalid parameters are sent while reading trigger debounce time of CH1.
						Return: IAXXXX	An error occurs or invalid parameters are sent while setting the trigger level inversion of CH1.
						Return: JAXXXX	An error occurs or invalid parameters are sent while reading the trigger level inversion of CH1.
						Return: KAXXXX	An error occurs or invalid parameters are sent

Function	Start Symbol	Function Identifier	Channel Field	Data Field	End Symbol	Command	Description
							while setting the output port level inversion of CH1.
						Return: MAXXXX	An error occurs or invalid parameters are sent while setting the output port signal source of CH1.
						Return: NAXXXX	An error occurs or invalid parameters are sent while reading the output port level inversion of CH1.
						Return: OAXXXX	An error occurs or invalid parameters are sent while reading/setting the timer duration of CH1.
						Return: RAXXXX	An error occurs or invalid parameters are sent while setting the count value of the timer under burst mode of CH1.
						Return: VAXXXX	An error occurs or invalid parameters are sent while setting the trigger source of the timer under burst mode for CH1.
Read/Set Error Return	--	L/P/T/W/ U/G/H/I/ J/K/M/N /O/Q/R/V /X/Y/Z	A to F or Empty	XXXX	--	Return: XAXXXX	An error occurs or invalid parameters are sent while setting the trigger source of the timer under burst mode for CH1 to trigger once when it is set to software trigger.
						Return: YAXXXX	An error occurs or invalid parameters are sent while setting the trigger edge when the trigger source of the timer under burst mode is in.
						Return: ZAXXXX	An error occurs or invalid parameters are sent while reading the number of light source channels.

Note

A to F represents CH1 to CH6.



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