

Hikrobot Co., Ltd.

Logistics Code Reader

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 Logistics Code Reader.

Contact Information

Hangzhou Hikrobot Co., Ltd.

E-mail: global.support@hikrobotics.com

Website: <https://en.hikrobotics.com/>

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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

- In the use of the device, you must be in strict compliance with the electrical safety regulations of the nation and region.
- 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.
- 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.
- Use the power adapter provided by the official manufacturer. The power adapter must meet the Limited Power Source (LPS) requirements. For the specific power consumption of the device, please refer to the device's 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.
- During installation, maintenance, and debugging, looking directly at this product may cause harm to the eyes. Protective measures, such as wearing safety goggles, should be taken when operating.
- Avoid aiming the lens at strong light such as lighting, sunlight, or laser beams, etc., otherwise the image sensor will be damaged.

- It is forbidden to touch the image sensor directly. If necessary, please moisten a soft clean cloth with alcohol and gently wipe off the dust. When the device is not in use, please add a dust cover to protect the image sensor.
- 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.
- Caution: If the device has battery, risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.
- Please dispose of the device in strict accordance with the relevant national or regional regulations and standards to avoid environmental pollution and property damage.
- Looking directly at the device may cause harm to the eyes. Protective measures like wearing protective glasses should be taken in the process of installation, maintenance and debugging.
- Make sure that there is no reflective surface too close to the device lens. The light from the device may reflect back into the lens causing reflection.

Note

- Check whether the device's package is in good condition, whether there is damage, intrusion, moisture, deformation, etc. before 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.
- Do not use the product in extremely heat, extremely cold, dusty environment, corrosive environment or high humidity environment.
- The device should not be placed with exposed flame sources, such as lighted candles.
- Do not cover the light source with foreign objects or operate it in a long-duration flashing mode, as this can damage the device and cause a fire.
- Please read the manual and safety instructions carefully before installing 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.

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.
- If the device is powered on and off frequently, it is necessary to strengthen the voltage isolation, and consider adding a DC/DC isolation power supply module between the device and the adapter.
- Use the power adapter to supply power to the device separately. If centralized power supply is necessary, make sure to use a DC filter to filter the power supply of the device separately before use.
- The unused cables of the device must be insulated.
- When installing the device, if you cannot ensure that the device itself and all equipment connected to the device are well grounded, you should isolate the device with an insulating bracket.
- 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

Logistics code reader integrates functions of image acquisition, data processing, and result output. It not only improves the efficiency of image data transmission and processing, but also reduces the performance requirements for supporting devices. Relying on code recognition technology, logistics code reader can automatically read codes, output corresponding code information, and connect to major express information management platforms, and is widely used in code recognition scenarios in the express logistics industry.

2.2 Key Features

- Built-in code reading algorithm to read different types of one-dimensional and two-dimensional codes with good robustness.
- Integrates functions of image acquisition, data processing, and result output.
- Adopts integrated structure design for convenient installation.
- Adopts centralized light with high luminescence efficiency.
- Supports long lifetime, stable performance, and strong environmental compatibility.

Note

- The specific functions may differ by device models.
 - Refer to the device's specifications for specific parameters.
-

Chapter 3 Appearance

Note

Appearance here is for reference only. Refer to the device's specification for detailed dimension information.

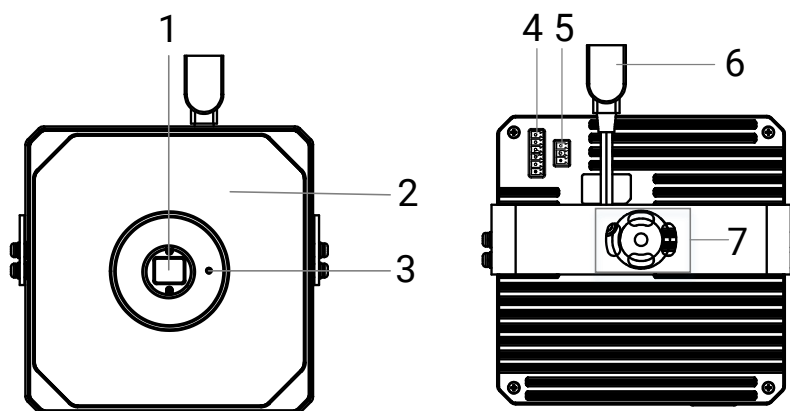


Figure 3-1 Appearance

Table 3-1 Component Description

No.	Name	Description
1	Lens Mount	It is used to install the lens. Refer to the device's specification for specific lens mount information.
2	Light Source	It has 24 LED lights that provide light.
3	Indicator	It displays operation status of the device. Refer to section Indicator for details.
4	6-Pin Green Terminal	It provides power supply and I/O interface. Refer to section 6-Pin Green Terminal for details.
5	RS-232 Serial Port	The device supports RS-232 output. Refer to section RS-232 Serial Port for details.
6	Gigabit Ethernet Cable	It has a built-in Gigabit Ethernet interface to transmit data.
7	Screw Holes	They are used to fix the device's bracket to other structures. It is recommended to use the supplied M4 screws in the package or use the metric M4 screws whose length should be less than the sum of the thickness of the mounting plate and the depth of the screw hole.

Chapter 4 Connector and Indicator

4.1 6-Pin Green Terminal

The device has a 6-pin green terminal that provides power supply and I/O interface. Refer to the table below for detailed pin definitions.

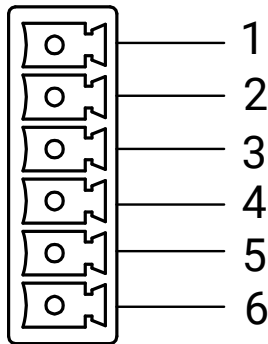


Figure 4-1 6-Pin Terminal

Table 4-1 Pin Definitions

Pin No.	Signal	I/O Signal Source	Description
1	GPIO	LineIn 2/LineOut 4 I/O Signal Line	Configurable input/output I/O
2	OUT3	LineOut 3 Signal Line	Opto-isolated output 3
3	GND_IO	Isolated I/O Ground	--
4	IN0	LineIn 0 Signal Line	Opto-isolated input 0
5	GND	--	Power supply ground
6	DC_PWR	--	DC power supply

4.2 Indicator

The indicator displays the operation status of the device. Refer to the table below for detailed device status.

Table 4-2 Indicator Description

Indicator Status	Device Status
Rapid Flashing Blue	The device is acquiring images normally.

Indicator Status	Device Status
Solid Blue	The device is in idle status.
Slow Flashing Red and Blue Alternately	The device is updating its firmware.

 Note

When the indicator is flashing rapidly or slowly, its unlit interval is 0.2 sec and 1 sec respectively.

Chapter 5 I/O Electrical Features and Wiring

5.1 I/O Electrical Features

5.1.1 Input Signal

The device's LineIn 0 is opto-isolated input, and its internal circuit is as follows.

Note

- The maximum input current is 25 mA.
- The breakdown voltage is 30 VDC. Keep voltage stable.
- Make sure that the input voltage is not from 1 VDC to 3.3 VDC, because the input level is not stable between this range.

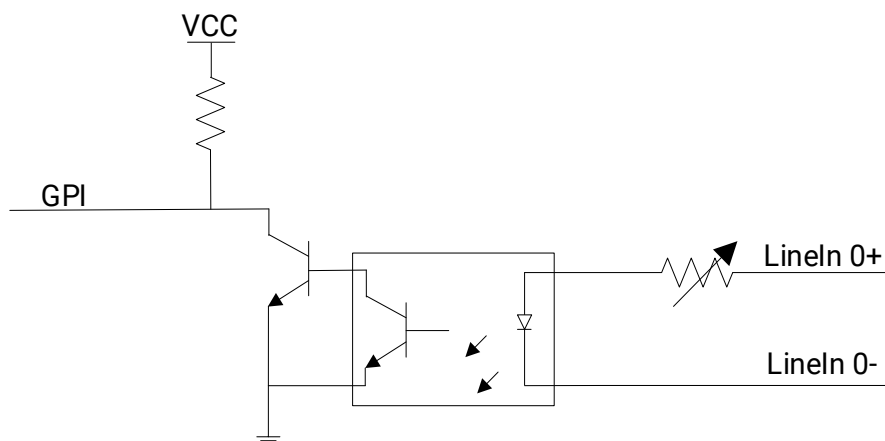


Figure 5-1 Internal Circuit of Input Signal

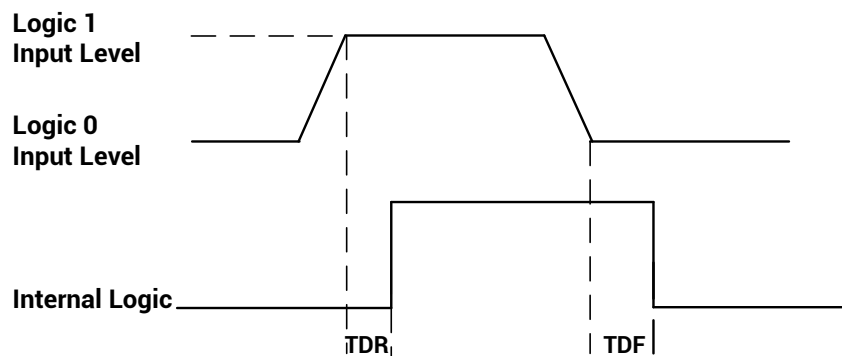


Figure 5-2 Input Logic Level

Table 5-1 Input Electrical Feature

Parameter Name	Parameter Symbol	Value
Input Logic Level Low	VL	0 VDC to 1 VDC
Input Logic Level High	VH	3.3 VDC to 24 VDC
Input Falling Delay	TDF	16.8 μ s to 22 μ s
Input Rising Delay	TDR	1.8 μ s to 4.6 μ s

5.1.2 Output Signal

The device's LineOut 3 is opto-isolated output, and its internal circuit is as follows.

Note

The maximum output current is 25 mA.

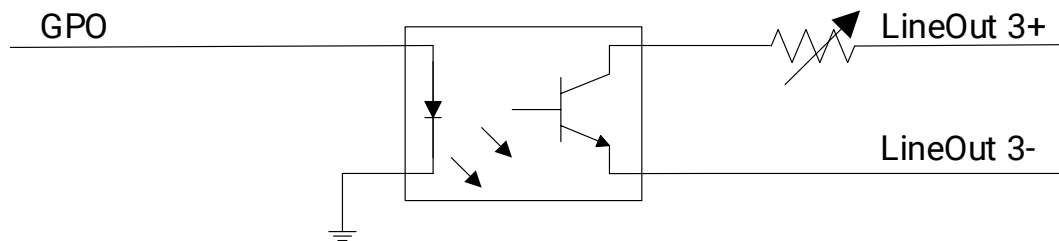


Figure 5-3 Internal Circuit of Output Signal

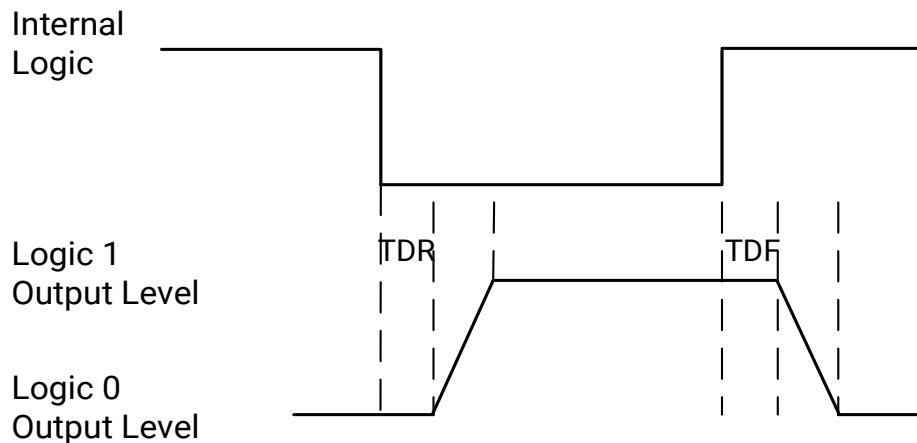


Figure 5-4 Output Logic Level

When the external voltage is 3.3 VDC and the external resistance is 1 K Ω , the electrical feature of opto-isolated output is shown below.

Table 5-2 Output Electrical Feature

Parameter Name	Parameter Symbol	Value
Output Logic Level Low	VL	575 mV
Output Logic Level High	VH	3.3 VDC
Output Rising Time	TR	8.4 μ s
Output Falling Time	TF	1.9 μ s
Output Rising Delay	TDR	15 μ s to 60 μ s
Output Falling Delay	TDF	3 μ s to 6 μ s

If the external voltage and resistance change, the corresponding current of output signal and output logic level low may differ.

Table 5-3 Parameters of Output Logic Level Low

External Voltage	External Resistance	VL	Output Current
3.3 VDC	1 K Ω	575 mV	2.7 mA
5 VDC	1 K Ω	840 mV	4.1 mA
12 VDC	2.4 K Ω	915 mV	4.6 mA
24 VDC	4.7 K Ω	975 mV	4.9 mA

5.1.3 Bi-Directional I/O Signal

The device has one bi-directional I/O signal (LineIn 2/LineOut 4), and you can set it as input signal or output signal according to demands. Its internal circuit is as follows.

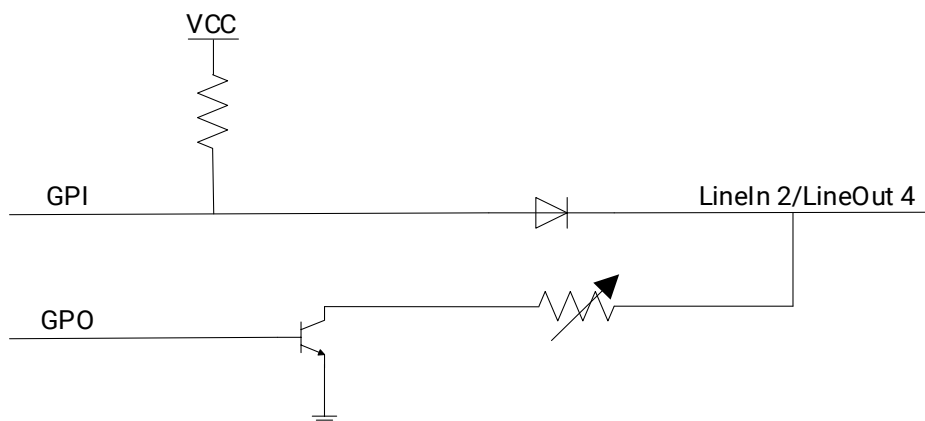


Figure 5-5 Internal Circuit of Bi-Directional Signal

Configured as Input Signal

Note

- Make sure that the input voltage is not from 0.3 VDC to 3.3 VDC, because the input level is not stable between this range.
- The breakdown voltage is 30 VDC. Keep voltage stable.
- To prevent damage to the GPIO pin, please connect GND first and then input voltage in LineIn 2/LineOut 4.

With the condition of 100 Ω resistance and 5 VDC voltage, the logic level and electrical feature of configuring LineIn 2 as input signal are shown below.

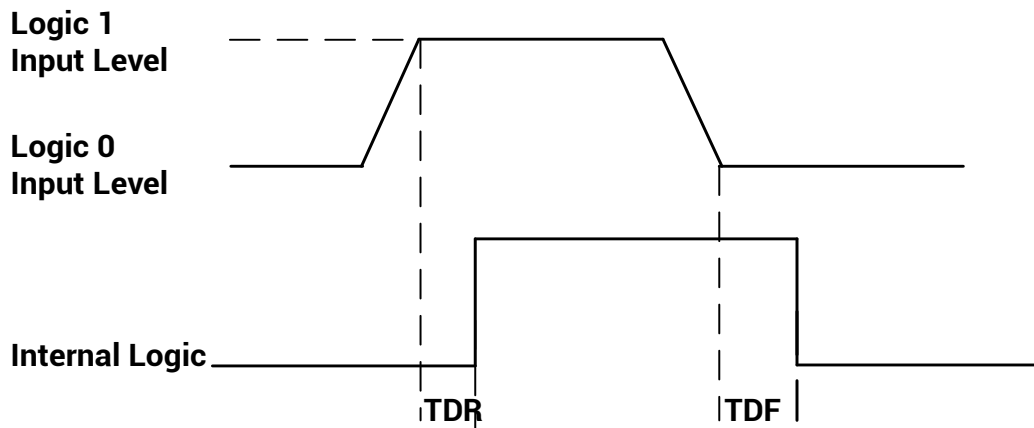


Figure 5-6 Input Logic Level

Table 5-4 Input Electrical Feature

Parameter Name	Parameter Symbol	Value
Input Logic Level Low	VL	0 VDC to 0.3 VDC
Input Logic Level High	VH	3.3 VDC to 24 VDC
Input Falling Delay	TDF	< 1 μ s
Input Rising Delay	TDR	< 1 μ s

Configured as Output Signal

Note

The maximum current is 25 mA and the output impedance is 40 Ω .

The relation among external voltage, resistance and the output level low is shown below.

Table 5-5 Parameters of Output Logic Level Low

External Voltage	External Resistance	VL (GPIO2)
3.3 VDC	1 K Ω	160 mV
5 VDC	1 K Ω	220 mV
12 VDC	1 K Ω	460 mV
24 VDC	1 K Ω	860 mV
30 VDC	1 K Ω	970 mV

When the voltage of external resistance (1 K Ω) is pulled up to 5 VDC, the logic level and electrical feature of configuring LineOut 4 as output are shown below.

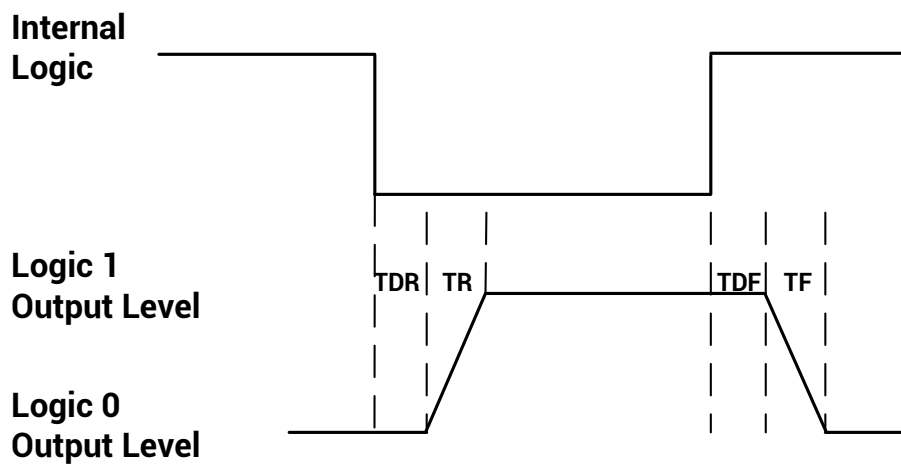


Figure 5-7 Output Logic Level

Table 5-6 Output Electrical Feature

Parameter Name	Parameter Symbol	Value
Output Logic Level Low	VL	220 mV
Output Logic Level High	VH	4.75 VDC
Output Rising Time	TR	0.06 μ s
Output Falling Time	TF	0.016 μ s
Output Rising Delay	TDR	0 μ s to 4 μ s
Output Falling Delay	TDF	< 1 μ s

5.2 I/O Wiring

The device can receive external input signal or output signals to external devices via its I/O interface. This section introduces how to wire the device with external devices.

5.2.1 Input Signal Wiring

Note

- Input signal wiring may differ with different types of external devices.
- The appearance here is for reference only, and the actual device you purchased shall prevail.

PNP Device

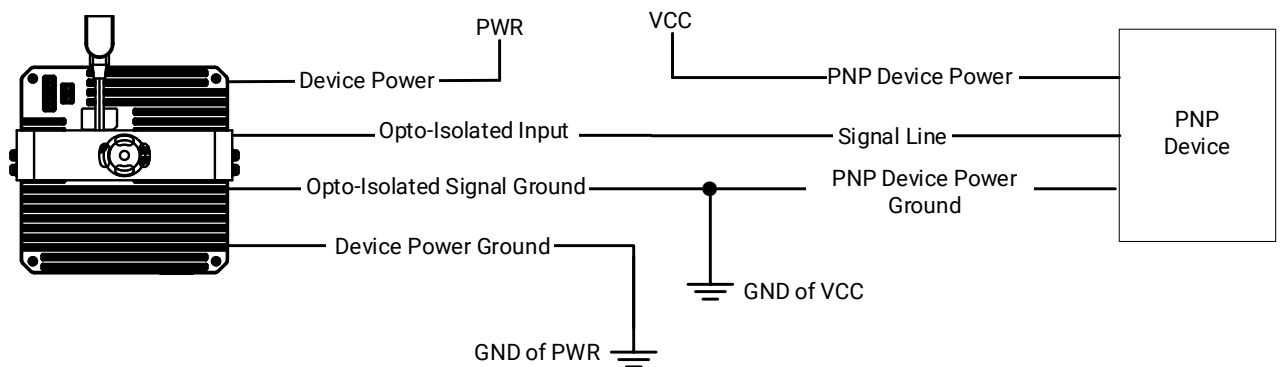


Figure 5-8 Input Signal Connects to PNP Device

NPN Device

- If the VCC of NPN device is 24 VDC, it is recommended to use a 4.7 K Ω pull-up resistor.
- If the VCC of NPN device is 12 VDC, it is recommended to use a 1 K Ω pull-up resistor.

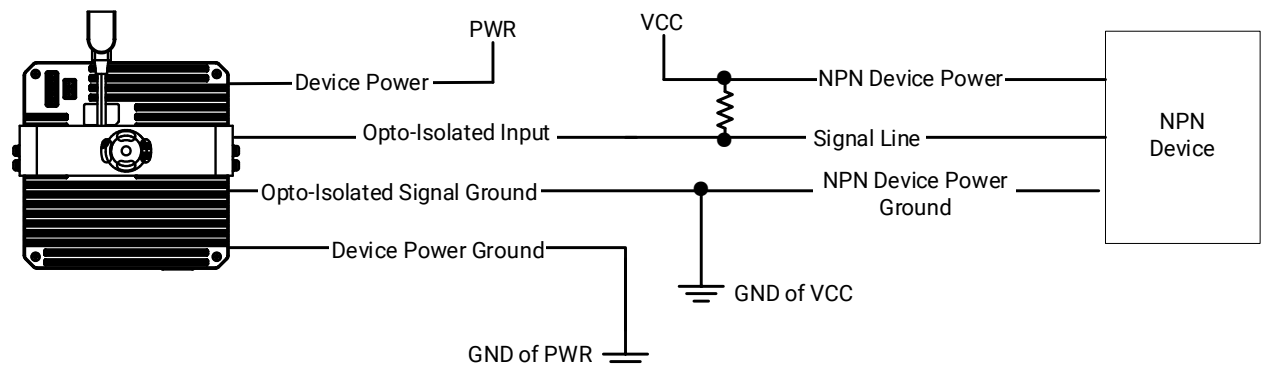


Figure 5-9 Input Signal Connects to NPN Device

Switch

It is recommended to use a 4.7 K Ω resistor to protect the circuit if the VCC of the switch is 24 VDC.

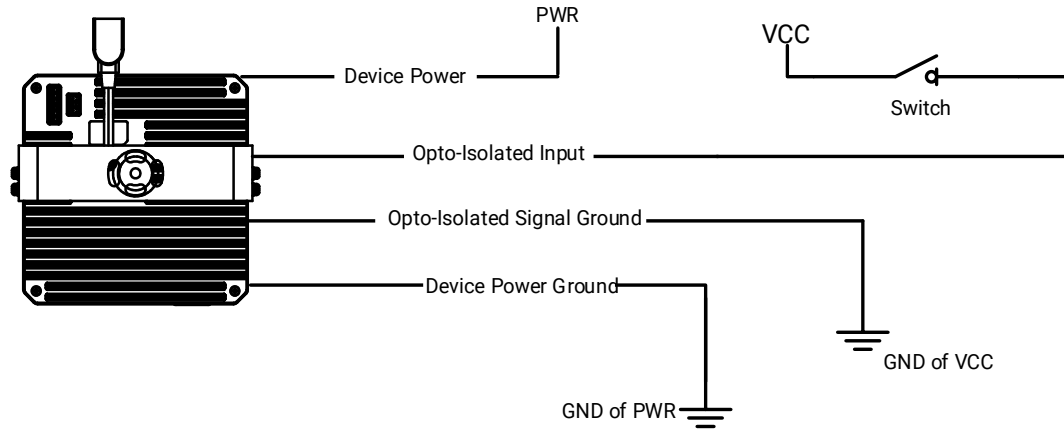


Figure 5-10 Input Signal Connects to Switch

5.2.2 Output Signal Wiring

Note

- Output signal wiring may differ with different types of external devices.
- The appearance here is for reference only, and the actual device you purchased shall prevail.

PNP Device

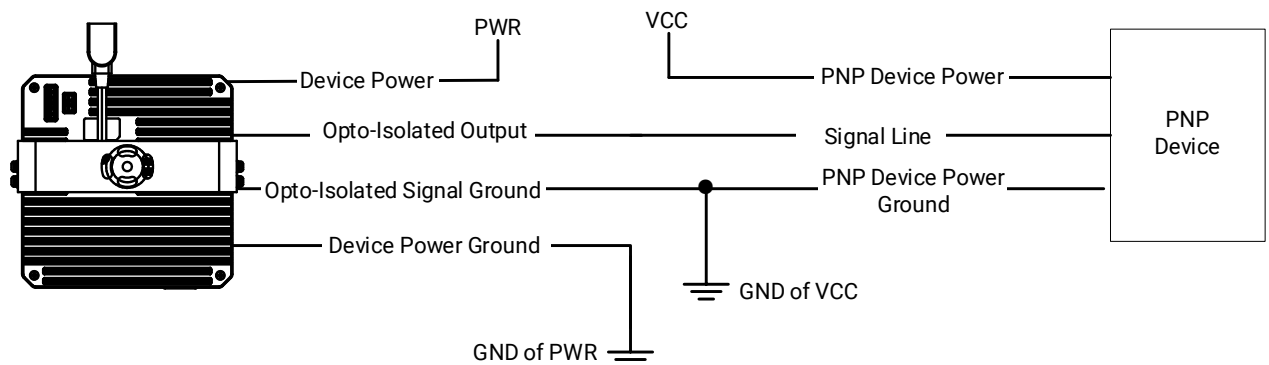


Figure 5-11 Output Signal Connects to PNP Device

NPN Device

- If the VCC of NPN device is 24 VDC, it is recommended to use a 4.7 K Ω pull-up resistor.
- If the VCC of NPN device is 12 VDC, it is recommended to use a 1 K Ω pull-up resistor.

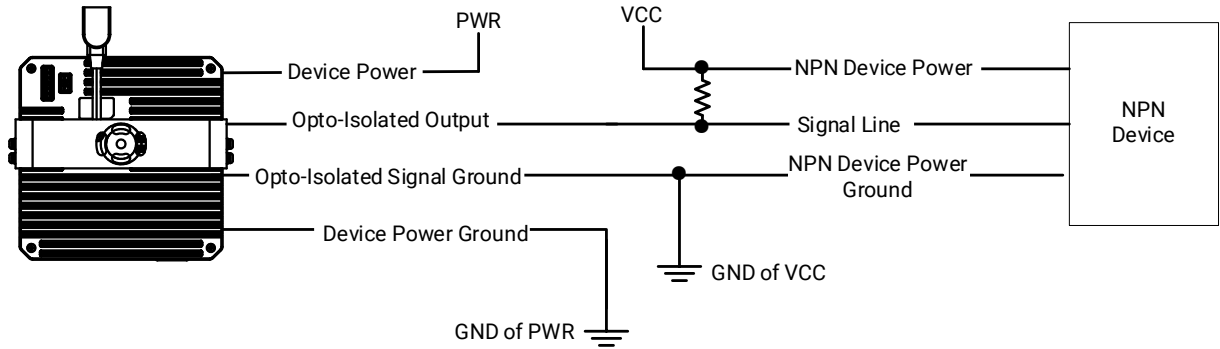


Figure 5-12 Output Signal Connects to NPN Device

5.2.3 Bi-Directional Signal Wiring

The device's LineIn 2/LineOut 4 can be used as input signal and output signal.

Configured as Input Signal

The input signal wiring is shown below when the device's LineIn 2 is configured as input signal.

Note

Input signal wiring may differ by the external device type.

PNP Device

It is recommended to use a 330 Ω pull-down resistor.

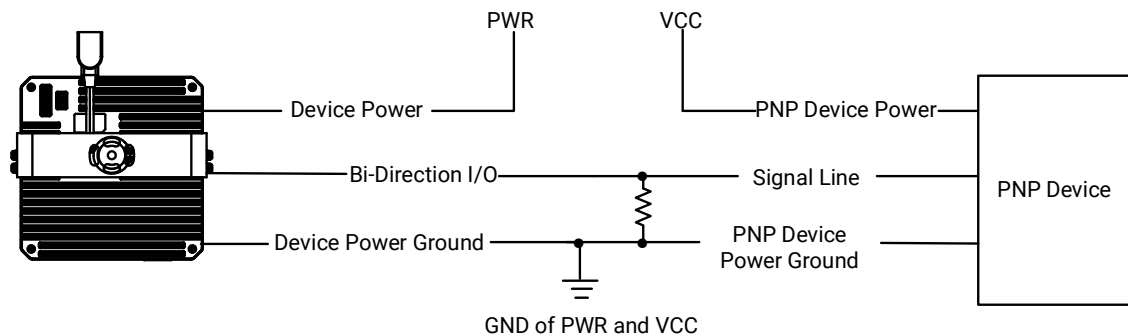


Figure 5-13 Input Signal Connects to PNP Device

NPN Device

- If the VCC of NPN device is 24 VDC, it is recommended to use a 4.7 K Ω pull-up resistor.
- If the VCC of NPN device is 12 VDC, it is recommended to use a 1 K Ω pull-up resistor.

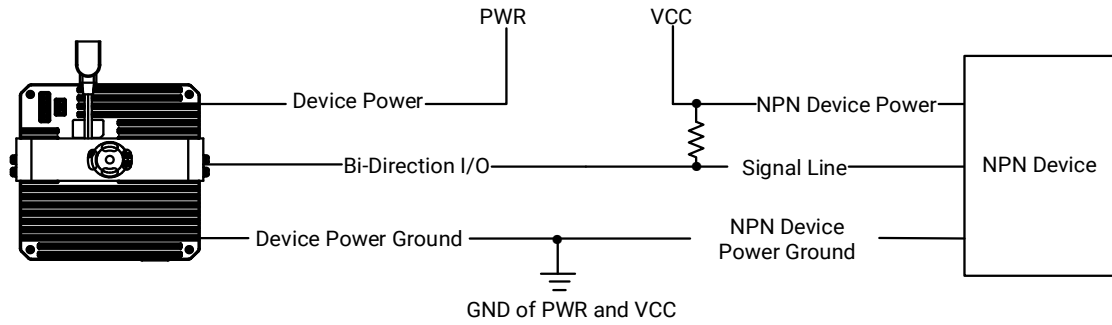


Figure 5-14 Input Signal Connects to NPN Device

Switch

The switch value can provide low electrical level to trigger LineIn 2.

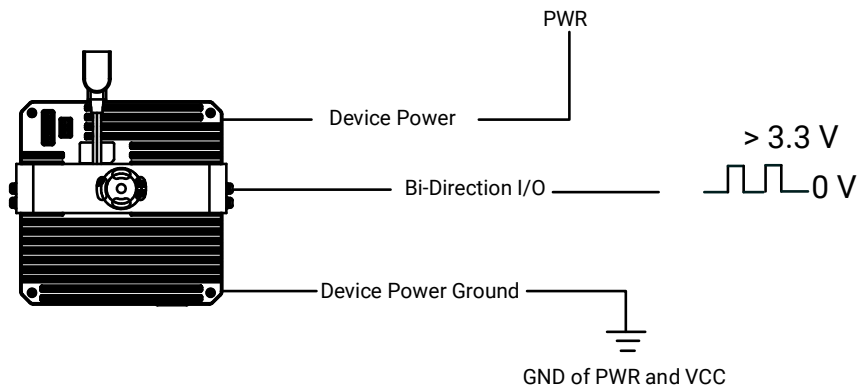


Figure 5-15 Input Signal Connects to Switch

Configured as Output Signal

The output signal wiring is shown below when the device's LineOut 4 is configured as output signal.

Note

Output signal wiring may differ by the external device type.

PNP Device

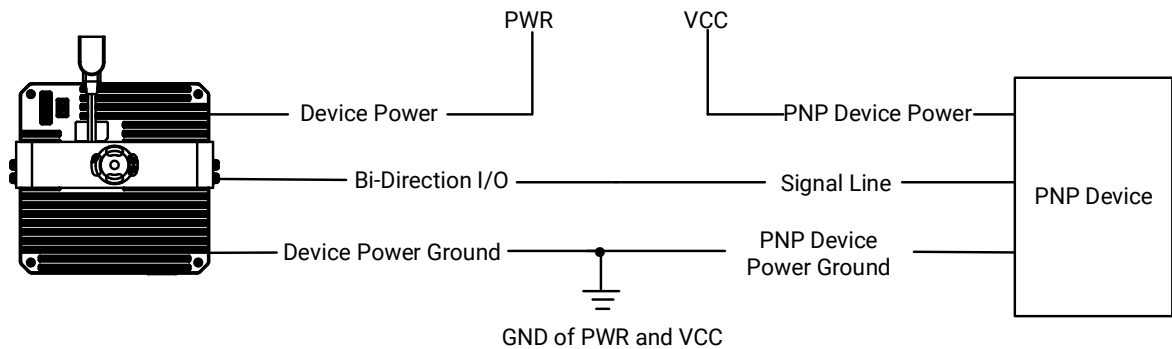


Figure 5-16 Output Signal Connects to PNP Device

NPN Device

- If the VCC of NPN device is 24 VDC, it is recommended to use a 4.7 K Ω pull-up resistor.
- If the VCC of NPN device is 12 VDC, it is recommended to use a 1 K Ω pull-up resistor.

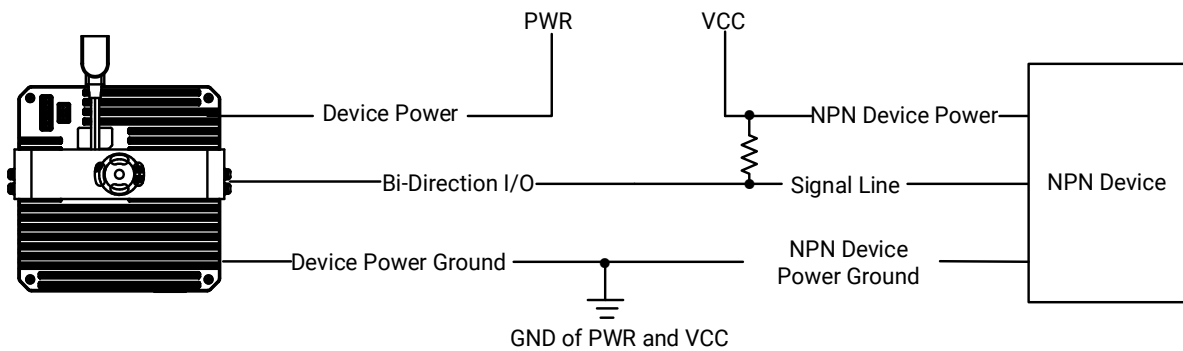


Figure 5-17 Output Signal Connects to NPN Device

5.3 RS-232 Serial Port

The device supports data output via its RS-232 serial port, and this section introduces the pin definition of the RS-232 serial port and the wiring of RS-232 serial port.

The pin definition of the RS-232 serial port is shown below.

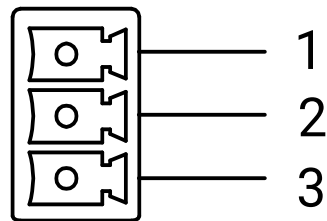


Figure 5-18 RS-232 Serial Port

Table 5-7 Pin Definition

Pin No.	Name	Function
1	TX	Send data
2	GND	Signal ground
3	RX	Receive data

The wiring of RS-232 serial port is shown below.

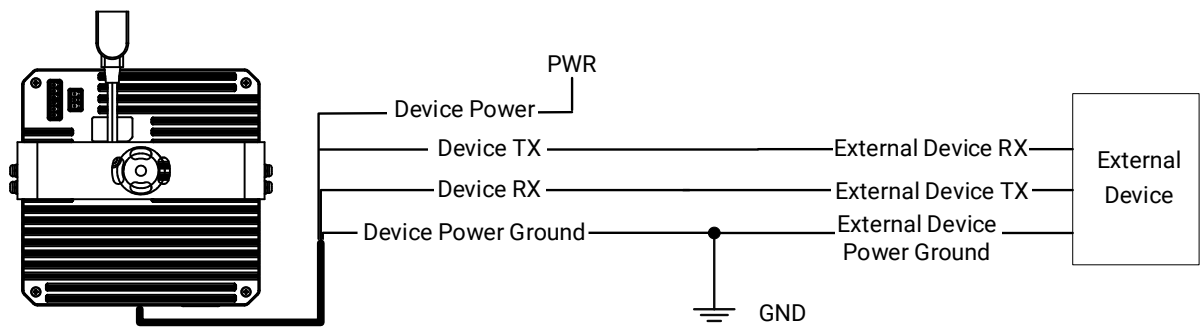


Figure 5-19 RS-232 Serial Port Wiring

Chapter 6 Device Installation

6.1 Installation Preparation

You need to prepare following accessories before installation.

Table 6-1 Accessories

No.	Name	Quantity	Description
1	Lens	1	It refers to FA lens and is included in the package.
2	Power Adapter	1	It refers to 24 V, 2.5 A power adapter, and is included in the package.
3	Power Supply Cable	1	It is used to connect the device and power adapter. It is included in the package.
4	Network Cable	1	It refers to a 5-meter network cable and is included in the package.

6.2 Install Device

Before You Start

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

Steps

1. Install the lens to the device.
2. Fix the device to a proper installation position.
3. Use CAT5E or CAT6 Ethernet cable to connect the device to a switch or NIC.
4. Use the power adapter to power the device.

Chapter 7 Device Connection

Device connection to the client software is required for device's configuration and operations. This section introduces how to set PC environment, install the client software, connect the device to the client software, etc.

7.1 Install Client Software

IDMVS is a client software for device configuration and remote operations.

Steps

Note

- The client software is compatible with 32/64-bit Windows 7/10 and 64-bit Windows 11.
 - The client software has integrated the required driver.
 - You can get the client software installation package from <https://en.hikrobotics.com/>. It is recommended to use the latest version of the client software.
 - The graphic user interface may differ by different versions of client software you use.
-

1. Double click the installation package to start installing the client software.
2. Select the language.
3. Read and check **Terms of the License Agreement**.
4. Click **Start Setup**.
5. Select installation directory and click **Next**.

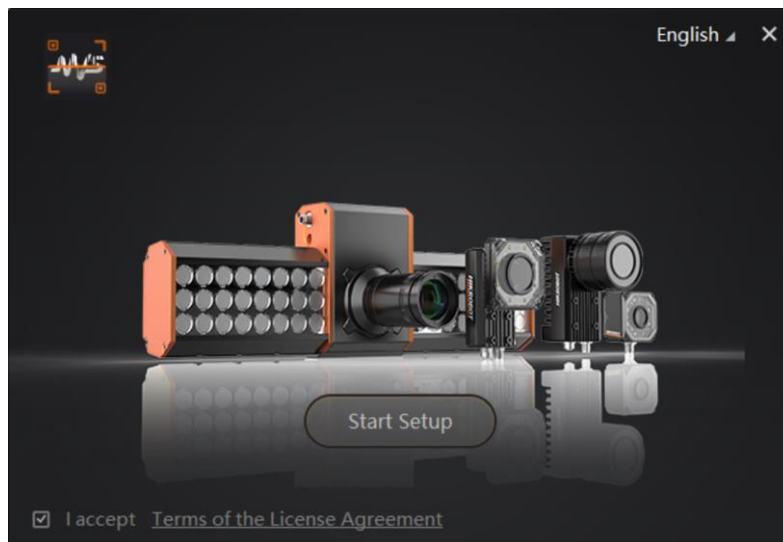


Figure 7-1 Installation Interface

6. Finish the installation according to the interface prompts.

7.2 Turn off Firewall

To ensure stable client running and image transmission, you are recommended turning off Windows firewall before using the client software.

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)**.

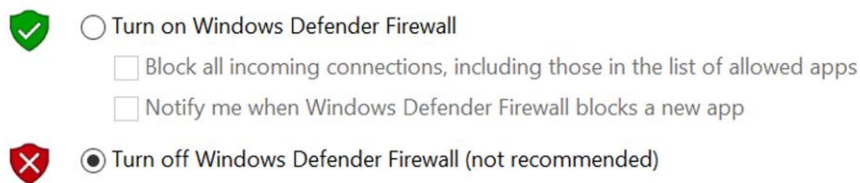


Figure 7-2 Windows Defender Firewall

4. Click **OK**.

7.3 Set PC Environment

To ensure stable data transmission and normal communication between the PC and the device via client software, you need to set the PC network and make sure that they are in the same network segment.

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. 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.

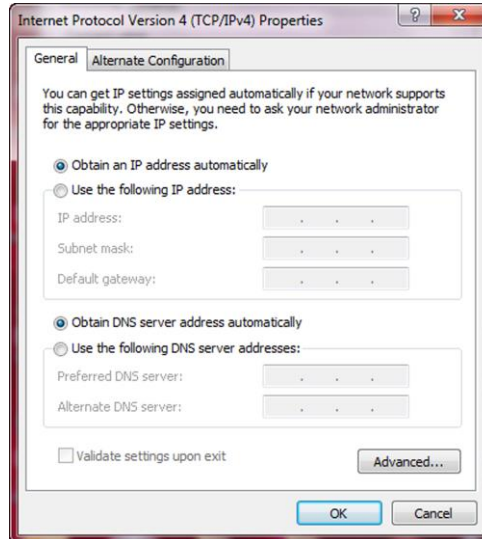


Figure 7-3 Set PC Network

7.4 Set Device Network and Connect to Client Software

You can set and operate the device in the client software only when the device is in the same network segment with the PC where the client software is installed.

Steps

1. Double click the client software to run it.
2. Click  to find the device.
3. Right click the device to be connected, and click **Modify IP**.
4. Set the IP address of the device in the same network segment with the PC, and click **OK**.

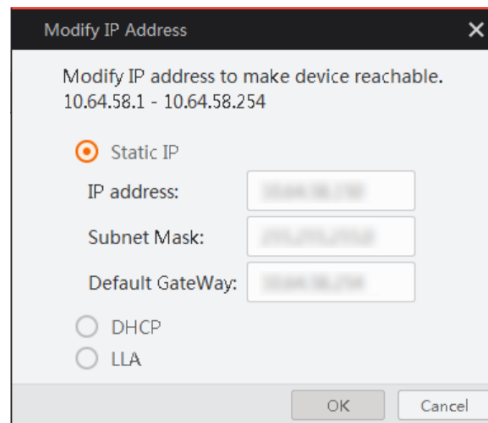


Figure 7-4 Modify IP Address

5. Double click the device in device list or click  to connect it to the client software.

Chapter 8 Basic Operation

8.1 Client Software Layout

The main window of the client software is displayed after the device is connected to the client software.

Note

- The graphic user interface may differ by different versions of client software you use.
- Refer to the user manual of the client software for detailed operation guide.

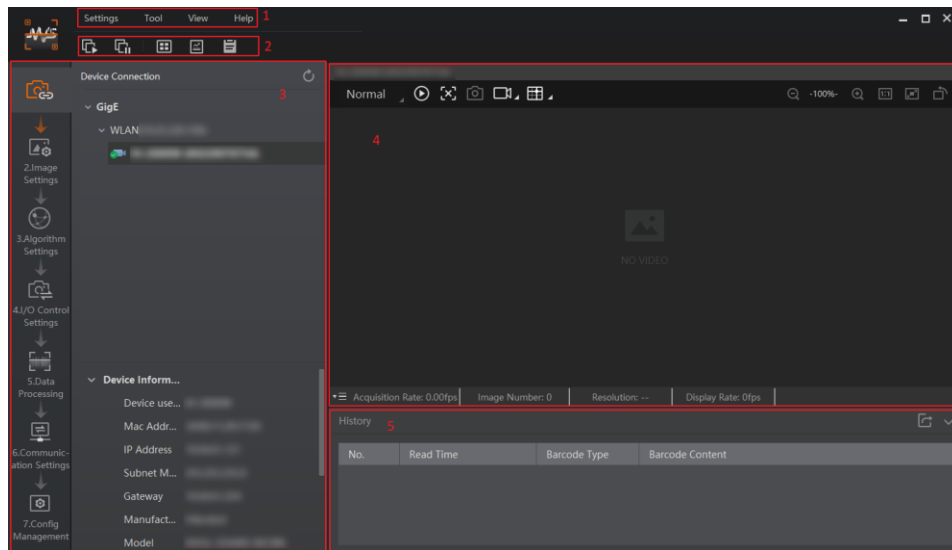


Figure 8-1 Main Window

Table 8-1 Main Window Description

No.	Name	Description
1	Menu Bar	Provides access to function modules including Settings, Tool, View, and Help.
2	Control Toolbar	Provides access to functions such as starting/ending batch acquisition, switching the window division mode, viewing real-time statistics during acquisition, and viewing device logs.
3	Device Configuration Wizard Panel	The wizard for device configurations. In the Device Information field, you can view information about a device and its corresponding network interface.
4	Live View Window	Displays the live view of the selected device(s).

No.	Name	Description
5	History Panel	Displays the code reading history of device(s). You can also view the real-time reading results during acquisition.

The device configuration wizard panel and control toolbar help you perform some basic operations of the device.

Table 8-2 Device Configuration Wizard Panel Description

No.	Module Name	Description
1	Device Connection	You can connect or disconnect device, modify device IP address, view device information, etc.
2	Image Settings	You can set image parameters, light parameters, etc.
3	Algorithm Settings	You can add different code type, set code quantity, etc.
4	I/O Control Settings	You can set parameters related to input and output.
5	Communication Settings	You can select different communication protocols, and set parameters for output result.
6	Data Processing	You can set filtering rule for output result.
7	Configuration Management	You can save and load user parameters, and restart the device.

8.2 Basic Operation

Steps

1. After connecting the device, go to the left corner of live view window, and select the running mode.

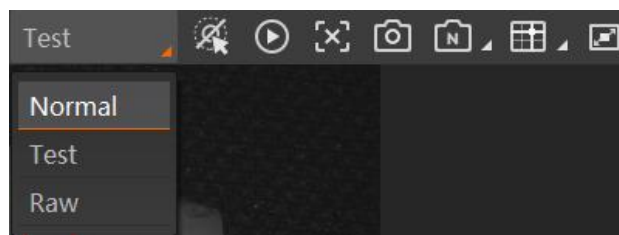


Figure 8-2 Select Running Mode

Note

Stopping the real-time acquisition is required before selecting the running mode.

Table 8-3 Running Mode Description

Device Mode	Description
Test Mode	It is used during device debugging. The device outputs images that are acquired in real time, and displays code information.
Normal Mode	It is used during device normal operation. After reading code in image, the device outputs image and code information.
Raw Mode	It is used during testing image data. The device outputs raw data and displays code information.

2. Click  in the live view window to view images and the code reading effect.

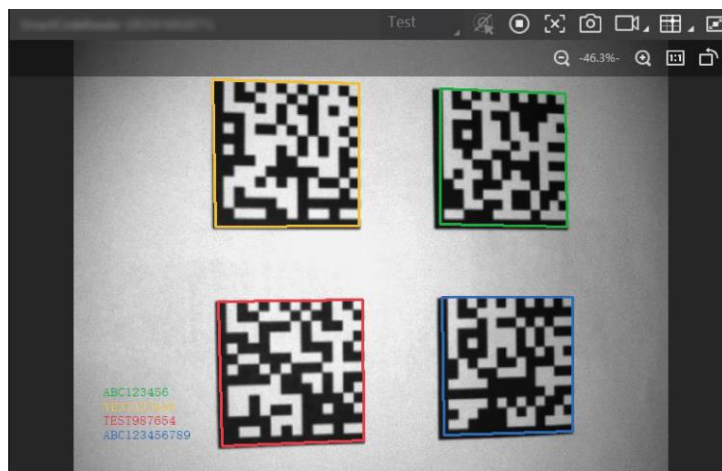


Figure 8-3 Code Reading Effect

Note

If the effect is not very good, you can go to **Image Settings** to adjust related parameters, such as exposure time, gain, and Gamma. Or you can turn on the built-in light source.

3. (Optional) Go to history panel to view codes recognized by the device.

History									
Image Cache									
No.	Read Time	Output Total Cos	Cost Time(ms)	PPM	Barcode Type	Waybill	Barcode Content	Overall Gr	Code Score
34	2023/6/21 16:05:15:149	3155481	120	2.6	Code 128		313200953000000...	F	/
33	2023/6/21 16:05:14:894	3155223	115	13.6	QRCode		313200953002023...	A	/
32	2023/6/21 16:05:14:894	3155223	115	5.2	Code 128		313200953	F	/

Figure 8-4 History Record

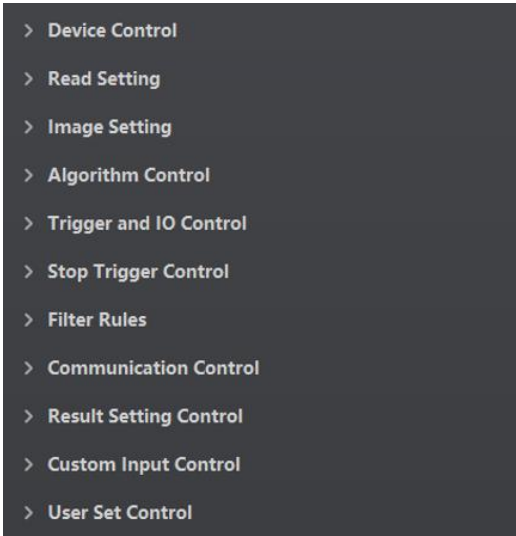
Chapter 9 Device Settings

9.1 Feature Tree Introduction

After the device is connected to the client software, and you can right click the device in **Device Connection**, and click **Feature Tree**.

Note

The parameters of the feature tree may differ by device models and firmware versions.

A screenshot of a software interface showing a vertical list of menu items, each preceded by a right-pointing chevron (>). The items are: Device Control, Read Setting, Image Setting, Algorithm Control, Trigger and IO Control, Stop Trigger Control, Filter Rules, Communication Control, Result Setting Control, Custom Input Control, and User Set Control.

- > Device Control
- > Read Setting
- > Image Setting
- > Algorithm Control
- > Trigger and IO Control
- > Stop Trigger Control
- > Filter Rules
- > Communication Control
- > Result Setting Control
- > Custom Input Control
- > User Set Control

Figure 9-1 Feature Free

Table 9-1 Feature Tree Description

Name	Description
Device Control	It allows you to view the device's information, edit its name, and restart device.
Read Setting	It allows you to set the device's running mode and select code types.
Image Setting	It allows you to set frame rate, exposure, gain, Gamma, etc.
Algorithm Control	It allows you to set algorithm-related parameters.
Trigger and IO Control	It allows you to set parameters of input and output.
Filter Rules	It allows you to set the filtering rule of codes.
Communication	It allows you to set parameters related to different

Name	Description
Control	communication protocols.
Result Setting Control	It allows you to set parameters of outputted contents.
User Set Control	It allows you to save and load configured user set.

9.2 Image Quality Settings

This section introduces how to set image-related parameters of the device via client software.

Note

For different models of the device, the specific parameters may differ, and the actual device you purchased shall prevail.

9.2.1 Set Image

You can set parameters like exposure time, gain, Gamma, acquisition frame rate, acquisition burst frame count, etc. in **Image Settings** area.

Note

- For specific parameter range like exposure time, gain and acquisition frame rate, refer to the device's specification for details.
- Specific parameters of this function may differ by device models.

Table 9-2 Set Image Parameters

Name	Description
Exposure(μs)	You can increase exposure time to improve image brightness.  Note Increasing exposure time may reduce acquisition frame rate, and impact image quality.
Gain(dB)	You can increase gain to improve image brightness.  Note Increasing gain will create more image noises, and impact image quality.
Gamma	Gamma allows you to adjust the image contrast. It is recommended to reduce Gamma to increase brightness in dark background.

Name	Description
Acquisition Frame Rate(fps)	Acquisition frame rate refers to the image quantity that is acquired by the device per second.
Acquisition Burst Frame Count	Acquisition burst frame count refers to the output image quantity when the device is triggered once.

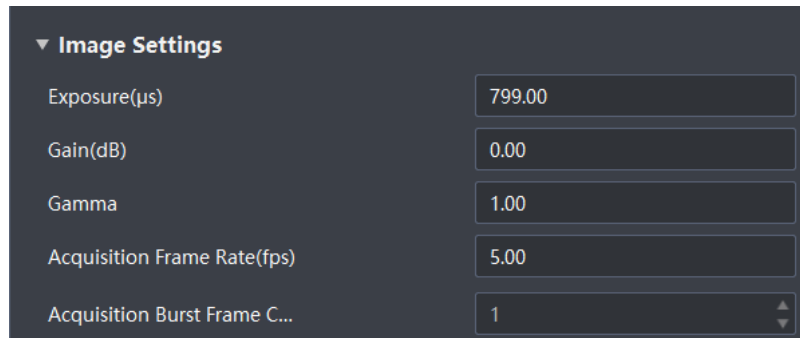


Figure 9-2 Set Image Parameters

 Note

The value range of exposure time and gain, and the maximum value of acquisition frame rate are related to the device model. Refer to the device's specifications for specific parameters.

9.2.2 Set Other Parameters

You can select other parameters in the **Image Settings**.

 Note

The displayed parameters may differ by device model.

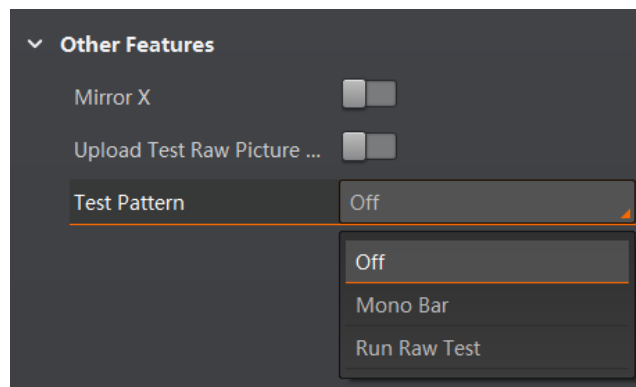


Figure 9-3 Set Other Parameters

Mirror X

If this function is enabled, the image will be reversed in a horizontal way. This function is enabled by default.

Test Pattern

Test pattern refers to the device's test images, and it is off by default. When exceptions occur in images acquired by the device in real time, you can check if images under the test pattern have similar problems to determine the cause of an exception.

SmoothMode

If this function is enabled, the acquisition frame rate will be increased. When the network is poor, it is recommended to disable the function, otherwise it may affect image quality.

Upload Test Raw Picture

If this function is enabled, the **Test Pattern** will be shown at the bottom of the interface. You can import test images in RAW and BMP formats to the directory of the device, add or delete the test images.

- Click  to import test images.
- Click  to import a file folder of test images.
- Click  to delete the selected test images.
- Click  to clear all test images.

Note

When **Run Raw Test** is selected as **Test Pattern** in **Other Features**, the test images cannot be deleted.



Figure 9-4 Test Image

9.3 Code Algorithm Settings

The device supports reading multiple types of 1D code and 2D code, and you can add and set code parameters via the client software.

9.3.1 Select Code

Select code before you set code parameters via the client software. In **Algorithm Settings**, you can add different types of codes according to actual demands.

In **Algorithm Settings**, select the types of codes to be read, and set the **Number of 1D Code**,

Number of 2D Code, and **Number of Stack Code** according to actual demands.

Note

- For different models of the device, the specific parameters may differ, and the actual device you purchased shall prevail.
 - Selected symbology quantity and added code quantity may affect the code recognition time. Note that selecting more symbologies or adding more codes may consume more time to recognize codes in the image. Please select according to the actual demands.
 - The device may output actual code quantity when the mismatch between the actual code quantity and the code quantity set in the client software occurs.
-

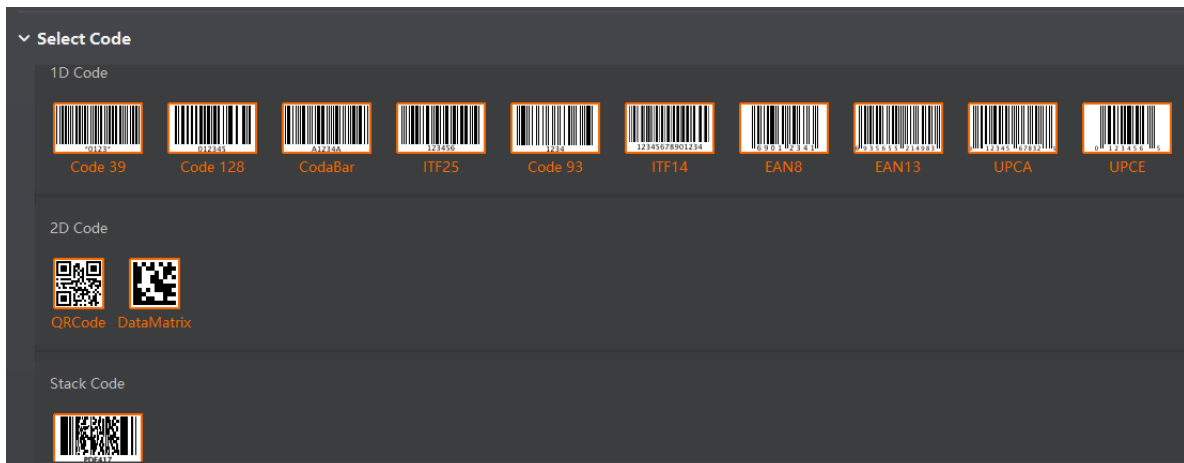


Figure 9-5 Select Code

9.3.2 Set Code Reading ROI

Algorithm ROI (Region of Interest) allows the device to execute algorithms and read codes on the specific area you selected, and thus improving code reading efficiency. Currently, multiple ROIs can be configured, and the device outputs codes according to the number of ROI (e.g. Region 1, Region 2, and Region 3...) in turn. The client software supports drawing single group of ROI and drawing ROI via chessboard.

Note

- If no code is recognized in the algorithm ROI, and the device will output “noread”.
 - Before drawing ROIs, make sure that there are images in the live view window after stopping preview.
 - If no algorithm ROI is enabled, the full screen is the algorithm ROI by default.
-

Draw Single Group of ROI

Steps

1. Go to **Algorithm Settings**, and find **Algorithm ROI**.
2. Click **Draw** in **Draw ROI** to draw the ROI in the live view window.

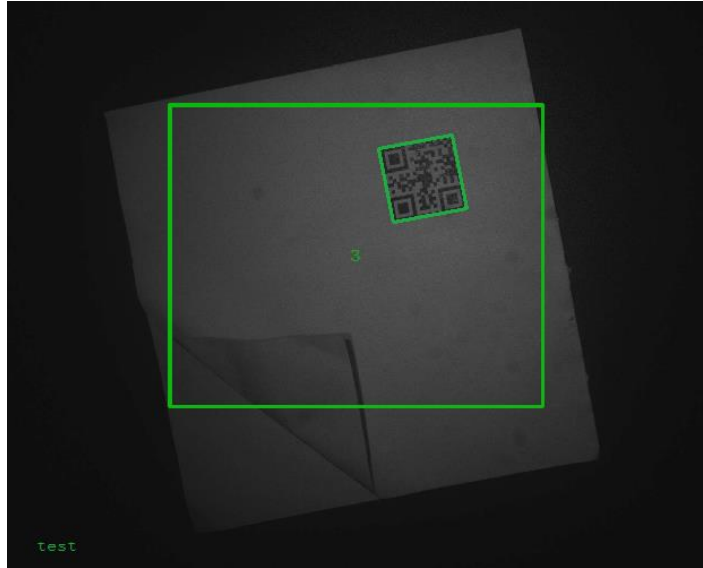


Figure 9-6 Draw ROI

3. (Optional) Repeat the above step to draw multiple ROIs according to actual demands.

Note

The client software only parse codes in the ROI you drawn.

4. (Optional) Click **Execute** in **Restore Max. Algorithm ROI** to restore the ROI to the full screen.
5. (Optional) Click **Execute** in **Clear All ROI** to delete all ROIs.
6. (Optional) Right-click the ROI and click **Delete** to delete the selected ROI.
7. (Optional) After you enable the **ROI Link IO Enable** in **Feature Tree** → **Trigger and IO Control**, and when the code is not read in any ROI, the linked output device will output a message.

Draw ROI via Chessboard

Steps

1. Go to **Algorithm Settings**, and find **Algorithm ROI**.
2. Click **Execute** in **Chessboard ROI**, set parameters, and click **OK** after setting.

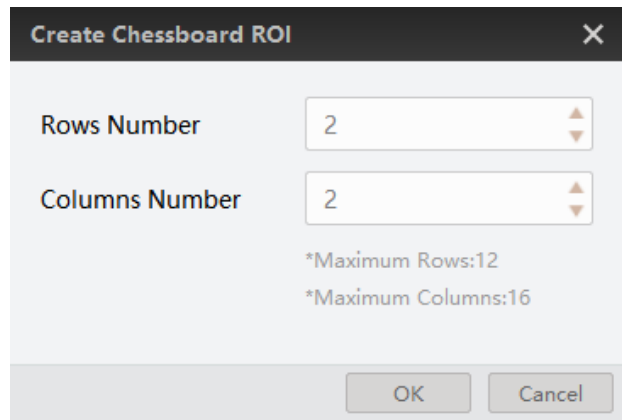


Figure 9-7 Create Chessboard ROI

3. (Optional) Click  to restore the ROI to full screen, and click  to clear all ROIs.
4. Click  after creating ROI, and the red frame becomes green as shown below.

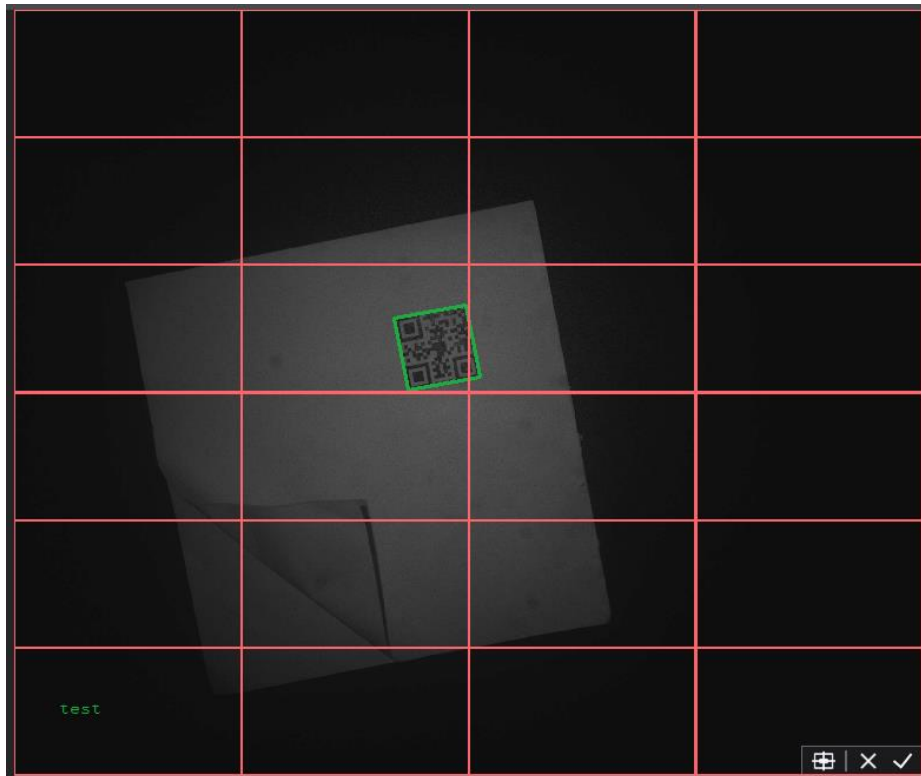


Figure 9-8 Draw ROI via Chessboard

5. Repeat other optional steps mentioned in drawing single group of ROI.

 Note

- The figures above are for reference only. Refer to the actual conditions.
 - When no ROIs are enabled, the current ROI defaults to full screen.
-

9.3.3 Set Algorithm Parameter

In **Algorithm Parameter**, select **1DCode**, **2DCode** or **StackCode** as **Arithmetic Type**, and then you can set the related parameters.

Note

- You should have selected at least one type of 1D code, 2D code or stacked code.
 - For different models of the device, the specific parameters may differ, and the actual device you purchased shall prevail.
-

Set 1D Code

Waiting Time

Waiting time refers to the maximum running time of algorithm, and its unit is ms. The code reader will stop parsing the images and return results if the time is exceeded the waiting time configured. When the value is set as 0, the actual running time of algorithm will prevail.

Code Color

It defines the readable code color. **WhiteCodeOnBlackWall** means that the client software can recognize the white code with black background. **BlackCodeOnWhiteWall** means that the client software can recognize the black code with white background. **Adaptive** means that the device can recognize both types of codes mentioned above. However, the reading time will be longer compared with the above two modes.

Code 39 Check

Enable this parameter if Code 39 uses the parity bit.

Note

You need to select **Code 39** in **Select Barcode**.

ITF 25 Check

Enable this parameter if ITF 25 uses the parity bit.

Note

You need to select **ITF 25** in **Select Barcode**.

Algo Debug Info

If it is enabled, some key information in the algorithm process will be saved to the image file for troubleshooting of reading failure.

Note

When the function is enabled, all information will be saved, which takes up a large amount

of memory. It is recommended to enable it only for troubleshooting.

Set 2D Code

Waiting Time

Waiting time refers to the maximum running time of algorithm, and its unit is ms. The code reader will stop parsing the images and return results if the time is exceeded the waiting time configured. When the value is set as 0, the actual running time of algorithm will prevail.

QR Distortion Correction

If the QR code or DM code is distorted, you can enable this parameter to improve code recognition rate. The parameter is disabled by default.

Note

If you enable this parameter, the more time will be consumed to recognize the codes in the image.

Algo Debug Info

If it is enabled, some key information in the algorithm process will be saved to the image file for troubleshooting of reading failure.

Note

When the function is enabled, all information will be saved, which takes up a large amount of memory. It is recommended to enable it only for troubleshooting.

Set Stack Code

Waiting Time

Waiting time refers to the maximum running time of algorithm, and its unit is ms. The code reader will stop parsing the images and return results if the time is exceeded the waiting time configured. When the value is set as 0, the actual running time of algorithm will prevail.

9.4 Signal Input Settings

In the signal input module, you can set the trigger-related parameters. You can enable trigger mode to let the acquisition of image data occur only when the trigger source is generated.

Steps

1. Click **I/O Control Settings** on the navigation bar to enter the I/O Control Settings panel.

2. Click **Input** → **Trigger Mode**, and select **On** as **Trigger Mode**.
3. Select a source type from the drop-down list of **Trigger Source**.

Note

- The trigger source includes Software and LineIn 0/2.
- For specific trigger source, refer to the actual device you got.

4. Set **Trigger Delay** according to the needs. The trigger delay function allows the device to add a delay between the receipt of trigger signal and the moment the trigger becomes active. It is 0 by default and the unit is μs . The sequence diagram of trigger delay is shown below.

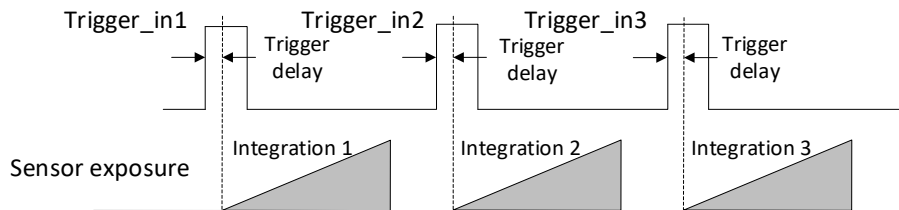


Figure 9-9 Sequence Diagram of Trigger Delay

5. Configure trigger-related parameters according to the selected trigger source. Refer to the section below.

Set and Execute Software Trigger Mode

In software trigger, the software sends trigger signal to the device via I/O interface to acquire images.

Steps

1. Click **I/O Control Settings** → **Input** → **Trigger Mode**.
2. Select **On** as **Trigger Mode**.
3. Select **Software** as **Trigger Source**.
4. Click **Execute** in **Trigger Source** to send trigger commands.

You can also enter **Auto Trigger Time**, and then enable **Enable Auto Trigger** to let the client software automatically send trigger signal to device according to the interval you set.

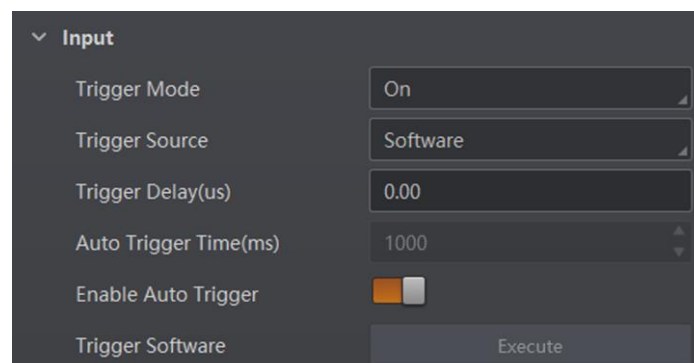


Figure 9-10 Set and Execute Software Trigger Mode

Set and Execute Hardware Trigger Mode

Steps

1. Go to **I/O Control Settings** → **Input** → **Trigger Mode**.
2. Select **On** as **Trigger Mode**.
3. Select the specific line as **Trigger Source** according to the actual demands.
4. Set **Debounce Time** and **Trigger Activation** according to the actual demands.
- **Trigger debounce:** The trigger debounce function allows the device to filter out unwanted short external trigger signal that is input to the device. The sequence diagram of trigger delay is shown below.

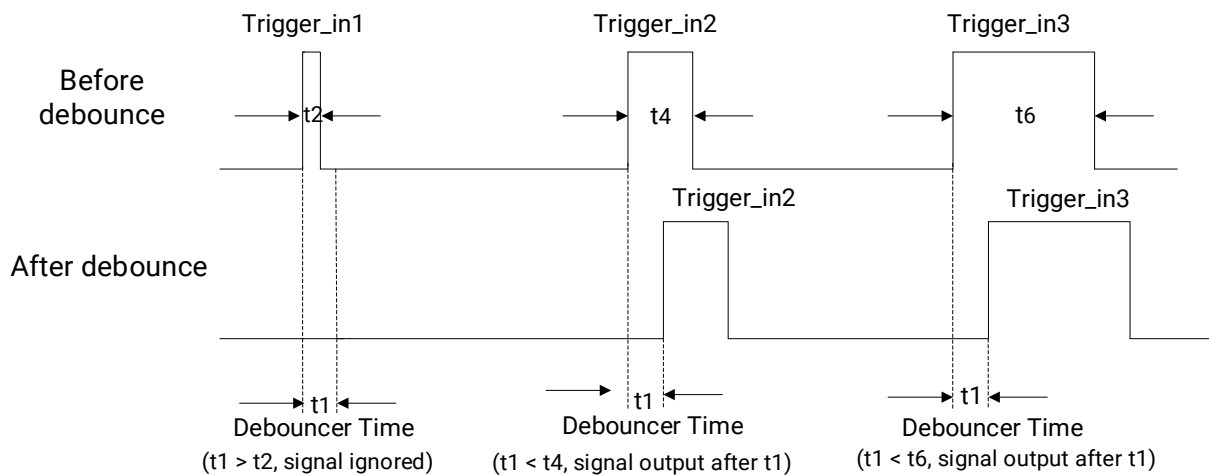


Figure 9-11 Sequence Diagram of Trigger Debounce

- **Trigger activation:** When selecting **Rising Edge** or **Falling Edge** as **Trigger Activation**, you can set **Trigger Delay**. When selecting **Level High** or **Level Low** as **Trigger Activation**, you can set **Start Delay Time** and **End Delay Time**.

Input

Trigger Mode

On

Trigger Source

LineIn 0

Debounce Time(us)

1000

Start Delay Time(us)

0

End Delay Time(us)

0

Trigger Activation

Level High

Figure 9-12 Set Trigger Activation

9.5 Signal Output Settings

9.5.1 Select Output Signal

The device's output signal can control external devices like PLC, flashing light, etc. Click **I/O Control Settings** → **Output** → **Line Out Selector** to select output signal. You can select LineOut 3/4.

9.5.2 Set Event Source

Note

The specific event sources may differ by device models and firmware versions.

The device supports outputting different trigger signals according to the event source you select. Click **I/O Control Settings** → **Output** → **Line Out Activation Event** to select event source.

The device supports following event sources.

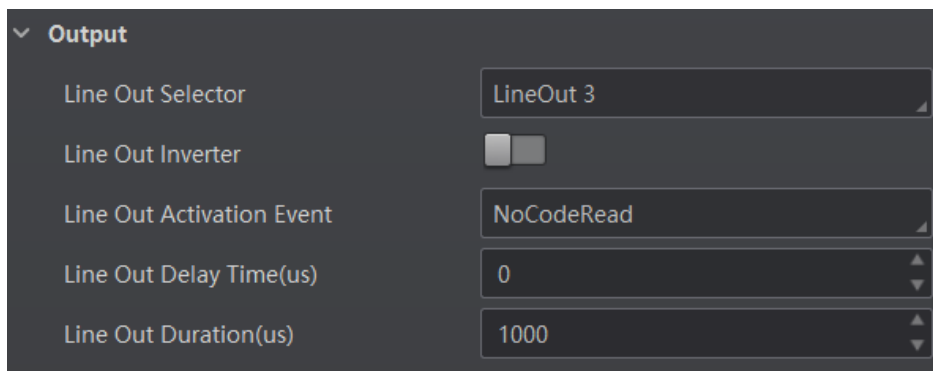
Note

- **Off** refers to no event source.
 - You need to set different parameters when selecting various event sources.
-

Select No Code Read

If you select **NoCodeRead** as **Line Out Activation Event**, you can set its output delay time and duration.

- **Line Out Delay Time:** It sets the delay time for outputting the output signal.
- **Line Out Duration:** It sets the time duration of the output signal.



Output	
Line Out Selector	LineOut 3
Line Out Inverter	☐
Line Out Activation Event	NoCodeRead
Line Out Delay Time(us)	0
Line Out Duration(us)	1000

Figure 9-13 Select No Code Read

Select Read Success

If you select **ReadSuccess** as **Line Out Activation Event**, you can set its output delay time and duration.

- **Line Out Delay Time:** It sets the delay time for outputting the output signal.
- **Line Out Duration:** It sets the time duration of the output signal.

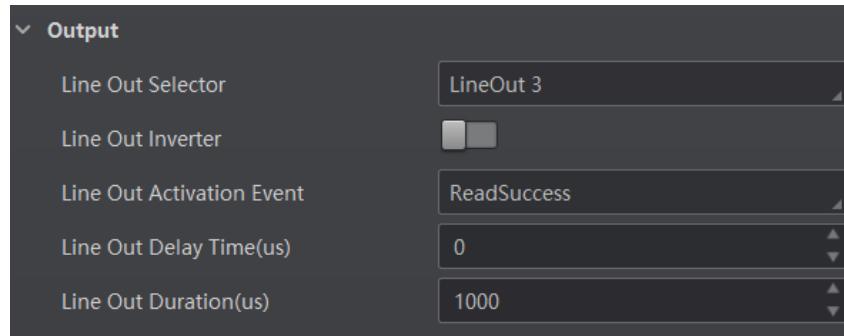


Figure 9-14 Select Read Success

9.5.3 Enable Line Inverter

The line inverter function allows the device to invert the electrical signal level of an I/O line, and meets requirements of different devices for high or low electrical signal level.

You can go to **I/O Control Settings** → **Output** → **Line Out Inverter** to enable it.

Note

The **Line Out Inverter** function is disabled by default.

9.6 Communication Settings

The communication protocol is used to transmit and output code reading result and image. The communication protocol is related to the device modes. With various device modes, the device supports different communication protocols and corresponding parameters.

- If the device's running mode is **Test** or **Raw**, the device only supports **SmartSDK** protocol and no parameter settings are required.
- If the device's running mode is **Normal**, the device supports **SmartSDK**, **TCP Client**, **Serial**, **FTP**, **TCP Server**, and **UDP** communication protocols, and you need to set corresponding parameters.

Note

- The supported communication protocols may differ by device models.
 - The specific parameters of communication protocols may differ by device models.
 - If you need communication command for reference, you can open the Communication Commands document by clicking **Help** → **Communication Matrix** on the top menu bar.
-

9.6.1 Set SmartSDK

If you select **SmartSDK** as the communication protocol, you can configure the following parameters:

Table 9-3 SmartSDK Communication Protocol

Parameter	Description
SmartSDK Protocol	If it is enabled, the device will output data via SmartSDK.
Encode JPG Flag	The device will compress images in JPG format after enabling it.
Quality of JPG	It sets the image compression quality, and it ranges from 50 to 99.

9.6.2 Set TCP Client

If you select **TCP Client** as the communication protocol, you can configure the following parameters:

Table 9-4 TCP Client Communication Protocol

Parameter	Description
TCP Protocol	If it is enabled, the device will output data via the TCP server.
TCP Dst Addr	Enter the IP address of the server that receives data output by the code reader.
TCP Dst Port	Enter the port No. of the server that receives data output by the code reader.
Heartbeat Enable	If it is enabled, the software will send heartbeat packet to the server at a fixed interval to check whether the information transmission is working properly.
Barcode as Heartbeat	If it is enabled, the code read by the software can be sent as heartbeat packets.
Heartbeat Text	Set the beginning and end of the heartbeat data. The value is heartbeat by default.
Heartbeat Time	Set the interval for sending heartbeat packets. If no heartbeat response is received within the configured time, the software will unoccupy the code reader.

9.6.3 Set Serial

If you select **Serial** as the communication protocol, you can configure the following

parameters:

Table 9-5 Serial Communication Protocol

Parameter	Description
Serial Protocol	If it is enabled, the code reader will output data via serial port.
Serial Baudrate	Set the baud rate of the serial port of the PC that receives data.
Serial Data Bits	Set the data bits of the serial port of the PC that receives data.
Serial Parity	Set the parity bits of the serial port of the PC that receives data.
Serial Stop Bits	Set the stop bits of the serial port of the PC that receives data.

9.6.4 Set FTP

If you select **FTP** as the communication protocol, you can configure the following parameters:

Table 9-6 FTP Communication Protocol

Parameter	Description
Output Result Buffer	If it is enabled, when the FTP server is abnormal, the device will cache the images. When the FTP server returns to normal, the device will send the cached images to the server. You can configure Output Result Buffer Number to determine the number of the images that the device will cache.
FTP Protocol	If it is enabled, the code reader will output data via FTP server.
FTP Host Addr	Set the IP address of the FTP host.
FTP Host Port	Set the port No. of the FTP host.
FTP User Name	Set the user name of the FTP.
FTP User PWD	Set the password of the FTP.

9.6.5 Set TCP Server

If you select **TCP Server** as the communication protocol, you can configure the following parameters:

Table 9-7 TCP Server Communication Protocol

Parameter	Description
TCP Server Enable	If it is enabled, the code reader will output data via TCP server.
TCP Server Port	Set the port No. of the TCP server that receives data outputted by code reader.

9.6.6 Set UDP

If you select **UDP** as the communication protocol, you can configure the following parameters:

Table 9-8 UDP Communication Protocol

Parameter	Description
UDP Protocol Enable	If it is enabled, the code reader will output data via User Datagram Protocol (UDP).
UDP Dst IP	Set the IP address of the PC that receives the output data.
UDP Dst Port	Set the port No. of the PC that receives the output data.

9.7 Data Processing Settings

In **Data Processing**, you can set filter rules for reading codes and other data processing related parameters.



Note

The specific parameters may differ by device models and firmware versions.

9.7.1 Set Filter Rule

You can set rules via **Filter Rule** to filter unwanted codes to improve the reading efficiency.

Normal Filter Mode

If the device's running mode is normal, trigger mode is on, filter mode is normal, you can set following parameters according to actual demands:

- **Instant Output Mode Enable:** If it is enabled, the device will output code data immediately once a code is read. If not enabled, the code data will be outputted after the device trigger process ends.
- **Min. Output Time(ms):** Define the minimum time duration (unit: ms) for data output. The duration starts from trigger time. Note: The parameter is only available when the running mode is set to Normal mode and the trigger mode is enabled.
- **Numeral Filter:** If it is enabled, the device will only parse and read the numeral contents of the barcodes, and the non-numeral contents will be filtered out.
- **Begin with Specific Character for Result:** If it is enabled, the device will only read the codes which begin with a specific character string.
- **Include Specific Character in Barcode:** If it is enabled, the device will only read the codes which include a specific character string.
- **Character:** Enter the character string.

- **Exclude Specific Character in Barcode:** If it is enabled, the device will only read the codes without a specific character string.
 - **Character:** Enter the character string.
 - **Max. Code Length:** If the length of a code is longer (in terms of the number of characters) than the configured value, the device will not parse the code.
For example, if you set the value to 9, the device will not parse the codes which contain more than 9 characters.
 - **Min. Code Length:** If the length of a code is shorter (in terms of the number of characters) than the configured value, the device will not parse the code.
For example, if you set the value to 6, the device will not parse the codes which contain fewer than 6 characters.
 - **Read Times Threshold:** If the reading results of a code is same for the configured times, the code will be regarded as valid and its data will be outputted. Or the code will be regarded as invalid and its data will not be outputted.
-

Note

The parameters, such as **Instant Output Mode Enable** and **Min. Output Time**, are only available when the running mode is set to Normal mode and the trigger mode is enabled.

Regular Expression Filter Mode

The device supports filtering codes via the regular expression.

Steps

1. Select **Regular Expression** as the **Filter Mode**, and click **Set** in **Regular Expression Filter** to enter regular expression filter settings window.
2. Import local files or add customized filter rules to set the regular expression.
 - Import local files: Click **Import** to import local .xml files, and click **OK** to finish.

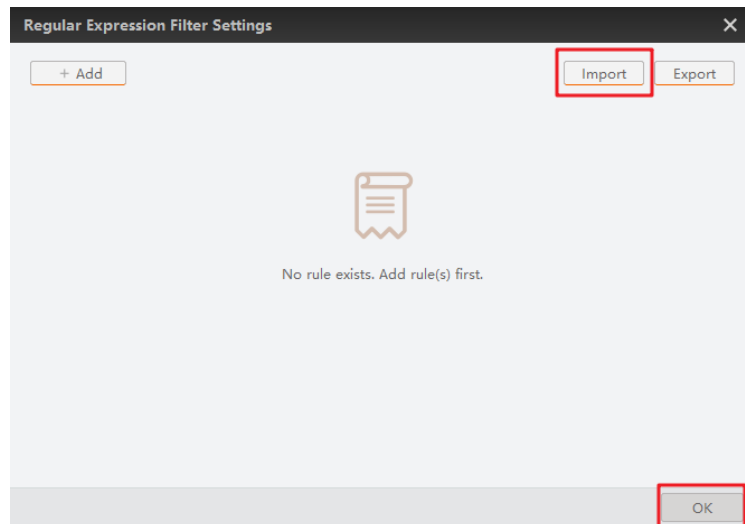


Figure 9-15 Regular Expression Filter Settings

- Add customized filter rule: Click **Add** and set related parameters in the popped-up window, and click **OK** after configuring parameters.

Figure 9-16 Customized Regular Expression Filter Rules

Table 9-9 Filter Rule Parameters

Parameter	Description
Rule Name	The default rule name is Rule 1, and you can edit it according to actual demands.
Length Limit	It sets the length range of the code, and its upper limit is 256.
Start With	It sets the specific starting characters of the code. You can use semicolon to separate if there are multiple characters.  Note If multiple characters are used, code meeting one of these characters is valid.
End With	It sets the specific ending characters of the code. You can use semicolon to separate if there are multiple characters.  Note If multiple characters are used, code meeting one of these characters is valid.
Not Start With	It excludes the specific starting characters of the code. You can use semicolon to separate if there are multiple characters.  Note If multiple characters are used, code meeting one of these characters is valid.

Parameter	Description
Not End With	It excludes the specific ending characters of the code. You can use semicolon to separate if there are multiple characters.  Note If multiple characters are used, code meeting one of these characters is valid.
Included	It sets the code with specific content. You can use semicolon to separate if there are multiple characters.  Note If multiple characters are used, code meeting all these characters is valid.
Excluded	It sets the code without specific content. You can use semicolon to separate if there are multiple characters.  Note If multiple characters are used, code meeting all these characters is valid.
Other Conditions	You can select uppercase, lowercase, or digit.

3. After setting filter rule, enter the code in **Code Check** to check if the filter rule is successful.

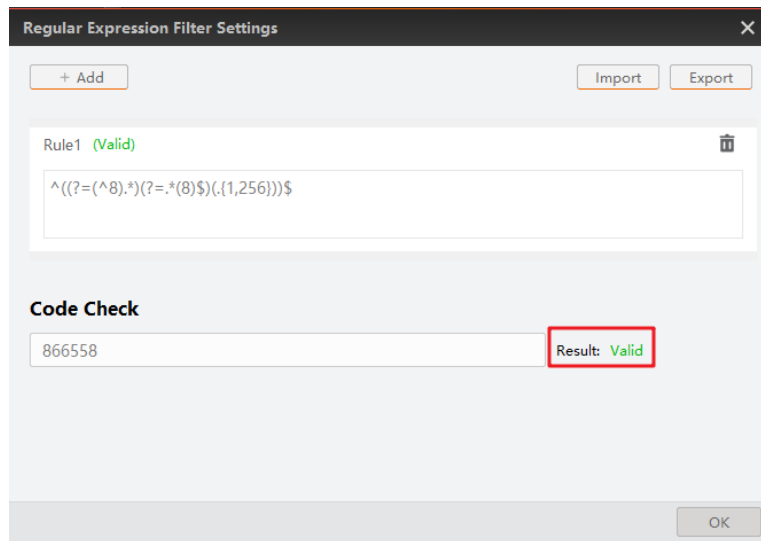


Figure 9-17 Code Check

 Note

If the filter rule you configured is correct, the result is valid. Otherwise, it is invalid.

4. (Optional) Click  to delete unwanted filter rules.
 5. (Optional) Click **Export** to export configured filter rules to local PC.
-

Note

The filter rule parameters of the regular expression may differ by device models and firmware versions.

9.7.2 Data Processing Settings

You can configure the contents contained in the output code information.

Note

- The actual parameters displayed may vary with different communication protocols. For details about communication settings, refer to section [Communication Settings](#).
 - The specific parameters and parameter order may differ by the device's running mode, trigger mode, device models and firmware versions.
-

SmartSDK

- **Sorting Rules:** Specify the sorting rules of output images. Multiple sorting rules are supported.
 - **One By One Enable:** If it is enabled, the device will send one piece of code information each time in accordance with the specified interval. You can set the interval via **One By One Interval** and the default value 100 ms.
 - **Local Save Picture Mode:** It includes **Off** and **NoRead**. You can select **NoRead** to let the device save images when no code is read.
 - **Local Picture Type:** It sets the image saving type, including JPEG and BMP.
 - **Local Override Strategy:** It includes **Off**, **Max Count**, **Loop Max Count**, and **Reserve Space**.
 - **Off** means that disk will not be overridden.
 - **Max Count** means that the device will save image quantity configured in **Local Override Max. Count**, and no more imaged will be saved when the disk is full.
 - **Loop Max Count** means that after the image quantity is reached the number configured in **Local Override Max. Count**, the device will delete the first image and continue to save the latest image.
 - **Reserve Space** means that the device will save images when the disk is safe in terms of storage space. If the available disk space is lower than configured value, and images will be deleted.
 - **Local Override Max. Count:** You need to set this parameter when selecting **Max Count** or **Loop Max Count** as **Local Override Strategy**.
 - **Local Picture Name Content:** It selects what contents you want to display in file name, including frame time, trigger No., and frame No.
 - **Local Time Format:** It selects a format type from the drop-down list for the time stamp
-

contained in the file name. Take YYYYMMDD_HHMMSSFFF as an example, (from the left to the right) YYYY represents year, MM represents month, DD represents date, HH represents hour, MM represents minute, SS represents second, and FFF represents millisecond.

- **Local Save Picture Strategy:** It sets the picture saving method. Four methods are available, including recently frame, all frames, range frames and specific frame. If specific frame is selected as **Local Save Picture Strategy**, you need to set **Local Picture Index**.

FTP

When the communication protocol is FTP, set the following parameters of data processing:

- **Sorting Rules:** It decides the output order of codes, and you can select it according to actual demands.
- **FTP Picture Name Format:** Click **Edit** to edit the output format of FTP picture name.

Note

You can select the formats or enter the formats in the preview box.

- **FTP Upload Directory String:** Click  to select device IP, Image, Year, Month, and Day.
- **FTP Upload Directory:** View the configured FTP upload directory. Data are separated by “/”.
- **FTP Picture OK/NG Directory:** After the function is enabled, the reading-succeeded pictures are saved in OK directory, and the reading-failed pictures saved in NG directory.

Note

If the function is disabled, all pictures are saved in one directory.

- **Local Save Picture Mode:** It includes **Off** and **NoRead**. You can select **NoRead** to let the device save images when no code is read.
- **Local Picture Type:** It sets the image saving type, including JPEG and BMP.
- **Local Override Strategy:** It includes **Off**, **Max Count**, **Loop Max Count**, and **Reserve Space**.
 - **Off** means that disk will not be overridden.
 - **Max Count** means that the device will save image quantity configured in **Local Override Max. Count**, and no more imaged will be saved when the disk is full.
 - **Loop Max Count** means that after the image quantity is reached the number configured in **Local Override Max. Count**, the device will delete the first image and continue to save the latest image.
 - **Reserve Space** means that the device will save images when the disk is safe in terms of storage space. If the available disk space is lower than configured value, and images will be deleted.
- **Local Override Max. Count:** You need to set this parameter when selecting **Max Count** or **Loop Max Count** as **Local Override Strategy**.

- **Local Picture Name Content:** It selects what contents you want to display in file name, including frame time, trigger No., and frame No.
- **Local Time Format:** It selects a format type from the drop-down list for the time stamp contained in the file name. Take YYYYMMDD_HHMMSSFFF as an example, (from the left to the right) YYYY represents year, MM represents month, DD represents date, HH represents hour, MM represents minute, SS represents second, and FFF represents millisecond.
- **Local Save Picture Strategy:** It sets the picture saving method. Four methods are available, including recently frame, all frames, range frames and specific frame. If specific frame is selected as **Local Save Picture Strategy**, you need to set **Local Picture Index**.
- **Output Retrans Enable:** If this parameter is enabled, the data is allowed to retransmit to FTP server, and you should set specific value in **Output Retrans Number**.

Note

If data retransmission is still failed after the times allowed for data retransmission is reached, the retransmission will be discarded.

- **FTP Transmission Conditions:** It sets the condition to upload the data outputted by the device to FTP server.
 - **All** refers to upload the data always.
 - **Read Barcode** refers to upload the data only when the barcode is read by the device.
 - **No Read Barcode** refers to upload the data only when no barcode is read by the device.
- **FTP Transmission Result Contain:** It selects contents to upload to the FTP server.
 - **Just Result** refers to only upload the content of the barcode.
 - **Just Picture** refers to only upload the barcode picture.
 - **Result and Picture** refers to upload both the content of the barcode and the picture.
- **FTP File Format:** It includes CSV, XLS, and TXT.
- **FTP File Content Configuration:** You can set FTP file content. Barcode type, trigger number, frame number, code reading time, and code reading content can be selected.
- **FTP Result File Content Configuration:** You can set FTP result file content. The <frame_num>, <trigger_num>, and <ftp_code_content> can be configured by default.
- **FTP NoRead String:** The string is output during NoRead customization, None by default.
- **FTP Time Format:** It selects a format type from the drop-down list for the time stamp contained in the file name. Take YYYYMMDD_HHMMSSFFF as an example, (from the left to the right) YYYY represents year, MM represents month, DD represents date, HH represents hour, MM represents minute, SS represents second, and FFF represents millisecond.
- **FTP Save Picture Strategy:** It sets the FTP picture saving method when no code is read. Four methods are available, including recently frame, all frames, range frames and specific frame. If specific frame is selected as **FTP Save Picture Strategy**, you need to set **FTP Picture Index**.
- **FTP Picture Index:** In a complete trigger process, if the barcode cannot be recognized, this parameter can be used to decide to output the image. When the parameter is set to

n, the nth image is output if the number of images is no less than n, or the last image is output if the number of images is less than n.

- **One By One Enable:** If it is enabled, the device will send one piece of code information each time in accordance with the specified interval. You can set the interval via **One By One Interval** and the default value 100 ms.
- **FTP NoRead Picture Classification:** You can select **WholeFrame** or **SingleFrame**.

Other Communication Protocols

When the communication protocol is TCP Client, Serial, or TCP Server, set the following parameters of data processing.

Note

Here we use “***” to represent the specific protocol name.

- **Sorting Rules:** Specify the sorting rules of output images. Multiple sorting rules are supported.
- **One By One Enable:** If it is enabled, the device will send one piece of code information each time in accordance with the specified interval. You can set the interval via **One By One Interval** and the default value 100 ms.
- **Local Save Picture Mode:** It includes **Off** and **NoRead**. You can select **NoRead** to let the device save images when no code is read.
- **Local Picture Type:** It sets the image saving type, including JPEG and BMP.
- **Local Override Strategy:** It includes **Off**, **Max Count**, **Loop Max Count**, and **Reserve Space**.
 - **Off** means that disk will not be overridden.
 - **Max Count** means that the device will save image quantity configured in **Local Override Max. Count**, and no more imaged will be saved when the disk is full.
 - **Loop Max Count** means that after the image quantity is reached the number configured in **Local Override Max. Count**, the device will delete the first image and continue to save the latest image.
 - **Reserve Space** means that the device will save images when the disk is safe in terms of storage space. If the available disk space is lower than configured value, and images will be deleted.
- **Local Override Max. Count:** You need to set this parameter when selecting **Max Count** or **Loop Max Count** as **Local Override Strategy**.
- **Local Picture Name Content:** It selects what contents you want to display in file name, including frame time, trigger No., and frame No.
- **Local Time Format:** It selects a format type from the drop-down list for the time stamp contained in the file name. Take YYYYMMDD_HHMMSSFFF as an example, (from the left to the right) YYYY represents year, MM represents month, DD represents date, HH represents hour, MM represents minute, SS represents second, and FFF represents millisecond.
- **Local Save Picture Strategy:** It sets the picture saving method. Four methods are available, including recently frame, all frames, range frames and specific frame. If

specific frame is selected as **Local Save Picture Strategy**, you need to set **Local Picture Index**.

- ***** Output Format:** Click  to select one or multiple items and click **Save**. The selected items will be displayed in the frame below. You can also enter more contents directly in the frame.

Table 9-10 Output Format Identifier

No.	Data	Identifier	No.	Data	Identifier
1	Code Content	<code_content>	11	Code Quantity	<code_num>
2	Code Type	<code_type>	12	Algorithm Time	<algo_time>
3	Angle	<code_angle>	13	PPM	<ppm>
4	Code Vertex coordinates	<code_vertex_pos>	14	Newline	<line_feed>
5	Code Center coordinates	<code_cen_pos>	15	Carriage Return	<carriage_return>
6	L-Side Angle of DM Code	<DMcode_L_angle>	16	Horizontal Tab	<horizontal_tab>
7	Trigger Start Time	<trig_start_time>	17	Vertical Tab	<vertical_tab>
8	Code Score	<code_eval_score>	18	Trigger No.	<trigger_num>
9	Mirror	<code_mirror>	19	Frame No.	<frame_num>
10	Code Quality Evaluation	<code_quality>			

- ***** Output NoRead Enable:** If this parameter is enabled, when no code is recognized, the device will output the content you set in ***** Output NoRead Text**.
- ***** Output NoRead Text:** When no code is recognized, the device will output the content you set here.

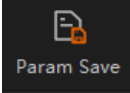
Note

The default content is **NoRead**.

- ***** Output Start Text:** The contents of the start part of the data outputted. You can set the contents according to actual condition.
- ***** Output Stop Text:** The contents of the end part of the data outputted. You can set the contents according to actual condition.
- ***** Output Barcode Enter Character Enable:** Whether to show carriage return character in the data.
- ***** Output Barcode Newline Character Enable:** Whether to show new-line character in the data.

9.8 User Set Customization

The Parameter Saving module allows you to set and manage the user set. A user set is a group of parameter values with all the settings needed to control the device, and you can save, load and switch different user sets.

Click  on the toolbar to add/load/delete user set.

Saving Settings

If you have set the device parameters as desired, you can save them into the user set. Go to **Param Save**, and click **User Set1/2/3** to save the current device settings.

Loading Settings

You can load the user set to restore the device to the saved group of parameter values again if required. Go to **Param Save**, and click **Default** or **User Set1/2/3** to load settings.

Note

The **Default** refers to restore the device parameter settings to the factory ones.

Adding/Deleting Settings

You can click  to add user set. Up to 8 user sets can be added.

You can select the user set to delete. **Default** or **User Set1/2/3** cannot be deleted.

Start Settings

The selected user set will be automatically loaded after the device being powered on. For example, if you select **Default**, the device parameter settings will be restored to the factory settings.

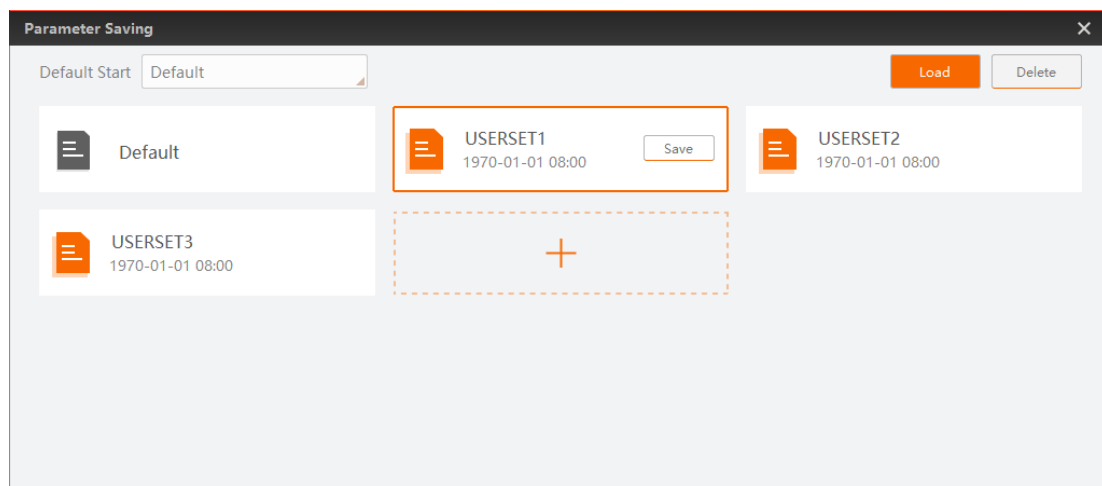
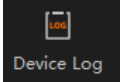


Figure 9-18 User Set Customization

Chapter 10 Device Maintenance

10.1 View Log

You can view the device logs and export them to the local PC.

Click  in the toolbar to open the device log window, and you can view different types of logs, including device errors, warning, and informational log, etc.

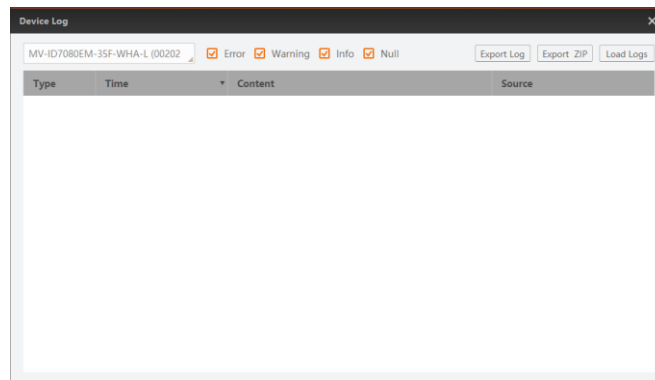


Figure 10-1 View Log

10.2 Update Firmware

There are two methods for firmware update.

Update via UDP

The device supports updating firmware via the client software.

Note

- Disconnect the device with client software.
 - Please use the firmware package of the corresponding device model for upgrading.
 - Do not power off the device or disconnect network during upgrading.
 - The device will restart automatically after the firmware is updated successfully.
-

Select the device to be updated in the device list, right-click the device, and click **Firmware Update**. Click  to select update file from local PC, and click **Update** to update firmware.

Note

You can also go to **Tool** → **Firmware Updater** to update firmware.

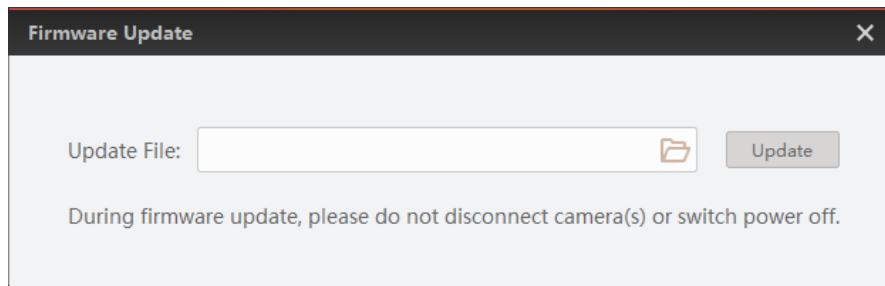


Figure 10-2 Update Firmware via UDP

Update via TCP

Note

Connect the device to client software first.

Select the device to be updated in the device list, right-click the device, and click **Firmware Update**. Click  to select update file from local PC, enter port No. of TCP update, and click **Update** to update firmware.

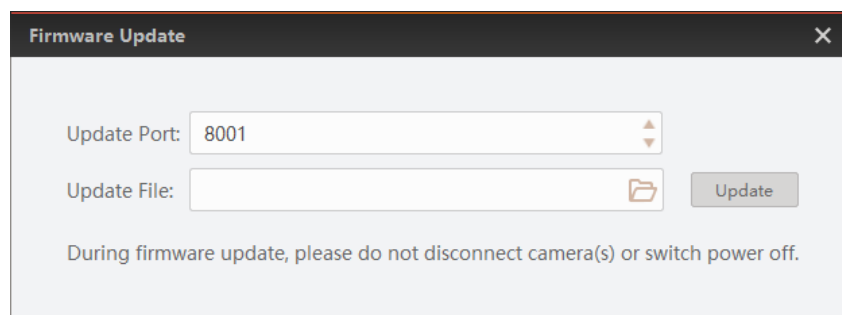


Figure 10-3 Update Firmware via TCP

10.3 Set NTP Time Sync

After enabling NTP time synchronization, the device will synchronize time according to the configured interval.

Steps

1. Go to **Device Control**, and enable **NTP Timing**.
2. Set parameters according to actual demands.

Note

Configure NTP server settings before using NTP time synchronization function.

3. Click **OK** after settings.

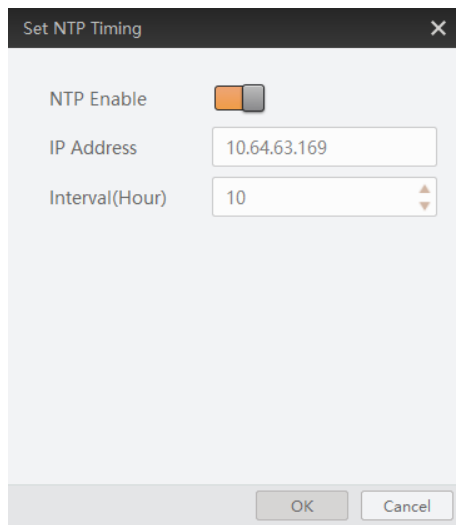


Figure 10-4 Set NTP Timing

10.4 Restart Device

You can restart the device via client software. Go to **Device Control**, and click **Device Reset**.

Chapter 11 FAQ (Frequently Asked Question)

11.1 Why there is no device listed after I run the IDMVS client software?

Table 11-1 Question 1

Possible Cause	Solution
The device is powered off.	Check the device's power connection to make sure the device is powered on normally.
Network exception occurs.	Check the network connection to make sure the device can be connected to the network normally.

11.2 Why the image is very dark?

Table 11-2 Question 2

Possible Cause	Solution
The lens aperture is not opened.	Open the lens aperture.
Too small value of exposure and gain.	Increase exposure and gain appropriately.

11.3 Why the image quality is very poor during the live view?

Table 11-3 Question 3

Possible Cause	Solution
The network may be Fast Ethernet.	Confirm whether the network transmission speed is 1 Gbps and NIC is the gigabit NIC, etc.
Incorrect jumbo packet settings.	Set jumbo packet value as 9 KB, or 9014 bytes.

11.4 Why there is no image in the live view?

Table 11-4 Question 4

Possible Cause	Solution
Trigger mode is enabled, but there is no trigger signal.	Send the trigger signal to the device, or disable the trigger mode.
Incorrect running mode settings, and no codes are recognized within the field of view.	Set the running mode as the test mode.

11.5 Why codes within the field of view cannot be recognized?

Table 11-5 Question 5

Possible Cause	Solution
Correct code types are not selected in the Algorithm Settings .	Go to Algorithm Settings , and select different types of codes according to actual demands.

11.6 Why the recognized codes are incomplete?

Table 11-6 Question 6

Possible Cause	Solution
Number of codes exceeds the limit.	Go to Algorithm Settings to reset the number of codes.
Numeral Filter is enabled.	Go to Data Processing → Filter Rule to disable the Numeral Filter function.
The code length is limited.	Go to Data Processing → Filter Rule to edit the code length.

Chapter 12 Revision History

Table 12-1 Revision History

Version No.	Date	Revision Details
V1.4.0	Apr. 20, 2026	Edit the overall structure and content.



HIKROBOT

SHAPE OUR FUTURE INTELLIGENTLY

Hikrobot Co., Ltd.

Tel: 400-989-7998

Website: <https://en.hikrobotics.com/>

UD46160B