ID800 Series Industrial Code Reader

User Manual

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

Symbol	Description
Danger	Indicates a hazardous situation which, if not avoided, will or could 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 ID2000 series industrial code reader.

Contents

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.
- 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.
- 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.

- 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.
- 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.
- It is strictly forbidden for non-professional technicians to detect signals during device operation, otherwise it may cause personal injury or device damage.
- 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.

Note

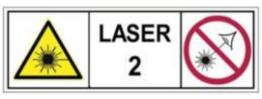
- Check whether the device's package is in good condition, whether there is damage, intrusion, moisture, deformation, etc. before unpacking.
- Check the surface of the device and accessories for damage, rust, bumps, etc. when unpacking.
- Check whether the quantity and information of the device and accessories 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.
- The device should not be placed with exposed flame sources, such as lighted candles.
- 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.
- Do not contact the device with strong acids, alkalis, oils, greases or organic solutions such as thinners.
- Do not expose the device directly to flashlights, high-frequency switch lighting devices, or to sunlight, which may affect the performance.
- Do not impose pressure on the cable end of the device, such as forced bending, pulling.

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.
- Make sure that the connector metal barrier of the device is well connected to the PC and other chassis, and if necessary, copper foil should be used to enhance the grounding effect.
- 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.

1.4 Laser Precaution

The device with 1.3 MP complies with IEC60825.1:2014 and GB7247.1:2012, and its laser safety class belongs to laser 2.



Other parameters regarding the laser information are as follows:

- Wavelength: 650 nm

- Beam Divergence Angle: 14.5° × 14.5°
- Repetitive Frequency: Solid
- Maximum Power: 3.8 mW

⚠Caution

- Do not look directly at the laser beam, and if necessary, adjust the direction of direct eye gaze or close your eyes for protection.
- Do not use optical instruments (such as telescopes, magnifier, etc.) to observe the laser beam.
- Do not place optical instruments (such as mirrors, etc.) within the irradiation range of the laser beam.
- Avoid shining the laser on highly reflective materials. If it is unavoidable, the angle of the reflective material should be adjusted to prevent damage caused by laser reflection.
- Turn off the laser when the device is not in use.
- Please use this device correctly and safely in accordance with the contents of this manual and the local standards and laws and regulations. Otherwise the operator may be exposed to the risk of injury, electric shock, or radiation from the laser.

Chapter 2 Overview

2.1 Introduction

The ID800 series industrial code reader adopts code reading algorithm and has good decoding capability for codes with spots, defects and low contrast radio, and clear DPM code. It can read different types of 1D codes and 2D codes in the scenario of light industry, enterprise, retail, etc., and output results rapidly.

2.2 Key Feature

- Compact design and small in size.
- Adopts code reading algorithm to read different types of 1D codes and 2D codes.
- Provides good robustness to read codes with spots, defects and low contrast radio.
- Adopts laser-aiming light to help aim codes.
- Adopts buzzer and status indicator for prompting the device's operation status.
- Supports multiple output modes of USB-HID, USB-CDC, RS-232, etc.

Note

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

Chapter 3 Appearance

Note

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

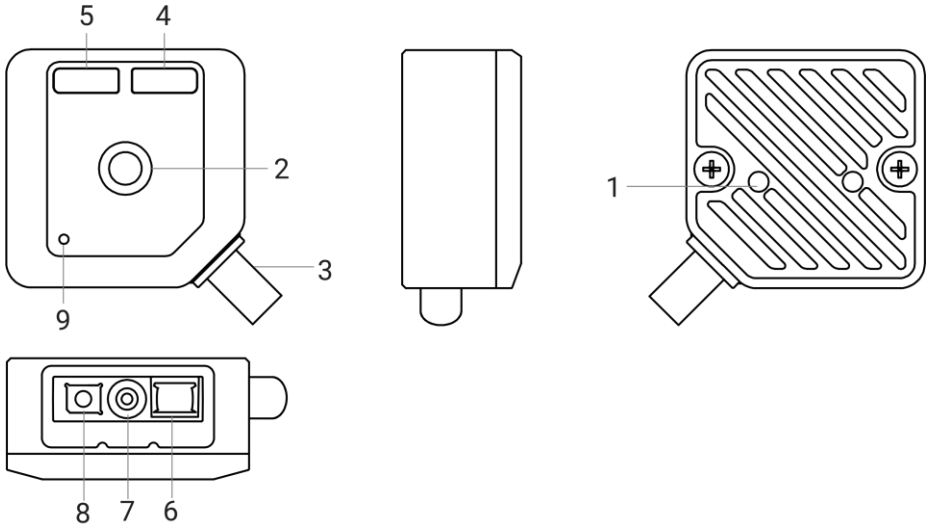


Figure 3-1 Appearance

Table 3-1 Component Description

No.	Name	Description
1	Screw Hole	It is used to fix the device to the installation position.
2	Button	It is used to trigger the device. When the device is in trigger mode, press the button and the device triggers once.
3	SR Cable	SR cable connector provides power, I/O, and serial port.
4	Status Indicator (OK/NG)	● It is in red color when the device starts up or or operation error occurs. ● It is unlit when the device operates normally without reading codes. ● It is in green color lasting 0.5 s when the device reads codes successfully, is solid green when the device reads codes continuously, and is in red color lasting 0.5 s when the device does not read codes. **Note** The specific function of the status indicator may differ by device firmware versions.

No.	Name	Description
5	PWR Indicator	It is a power indicator. The indicator is red during the device's power-on process. After the device is powered on, the indicator is green.
6	Light Source	It is the LED light source used to provide light when the device acquires images.
7	Sensor	It is used to acquire images.
8	Aiming Light	It helps to indicate the field of view and aim targets.
9	Buzzer	The buzzer beeps three times when the device is powered on, beeps twice when the device reads setting codes successfully, and beeps once when the device reads codes successfully.

Chapter 4 Connector and Cable

This section introduces the device's connector, including USB interface and RS-232 interface, and the supplied cable in the package.

4.1 Device with USB Interface

The device with USB interface has a cable with 10-pin RJ45 female connector. It is recommended to use the supplied cable, as shown below, in the package when using the device. The supplied cable has a RJ45 male connector for connecting the device, and a USB interface for connecting external devices.

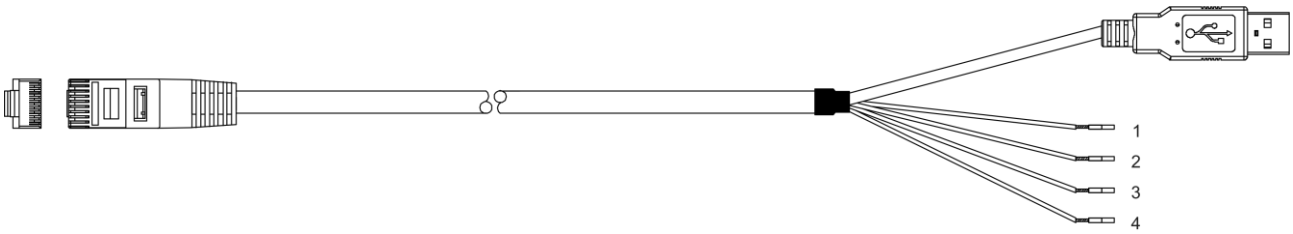


Figure 4-1 Cable for Device with USB Interface

The supplied cable also has four open lines with different colors, and you can wire them according to actual demands.

Table 4-1 Open Line Definitions

No.	Signal	I/O Signal Source	Description	Color
1	OPTO_OUT0	LineOut 3	Non-isolated Output	Brown
2	OPTO_IN0	LineIn 1	Non-isolated Input	Yellow
3	GPIO1	Line 2	It can be configured as input or output, and it is input by default.	Orange
4	GND	--	Direct Current Power Supply Ground	Black

4.2 Device with RS-232 Interface

The device with RS-232 interface has a cable with 10-pin RJ45 female connector. It is recommended to use the supplied cable, as shown below, in the package when using the device. The supplied cable has a RJ45 male connector for connecting the device, and a DB9 interface for connecting external devices.

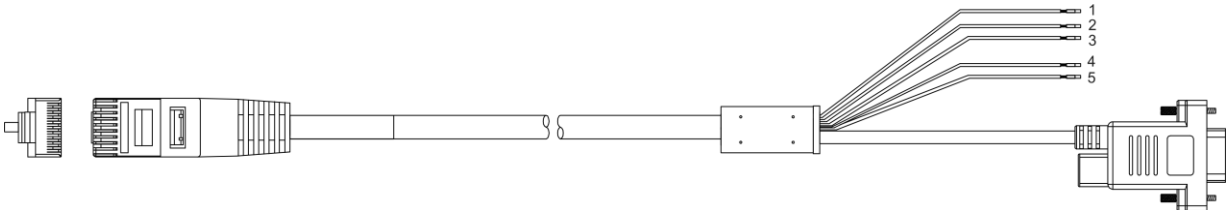


Figure 4-2 Cable for Device with RS-232 Interface

The supplied cable also has five open lines with different colors, and you can wire them according to actual demands.

Table 4-2 Open Line Definitions

No.	Signal	I/O Signal Source	Description	Color
1	OPTO_OUT0	LineOut 3	Non-isolated Output	Brown
2	OPTO_IN0	LineIn 1	Non-isolated Input	Orange
3	GPIO1	Line 2	It can be configured as input or output, and it is input by default.	Yellow
4	VCC	--	Direct Current Power Supply Positive	Red
5	GND	--	Direct Current Power Supply Ground	Black

Caution

You cannot use DB9 serial port and VCC of the open line to power the device at the same time. Otherwise, damaging to power supply may occur.

Chapter 5 Installation

5.1 Installation Preparation

You need to prepare following accessories before installation.

Table 5-1 Accessories

No.	Name	Quantity	Description
1	Cable	1	It refers to the supplied cable that is included in the package. Refer to section ***Connector and Cable*** for details.
2	Power Adapter or Switch Power Supply	1	You should select suitable power adapter or switch power supply according to the device power supply and consumption. You need to purchase separately.
3	Screw Package	Several	It refers to the supplied screws that are used to fix the device to the installation position.

5.2 Install Device

Before You Start

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

Caution

Device with USB data interface may have a risk if it uses power supply of USB2.0 500 mA, and it is recommended to use USB3.0 power supply.

Steps

1. Use supplied screws to fix the device to the installation position.
2. Use the supplied cable to wire the device according to pin definition mentioned in section ***Connector and Cable***.

- For the device with USB interface, insert RJ45 male connector of the cable into the device, and connect USB interface to external devices.
- For the device with RS-232 interface, insert RJ45 male connector of the cable into the device, and connect RS-232 interface to external devices.

Chapter 6 Device Connection

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

6.1 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 XP/7/10.
- You can contact local dealer to obtain the MVS client software. It is strongly 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**.

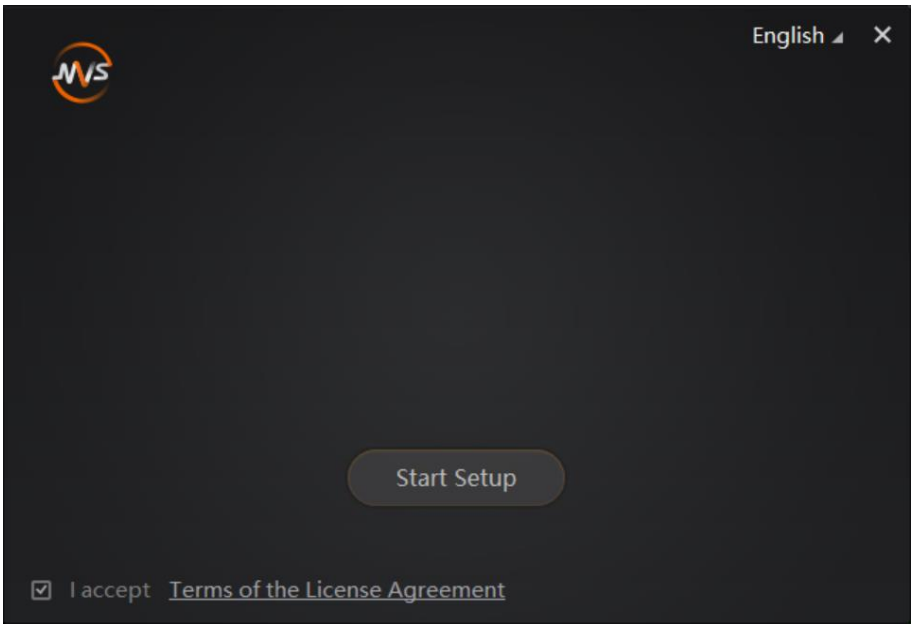


Figure 6-1 Installation Interface

6. 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. For the device with USB interface, you need to check the USB drive on the PC. After connecting the USB device to the PC, the Windows system will automatically detect a new hardware device and install its corresponding drive.
Go to **Device Manager** by either pressing Win+X or right-clicking on the Windows menu button, and locate and expand the **Network adapters** to check the drive.

Note

- You can use the drive management tool to reinstall the USB drive if the installation is failed.
- You can search the device with USB interface in **GigE** of **Device Connection**.

6.3 Connect Device to Client Software

Double click the device name in the device list, or click  to connect the device to the client.

Chapter 7 Basic Operation

7.1 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.

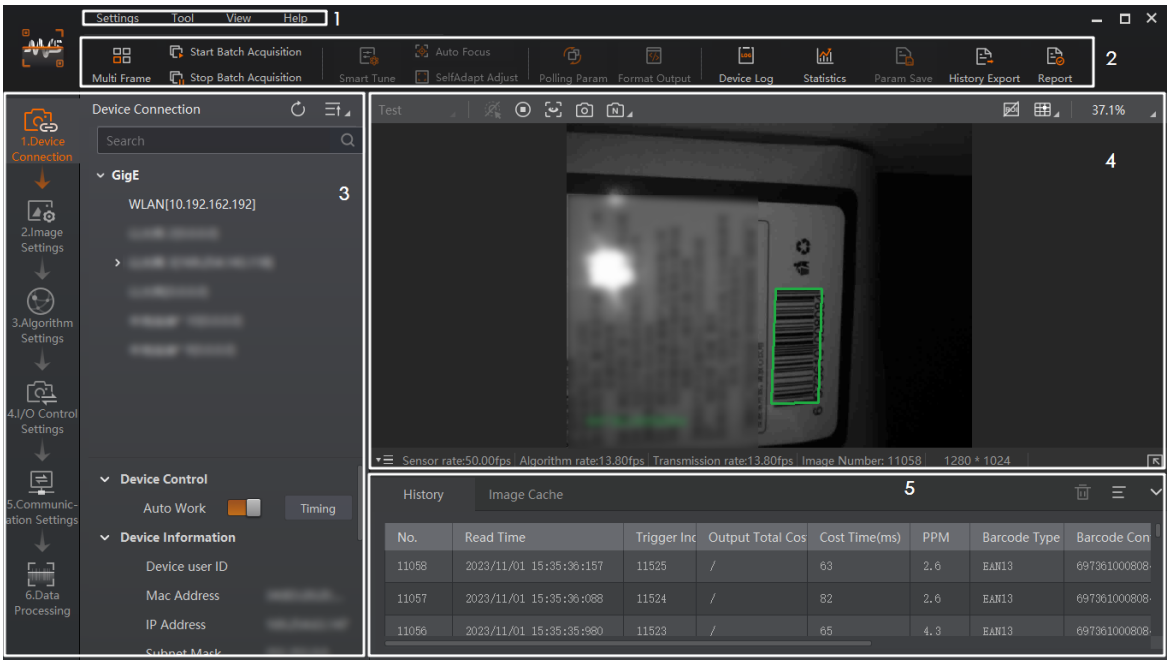


Figure 7-1 Main Window

Table 7-1 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, and quick access to tools such as Smart Tune, Auto Focus, and SelfAdapt Adjust.

No.	Name	Description
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. You can connect device(s) to the Software, manage devices by groups, and configure parameters related to image settings, algorithm settings, I/O control settings, communication settings, data processing, and configuration management.
4	Live View Window	Displays the live video of the selected device(s).
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 7-2 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 number, etc.
4	I/O Control Settings	You can set parameters related with input and output.
5	Communication Settings	You can select different communication protocols, and set parameters for output result.
6	Data Processing	You can set filter rule for output result.

7.2 Basic Operation

Steps

1. Go to the left corner of live view window, and select the operation mode.

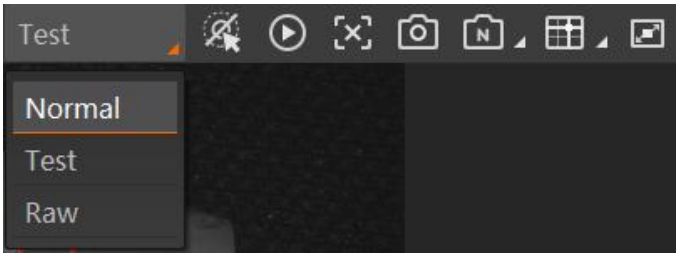


Figure 7-2 Select Operation Mode

Note

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

Table 7-3 Operation 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 7-3 Code Reading Effect

Note

If the effect is not very good, you can adjust related parameters like exposure time, gain, etc. in the **Image Settings** area.

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

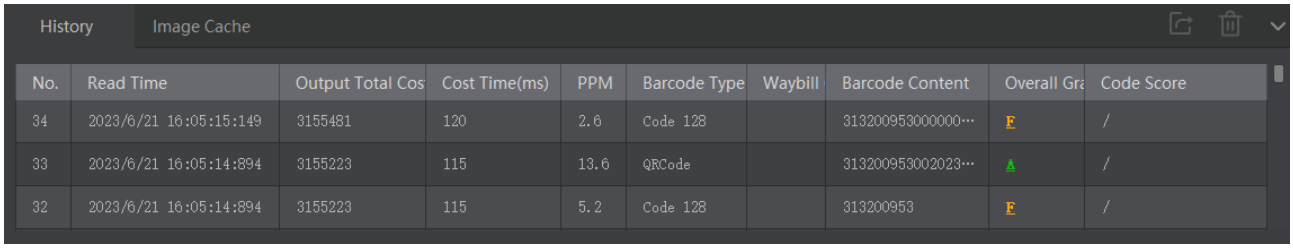


Figure 7-4 History Record

Chapter 8 Device Settings

8.1 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.

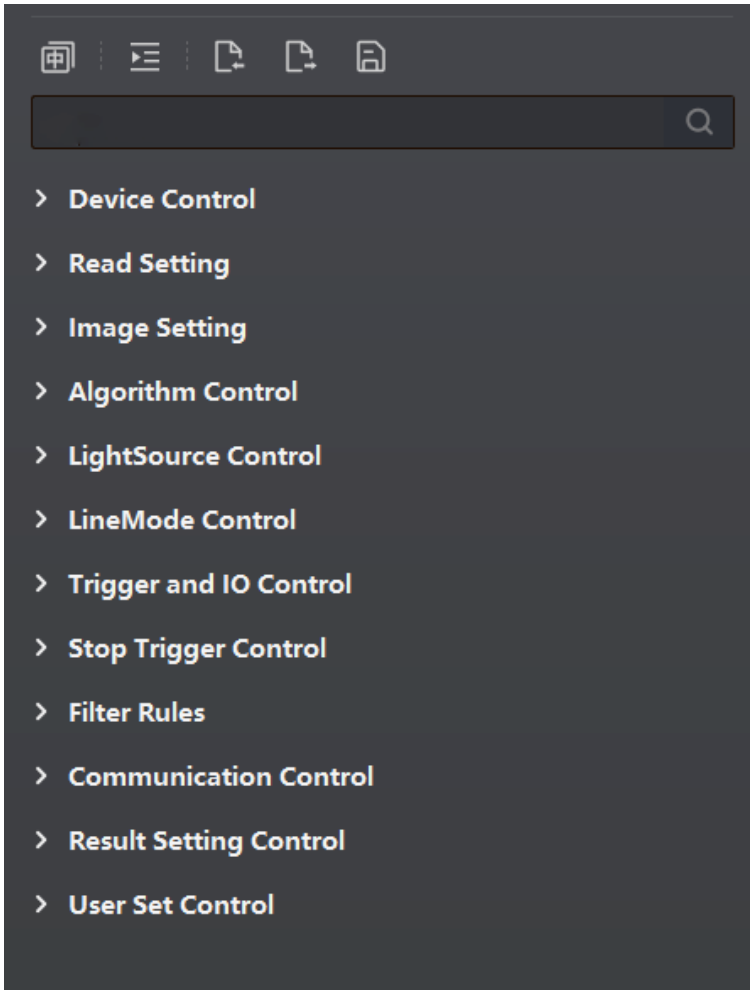


Figure 8-1 Feature Free

Table 8-1 Feature Tree Description

Name	Description
Device Control	It allows you to view the device's information, edit its name, etc.
Read Setting	It allows you to set the device's operation mode and select code types.
Image Setting	It allows you to set frame rate, exposure, gain, Gamma, etc.
Algorithm Control	It allows you to algorithm parameters.
Light Source Control	It allows you to set the light source's parameters.
Line Mode Control	It allow you to customize the specific line as input or output according to actual demands.
Trigger and IO Control	It allows you to set parameters of input and output.
Stop Trigger Control	It allows you to stop device trigger via TCP, UDP, I/O, serial port and USB. You can also set code reading timeout duration or max. code amount to be read to stop trigger.
Filter Rules	It allows you to set the filter rule of codes.
Communication Control	It allows you to set parameters related to different 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.

8.2 Code Reading Mode Settings

The device supports different code reading modes, including accurate mode and batch mode.

Steps

1. Right click the device in **Device Connection**, and click **Feature Tree**.
2. Go to **Trigger and IO Control** → **Accurate Mode Enable**, and enable **Accurate Mode Enable**.

Note

Enabling **Accurate Mode Enable** is accurate mode, and disable it is batch mode.

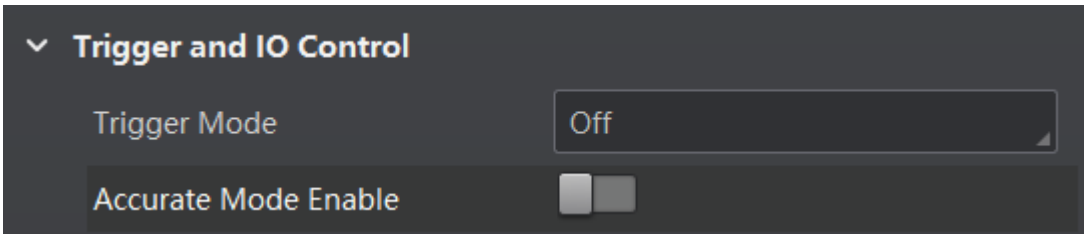


Figure 8-2 Code Reading Mode Settings

Table 8-2 Parameters Description

Code Reading Mode	Description
Accurate Mode	It reads codes containing the cross laser center in the code area only. The code reading process ends if codes are read successfully or the trigger switch is released.
Batch Mode	It can read multiple codes when the trigger switch is pressed. After code reading is finished, the result will be packaged and outputted. The code reading process ends if expected code quantity is reached or exceeded, code reading timed out, valid frame quantity is reached, or the trigger switch is released.

Note

The function of code reading mode may differ by device models.

8.3 Image Quality Settings

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

8.3.1 Set Image

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

Table 8-3 Set Image Parameters

Name	Description
Exposure Time	You can increase exposure time to improve image brightness. **Note** To some extent, increasing exposure time will reduce acquisition frame rate, and impact image quality.
Gain	You can increase gain to improve image brightness.

Name	Description
	Note To some extent, increasing exposure time will reduce acquisition frame rate, and affect image quality.
Gamma	Gamma allows you to adjust the image contrast. It is recommended to reduce Gamma to increase brightness in dark background.
Acquisition Frame Rate	Acquisition frame rate refers to the image number that is acquired by the device per second.
Acquisition Burst Frame Count	Acquisition burst frame count refers to the outputted image number when the device is triggered once.

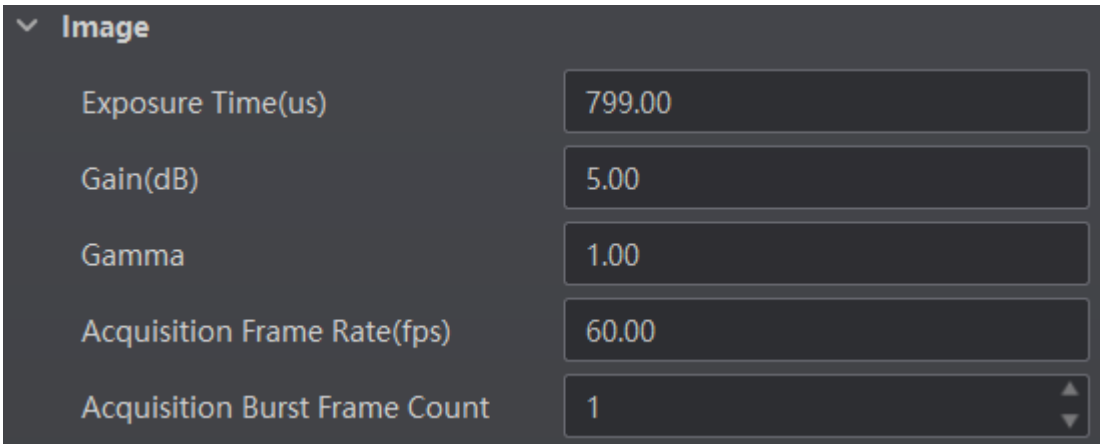


Figure 8-3 Set Image Parameters

8.3.2 Set Light Source

Light source control allows you to enable the device's aiming system and light source, and set related parameters according to actual demands.

Steps

1. Go to **Image Settings** → **Light**, and select **Light Flash Mode**.
2. (Optional) Enable **Laser Enable** to enable the device's aiming light.
3. (Optional) Enable **Laser Delay Enable**, and enter **Laser Delay Duration (ms)** to delay the disabled time of the laser after the device stops triggering.

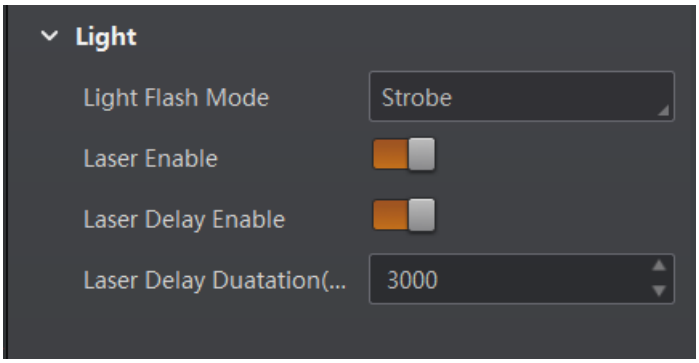


Figure 8-4 Set Light Source

8.3.3 Set Test Pattern

Test pattern helps troubleshooting image problems and images in the test pattern are only for test. When exceptions occur in images acquired by the device in real time, you can check if images in the test pattern have similar problems to determine the cause of an exception.

Note

- The test pattern is available in the test or raw operation mode.
- Specific parameters of this function may differ by device models.

Go to **Image Settings**, click **All Features**, find **Test Pattern** in **Other Features**, and set **Test Pattern** according to actual demands.

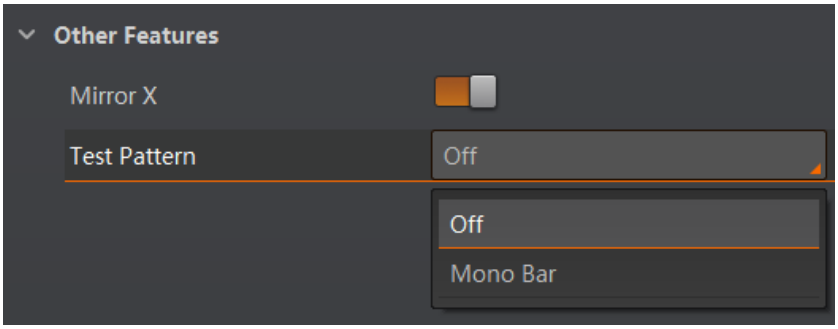


Figure 8-5 Set Test Pattern

8.4 Code Algorithm Settings

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

8.4.1 Add Code

Adding 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**, click **Add Barcode**, select types of codes to be read, and set the **1D Code Number**, **2D Code Number**, and **Stack Bar Number** according to actual demands.

Note

Selected symbology amount and added code amount 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.

8.4.2 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, and the full screen is the algorithm ROI by default.
- This function may differ by device models.

Draw Single Group of ROI

Steps

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

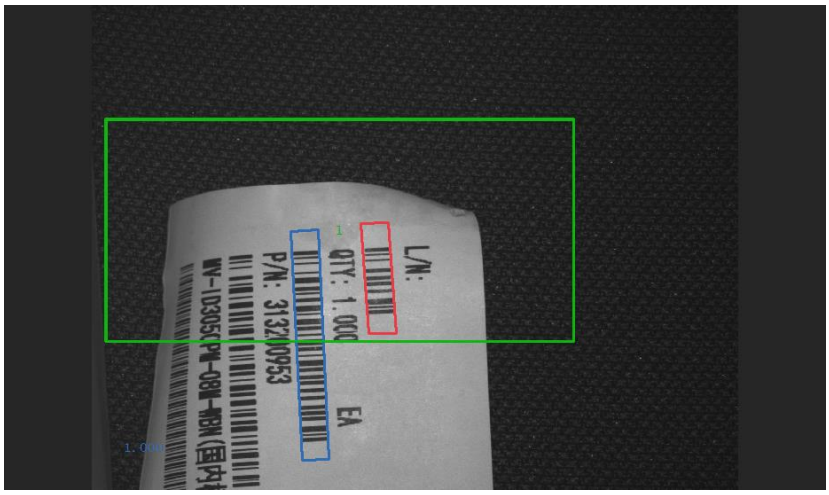


Figure 8-6 Draw ROI

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) Set other ROI parameters according to actual demands.
- **ROI Index**: It indicates different ROIs and ranges from 0 to 149 corresponds 1 to 150 ROIs.
- **Algo Region Left X**: It refers to the X coordinate of the upper left corner in algorithm ROI.
- **Algo Region Left Y**: It refers to the Y coordinate of the upper left corner in algorithm ROI.
- **Algo Region Width**: It refers to the width in algorithm ROI.
- **Algo Region Height**: It refers to the height in algorithm ROI.

5. (Optional) Click **Execute** in **Restore Max. Algorithm ROI** to restore the ROI to the full screen.
6. (Optional) Click **Execute** in **Clear All ROI** to delete all ROIs.

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.

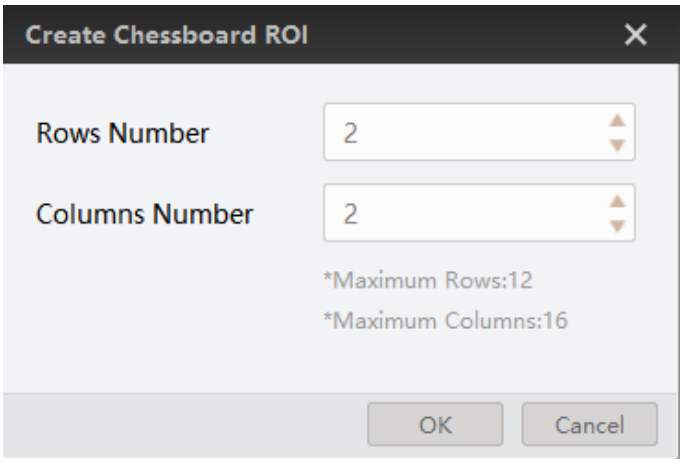


Figure 8-7 Create Chessboard ROI

3. Click ☑ after creating ROI, and the red frame becomes green as shown below.

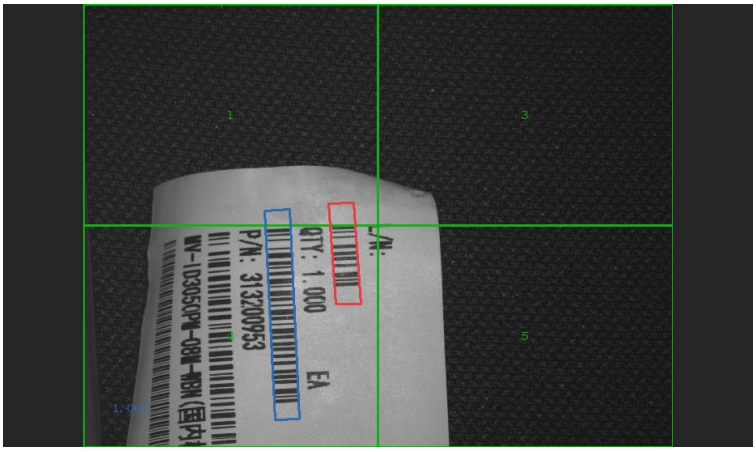


Figure 8-8 Draw ROI via Chessboard

4. (Optional) Click ⊞ to restore the ROI to full screen, and click ☒ to clean all ROIs.
5. Repeat other optional steps mentioned in drawing single group of ROI.

Note

The figures above are for reference only, and refer to the actual conditions.

8.4.3 Set Algorithm Parameter

In **Algorithm Parameter**, select **1DCode**, **2DCode** or **Stacked Code** as **Arithmetic Type**, and then you can set its corresponding 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.

- **Timeout Value**: Timeout value 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.
- **Code Color**: It defines the readable code color. **White Code On Black Wall** means that the client software can recognize the white code with black background. **Black Code On White Wall** means that the client software can recognize the black code with white background. **Adaptive** means that the client software can recognize both the black code with white background, and the white code with black background.
- **Code 39 Check**: Enable this parameter if Code 39 uses the parity bit.

Note

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

- **ITF 25 Check**: Enable this parameter if ITF 25 uses the parity bit.

Note

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

8.5 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.

8.5.1 Set Trigger Mode

The device has 2 types of trigger mode: Internal trigger mode and external trigger mode.
- **Internal Trigger Mode**: The device acquires images via its internal signals.
- **External Trigger Mode**: The device acquires images via external signals like software signal and hardware signal. The trigger source of external trigger mode includes software, physical lines, etc.

8.5.2 Enable Internal Trigger Mode

In the internal trigger mode, the device acquires images via its internal signals. You have 2 methods to enable the internal trigger mode:
- Click **I/O Control Settings** → **Input** → **Trigger Mode**, and select **Off** as **Trigger Mode**.
- In the live view page, click  to enable the internal trigger mode.

8.5.3 Enable External Trigger Mode

In the external trigger mode, the device acquires images via external signals like software signal and hardware signal. You have 2 methods to enable the external trigger mode:
- Click **I/O Control Settings** → **Input** → **Trigger Mode**, and select **On** as **Trigger Mode**.

- In the live view page, click  to enable the external trigger mode.

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.
5. (Optional) Enter **Auto Trigger Time**, and enable **Enable Auto Trigger** to let the client software automatically send trigger signal to device according to the interval you set.

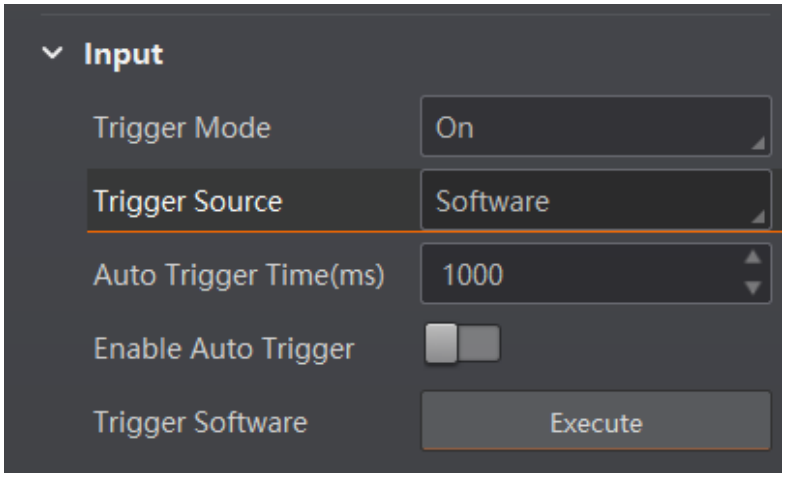


Figure 8-9 Set and Execute Software Trigger Mode

Set and Execute Hardware Trigger Mode

Steps

1. Click **I/O Control Settings** → **Input** → **Trigger Mode**.
2. Select **On** as **Trigger Mode**.
3. Select the specific line as **Trigger Source** according to actual demands.
4. Set **Start Delay Time**, **End Delay Time**, and **Trigger Activation** according to actual demands.

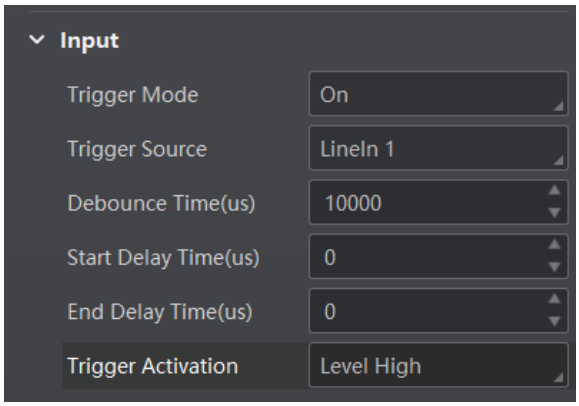


Figure 8-10 Set and Execute Hardware Trigger Mode

Set and Execute Serial Port Trigger Mode

Serial start specifies the serial port as the source for the trigger signal. When the serial port receives the specified string text, the trigger signal will be outputted.

Steps

1. Go to **I/O Control Settings** → **Input** → **Trigger Mode**.
2. Select **On** as **Trigger Mode**.
3. Select **Serial Start** as **Trigger Source**.
4. Set **Serial Baudrate**, **Serial Data Bits**, **Serial Parity**, and **Serial Stop Bits**.
5. Set **Serial Start Trigger Text** that configures the trigger text of serial port start, and it is **Start** by default.

Set and Execute Self Trigger Mode

Self trigger allows you to trigger the device according to the trigger period you configured.

Steps

1. Click **I/O Control Settings** → **Input** → **Trigger Mode**.
2. Select **On** as **Trigger Mode**.
3. Select **Self Trigger** as **Trigger Source**, set **Self Trigger Period** and **Self Trigger Count**.

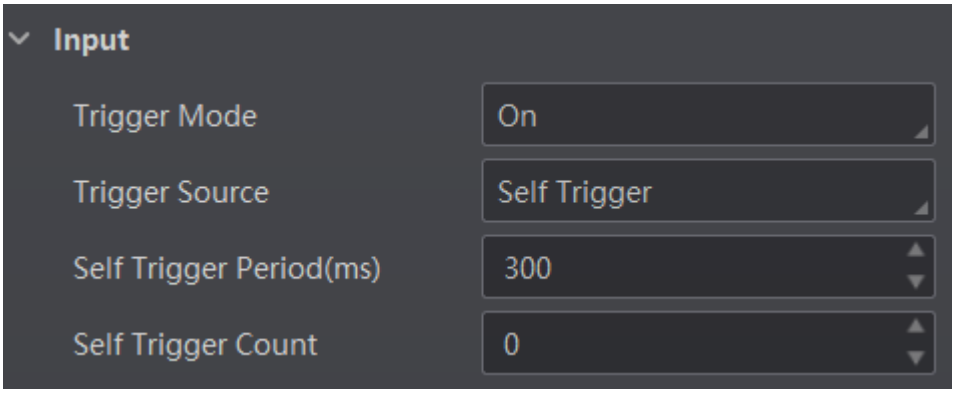


Figure 8-11 Set and Execute Self Trigger Mode

Note

- If the self-trigger count is set to 0, and it means that it can be triggered indefinitely until the execution of self-trigger stops.
- The self-trigger time shall be set to be greater than the reciprocal of the actual frame rate.

Set and Execute Response Tigger

Steps

1. Click **I/O Control Settings** → **Input** → **Trigger Mode**.
2. Select **On** as **Trigger Mode**.
3. Select **Response Trigger** as **Trigger Source**, and set **Trigger Sensitivity** accordingly.

8.5.4 Stop Trigger

The device supports stopping trigger via I/O and serial port. You can also set code reading timeout duration or max. code amount to be read to stop trigger. After stopping trigger is completed, the device cannot make response to trigger again.

Note

For specific stop trigger methods, refer to the actual device you got.

Stop Trigger via IO

Stopping trigger via IO allows you to select hardware or software trigger source to stop the device from acquiring images.

Steps

1. Go to **I/O Control Settings** → **Stop Trigger**.
2. Enable **IO Stop Trigger Enable**.
3. Select sources from **LineIn 1/2** and **Software Trigger End** as **IO Stop Trigger Selector**.
4. (Optional) Set trigger activation if **LineIn 1/2** is selected as **IO Stop Trigger Selector**.
5. (Optional) Click **Execute** in **Software Stop Trigger** to stop trigger if **Software Trigger End** is selected as **IO Stop Trigger Selector**.

Stop Trigger via Serial Port

When the specified serial port receives the specified string text, the trigger will be stopped.

Steps

1. Go to **I/O Control Settings** → **Stop Trigger**.
2. Enable **Serial Stop Trigger Enable**.
3. Set following parameters according to actual demands.

- **Serial Stop Trigger Text**: It sets the trigger text of serial port stop, and it is **Stop** by default.

- **Serial Baud Rate**: It sets the baud rate of the serial port, and it is 9600 by default.
- **Serial Data Bits**: It sets the data bits of the serial port, and it is 8 by default.
- **Serial Parity**: It sets the parity of the serial port, and it is **No Parity** by default.
- **Serial Stop Bits**: It sets the stop bits of the serial port, and it is 1 by default.

Stop Trigger via Timeout Duration

When the trigger time reaches the specified maximum value (ms), the trigger will be stopped. You can enable **TimeOut Stop Trigger Enable**, and set **Maximum Output Limited Time** according to actual demands.

Note

The range of **Maximum Output Limited Time** is between 0 ms and 10000 ms.

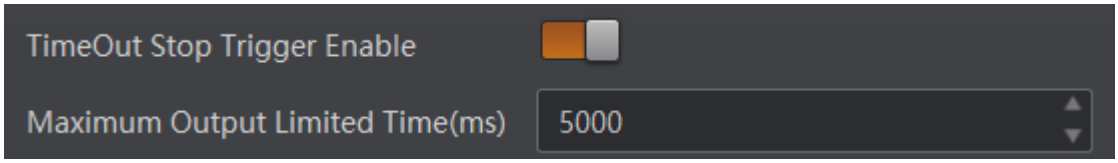


Figure 8-12 Stop Trigger via Timeout Duration

Stop Trigger via Code Number

This function means that the code quantity outputted by the device is restricted to the settings you configured here.
You can enable **CodeNum Stop Trigger Enable**, and set **CodeNum Stop Trigger Min** and **CodeNum Stop Trigger Max** according to actual demands.

Note

- If the outputted code quantity is smaller than configured **CodeNum Stop Trigger Min**, and the device will output codes continuously.
- If the outputted code quantity is smaller than configured **CodeNum Stop Trigger Max**, and the device will stop outputting codes.
- If the outputted code quantity is between configured **CodeNum Stop Trigger Min** and **CodeNum Stop Trigger Max**, and the device will read and output codes according to trigger signals.
- If **CodeNum Stop Trigger Min** is same with **CodeNum Stop Trigger Max**, and the device will stop outputting codes when the number of outputted codes reaches the configured number.

Figure 8-13 Stop Trigger via Code Number

8.6 Signal Output Settings

8.6.1 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.

Note

The specific output signals may differ by device models.

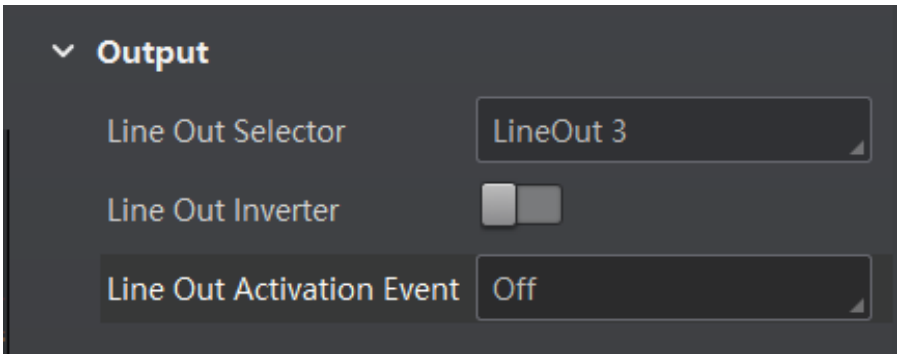


Figure 8-14 Select Output Signal

8.6.2 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.

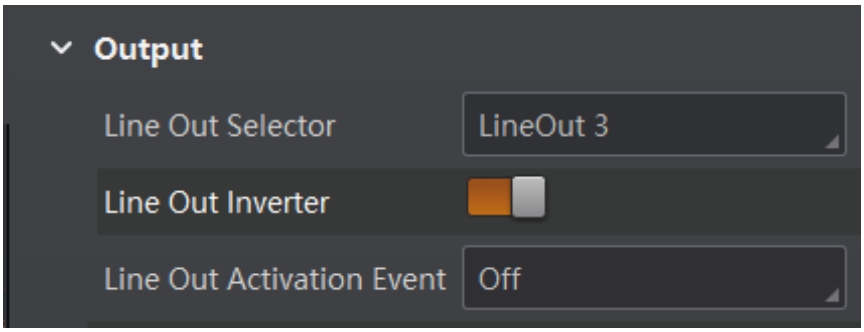


Figure 8-15 Enable Line Out Inverter

8.6.3 Set Event Source

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, including **Off**, **NoCodeRead**, and **ReadSucces**.

Note

- **Off** refers to no event source.
- The event source parameters may differ by device model.

- **No Code Read**: If no code read by the device, the output signal will be triggered.
- **Read Success**: If the code is read by the device, the output signal will be triggered.

Note

You need to set different parameters when selecting these event sources.

Select No Code Read

If you select **No Code Read** as **Line Out Activation Event**, and 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.

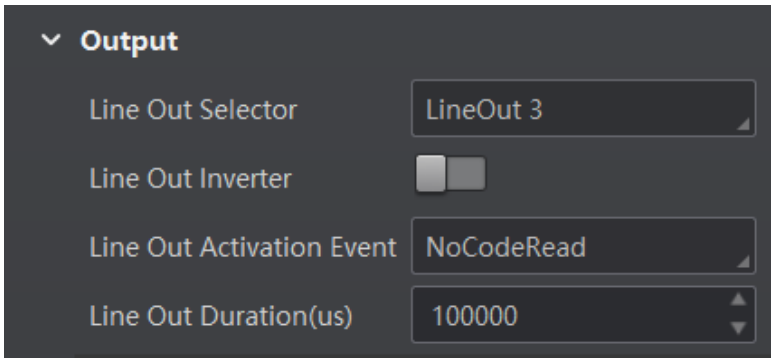


Figure 8-16 Select No Code Read

Select Read Success

If you select **Read Success** as **Line Out Activation Event**, and 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.

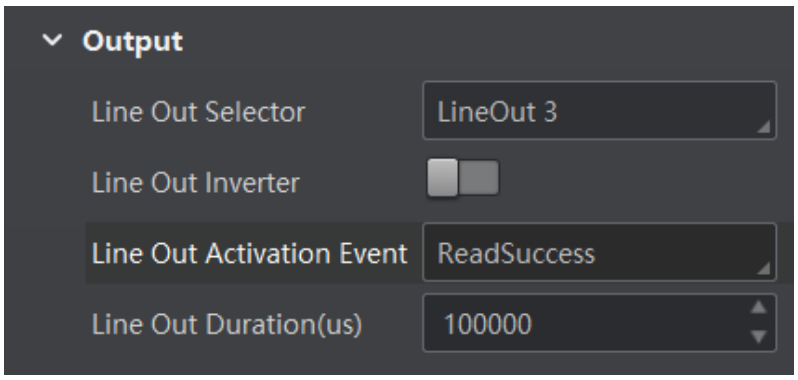


Figure 8-17 Select Read Success

8.6.4 Line Mode Control

Line mode control allows you to set the Line 2, a bi-directional I/O, as input or output according to actual demands. Go to **Line Mode Control**, and set **Input** or **Output** according to actual demands.

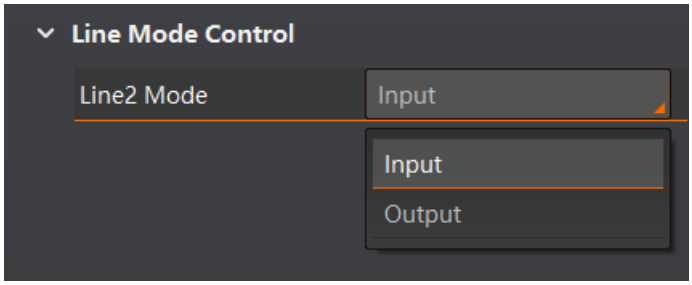


Figure 8-18 Set Line Mode

8.6.5 Set Buzzer

The buzzer is used to indicate the device's operation status, and you can set the buzzer function according to actual demands.

Steps

1. Right click the device in **Device Connection**, and click **Feature Tree**.
2. Go to **Trigger and IO Control→ Buzzer Enable**, and enable **Buzzer Enable**.

Note

After enabling **Buzzer Enable**, the buzzer beeps three times when the device is powered on, beeps twice when the device reads setting codes successfully, and beeps once when the device reads codes successfully.

3. Set **Buzzer Duration (ms)** and **Buzzer Frequency (hz)** according to actual demands.

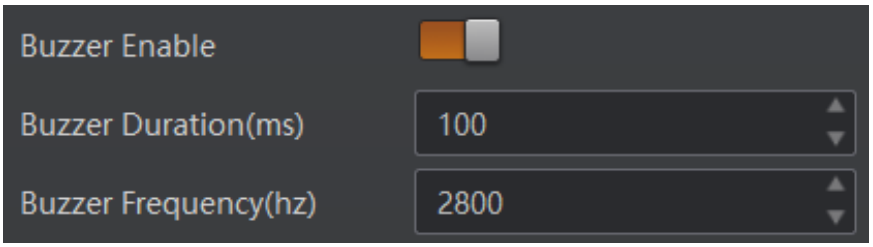


Figure 8-19 Set Buzzer

8.7 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 operation mode is **Test** or **Raw**, and it only supports **SmartSDK** protocol and no parameter settings are required.
- If the device's operation mode is **Normal**, and it supports **SmartSDK**, **Serial**, and **USB** communication protocols, and you need to set corresponding parameters.

Note

The specific parameters of communication protocols may differ by device models.

8.7.1 Set SmartSDK

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

parameters:

Table 8-4 SmartSDK Communication Protocol

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

8.7.2 Set Serial

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

Table 8-5 Serial Communication Protocol

Parameter	Description
Serial Protocol	If enabled, the code reader will output data via serial port.
Serial Baudrate	The baud rate of the serial port of the PC that receives data.
Serial Data Bits	Data bits of the serial port of the PC that receives data. **Note** The hexadecimal trigger is supported only when **Serial Data Bits** is 8.
Serial Parity	Parity bits of the serial port of the PC that receives data.
Serial Stop Bits	Stop bits of the serial port of the PC that receives data.

8.7.3 USB

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

Table 8-6 USB Communication Protocol

Parameter	Description
USB Enable	If enabled, the code reader will output data via USB.
USB Output	It sets the USB output mode, including CDC and HID.

8.8 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.

8.8.1 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 operation mode is normal, trigger mode is on, filter mode is normal, and you can set following parameters according to actual demands:

- **Instant Output Mode Enable:** If enabled, the device will output barcode data immediately once a code is read. If not enabled, the barcode data will be outputted after the device trigger process ends.

  Note

  The parameter is only available when the running mode is set to Normal mode and the trigger mode is enabled.

- **False Trigger Time Filter Enable:** After being enabled, if the actual time from trigger start time to trigger end time is smaller than configure false trigger max. time, the client software will filter contents without outputting due to false trigger.
- **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.

  Note

  The parameter is only available when the running mode is set to Normal mode and the trigger mode is enabled.

- **Min. Code Length:** If the length of a barcode is shorter (in terms of the number of characters) than the configured value, the device will NOT parse the barcode.
  For example, if you set the value to 6, the device will not parse the barcodes which contain fewer than 6 characters.

  Note

  The valid value of the parameter is from 1 to 256.

- **Max. Code Length:** If the length of a barcode is longer (in terms of the number of characters) than the configured value, the device will NOT parse the barcode.
  For example, if you set the value to 9, the device will not parse the barcodes which contain more than 9 characters.

Note

The valid value of the parameter is from 1 to 256.

- **Numeral Filter:** If 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:** enabled, the device will only read the barcodes which begin with a specific character string.
- **Begins with**: Enter the character string.
- **Include Specific Character in Barcode:** If enabled, the device will only read the barcodes which include a specific character string.
- **Character**: Enter the character string.
- **Exclude Specific Character in Barcode:** If enabled, the device will only read the barcodes without a specific character string.
- **Character**: Enter the character string.
- **Remove Duplicate By ROI**: If it is enabled, the device will filter information based on drawn ROIs.
- **Read Times Threshold:** If the reading results of a barcode is same for the configured times, the barcode will be regarded as valid and its data will be outputted. Or the barcode will be regarded as invalid and its data will not be outputted.
- **De-duplication Enable By Trigger**: If it is enabled, the repeated code information will be filtered within specific trigger times. You can set trigger times in **De-duplication Windows Size**, and its default value is 1.
- **De-duplication By ROI**: If it is enabled, the device will filter information based on drawn ROIs.
- **Code Start Offset Num**: It cuts the specific length of code contents from starting, and the remaining part will be outputted.
- **Code End Offset Num**: It cuts the specific length of code contents from ending, and the remaining part will be outputted.

Regular Expression Filter Mode

The device supports filtering codes via the regular expression.

Steps

1. Enable **Regular Expression Filter Enable**, 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.

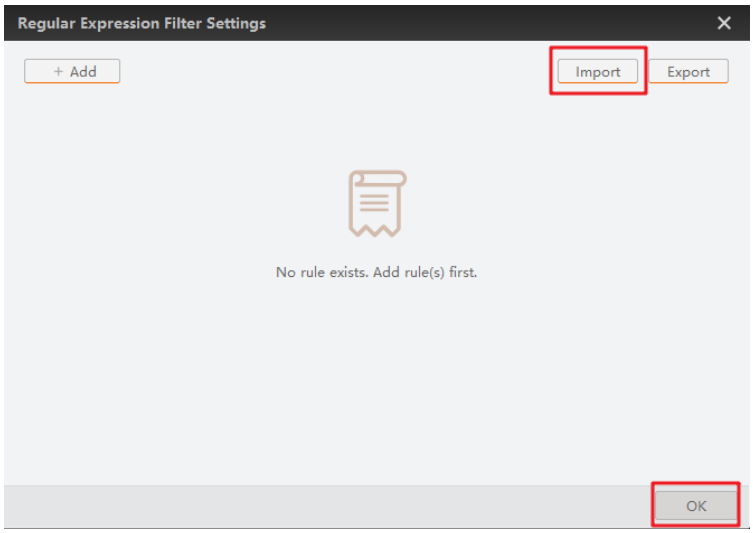


Figure 8-20 Regular Expression Filter Settings

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

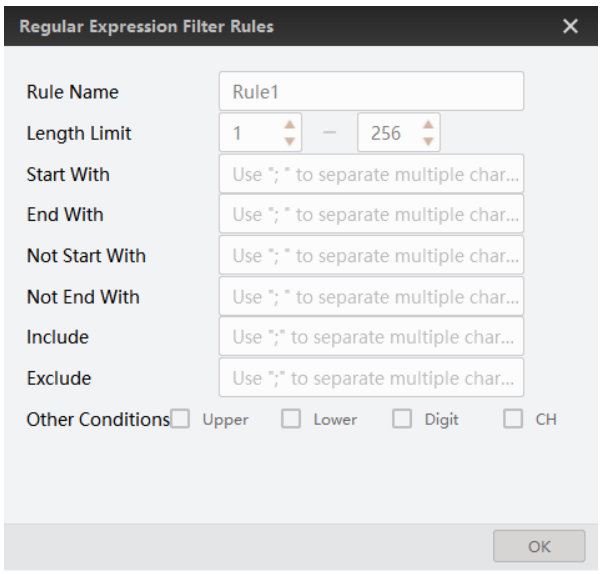


Figure 8-21 Enter Customized Regular Expression Filter Rules

Table 8-7 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 start with code. You can use semicolon to separate if there are multiple characters.

Parameter	Description
	Note If multiple characters are used, code meeting one of these characters is valid.
End With	It sets the specific end with 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 start with 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 End With	It excludes the specific end with 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, digit or Chinese.

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

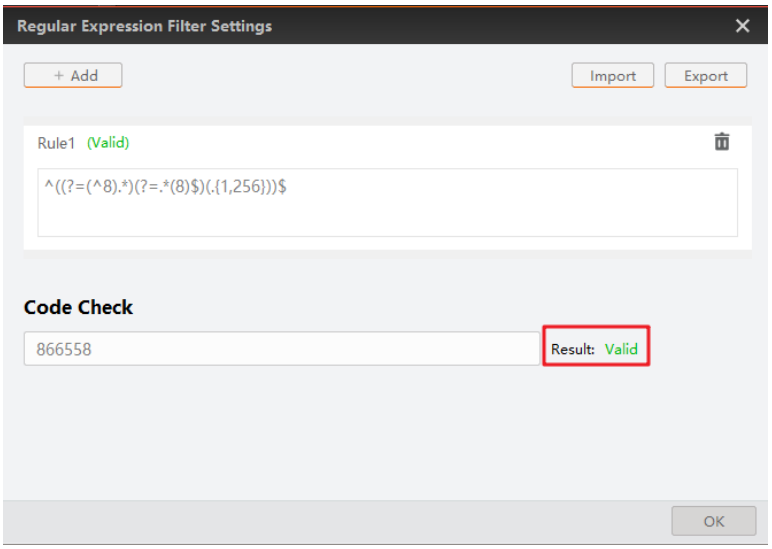


Figure 8-22 Code Check

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.

8.8.2 Data Processing Settings

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

Note

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

SmartSDK

NoRead Image Index: It sets the specific image that is outputted when no code information is read. For example, if you set this parameter as 5, and the 5th image will be output.

Serial and USB

When the communication protocol is Serial and USB, set the following parameters of data processing.

Note

Here we use "***" to represent the specific protocol name.

- *** **Format Check**: You should click **Execute** in **Profinet Format Check** to check if you entered is right in format, and the check result will be displayed in *** **Format Check Result**.
- **NoRead Image Index**: It sets the specific image that is outputted when no code information is read. For example, if you set this parameter as 5, and the 5th image will be output.
- *** **Output Noread Enable**: Enable this to set the default output content if no barcode is read during transmission. Edit the output text in **Output NoRead Text**.
- *** **Output Start Text**: The contents of the start part of the data outputted. You can set the contents as desired.
- *** **Output Stop Text**: The contents of the end part of the data outputted. You can set the contents as desired.
- *** **Output Barcode Enter Character Enable**: Whether to show input character in the data.
- *** **Output Barcode Newline Character Enable**: Whether to show new-line character in the data.

8.9 User Set Customization

Clicking **Param Save** in the control toolbar allows you to save, load and set default parameters.
The device supports four groups of user sets, including **User Set 1**, **User Set 2**, **User Set 3**, and **Default**.

- **Save**: If you have set the device parameters as desired, you can save them into the user set. Click **Save** in **User Set 1**, **User Set 2**, and **User Set 3** to save the current device parameter settings.
- **Load**: You can load the user set to the device. Click **Default**, **User Set 1**, **User Set 2**, or **User Set 3** to load settings.

Note

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

- **Default Start**: 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.

Note

Click **+** or **Delete** to add or delete user sets according to actual demands.

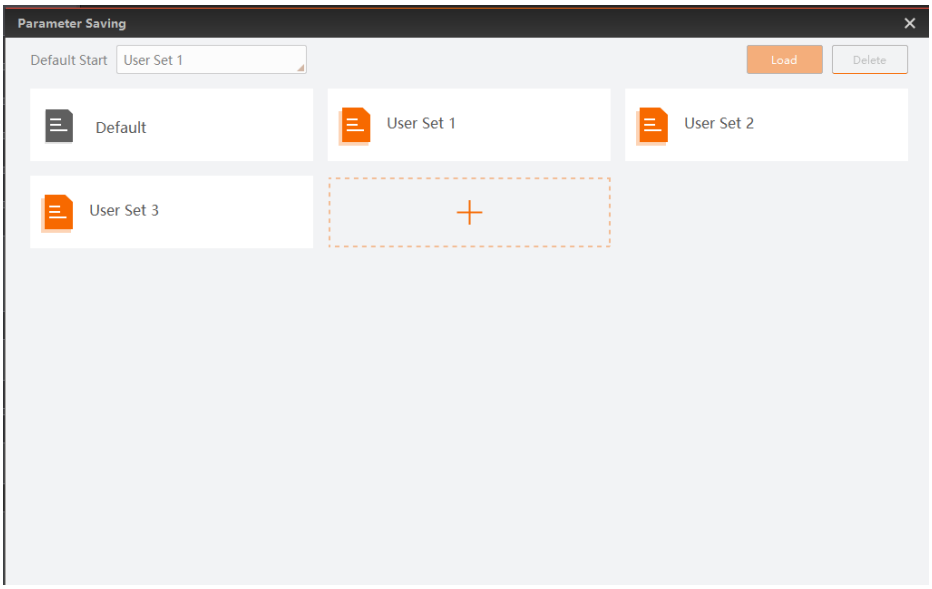


Figure 8-23 User Set Customization

Chapter 9 Device Maintenance

9.1 Update Firmware

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 reboot automatically after updating the firmware.

Steps

1. Select the device to be updated in the device list, and right click the device.
2. Click **Firmware Update**.
3. 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.

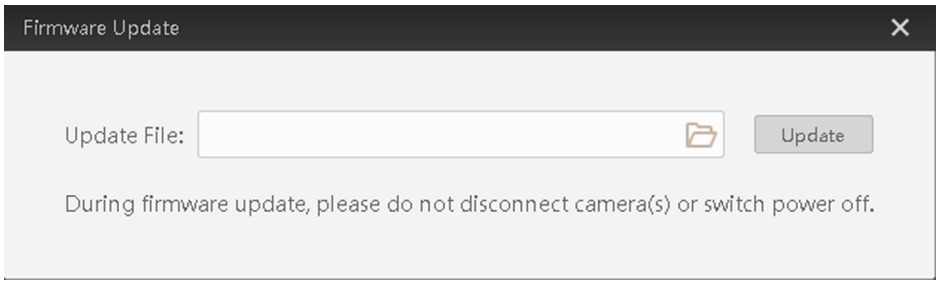


Figure 9-1 Update Firmware

9.2 View Log

You can view the device logs and export them to the local PC. Click 🗏 in control toolbar to open the device log window, and you can view different types of logs, including device errors, warning, and informational log, etc.

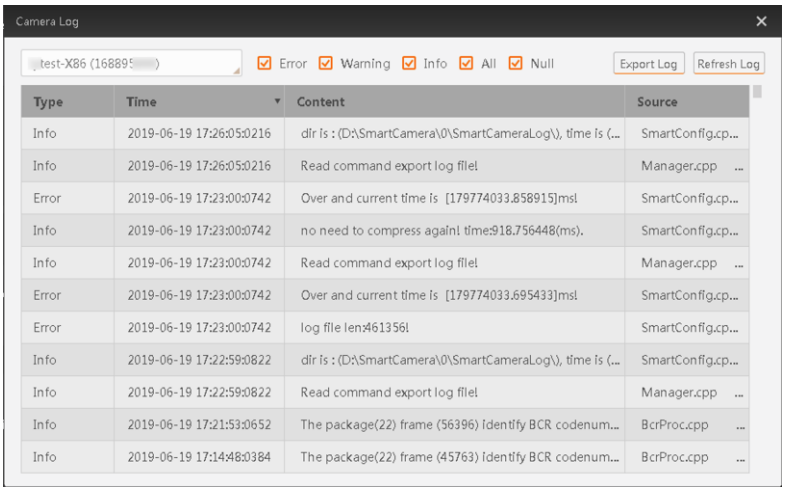


Figure 9-2 View Log

- Check the checkbox(es) to view the selected type of logs.
- Click **Export Log** to export the logs to the local PC.
- Click **Export ZIP** to export the logs as ZIP to the local PC.
- Click **Load Log** to refresh the logs.

9.3 Set Time

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

In **Device Control**, click **Timing** on the right of **Auto Work** to open the **Time Calibration** window, and select **Manual Timing** or **NTP Timing**.

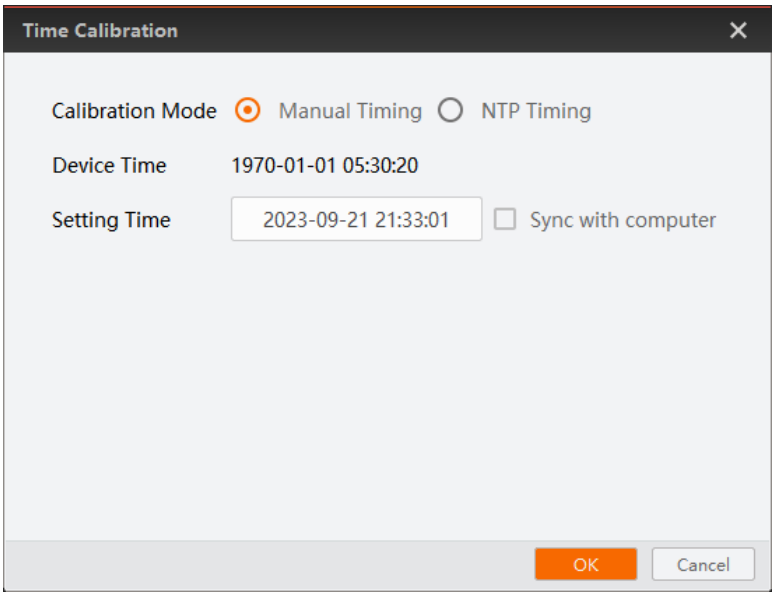


Figure 9-3 Manual Timing

Manual Timing

- **Device Time**: The current time of the device.
- **Setting Time**: The time you configured. If you check **Sync with computer**, the PC time will be synchronized to the device.

NTP Timing

The device time will be regularly corrected as the configured interval.

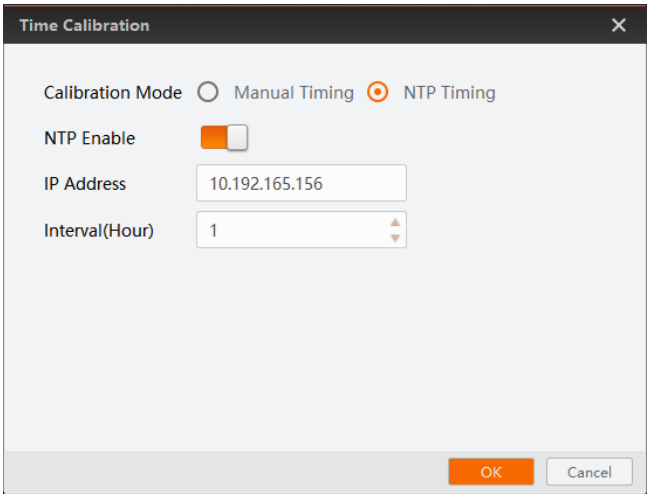


Figure 9-4 NTP Timing

- **NTP Enable**: When this parameter is enabled, the device time will be corrected according to the parameters you configure.
- **IP Address**: The IP address of the NTP server.
- **Interval**: The interval for correcting device time.

Note

By default, the port number of the NTP server is 123 and it cannot be changed.

9.4 Enable Device Auto Work

This function allows the device to automatically enter the operation status after being powered on. You can go to **Device Control** → **Auto Work**, and enable **Auto Work**.

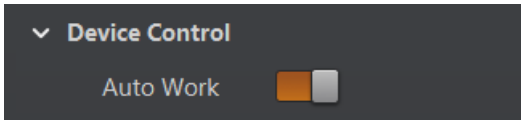


Figure 9-5 Enable Device Auto Work

9.5 Reset Device

You can reboot the device via client software in 2 ways. Go to **Device Control**, and click **Execute** in **Device Reset**. Or, you can select the device to be reset in the device list, right click the device, and click **Device Reset**.

Figure 9-6 Reset Device

Chapter 10 Setting Codes

10.1 Introduction

The device supports configuring parameters via reading special codes that are called setting codes. Here we introduce common setting codes.

Note

- Type VI and type VII devices support the function of setting codes.
- Before using other setting codes, you need to scan **Enable Setting Codes** first to activate the function of setting codes.

Figure 10-1 Setting Codes Introduction

Table 10-1 Device Mode Description

No.	Description
1	It is the code part of the setting code. After reading this part, the device can finish the corresponding parameter settings.
2	**stands for the default settings.
3	It is the content of setting codes.

Via reading setting codes, the device can set enable/disable settings, set code type, set quantity of code reading, set data processing, set aiming system, set light source, set serial port, etc.

10.2 Enable/Disable Setting Codes

Before using other setting codes, you need to scan **Enable Setting Codes** first to activate the function of setting codes. Scan **Disable Setting Codes** to exit setting codes function.

Table 10-2 Enable/Disable Setting Codes

Function	Setting Codes	Function	Setting Codes
Enable Setting Codes		Disable Setting Codes	

10.3 Set Setting Codes of Code Type

The device can be set what code type to be read via reading specific setting codes. Currently, the device supports Code 39, Code 93, Code 128, CodeBar, ITF 25, ITF 14, EAN 8, EAN 13, UPCA, UPCE, QR Code, Data Matrix, Micro QR, AZTEC, PDF 417, and Han Xin Code.

Note

The supported code types may differ by device models.

Table 10-3 Set Setting Codes of Code Type

Function	Setting Codes	Function	Setting Codes
Enable All 1D Codes		Disable All 1D Codes	
Enable All 2D Codes		Disable All 2D Codes	
Enable Code 39		Disable Code 39	

Function	Setting Codes	Function	Setting Codes
Enable Code 128		Disable Code 128	
Enable Code 93		Disable Code 93	
Enable CodeBar		Disable CodeBar	
Enable ITF 14		Disable ITF 14	
Enable ITF 25		Disable ITF 25	
Enable EAN 8		Disable EAN 8	

Function	Setting Codes	Function	Setting Codes
Enable EAN 13		Disable EAN 13	
Enable UCPA		Disable UCPA	
Enable UCPE		Disable UCPE	
Enable QR Code		Disable QR Code	
Enable Data Matrix		Disable Data Matrix	
Enable Micro QR Code		Disable Micro QR Code	

Function	Setting Codes	Function	Setting Codes
Enable AZTEC Code		Disable AZTEC Code	
Enable PDF 417		Disable PDF 417	
Enable Han Xin Code		Disable Han Xin Code	

10.4 Set Setting Codes of Code Color

The setting codes of code color include white code on black wall and black code on white wall.

Table 10-4 Set Setting Codes of Code Color

Function	Setting Codes	Function	Setting Codes
Black Code On White Wall		White Code On Black Wall	

Function	Setting Codes	Function	Setting Codes
Self-Adaptive		--	--

Note

- Code 128 and 2D codes can be recognized no matter what kind of code color is configured.
- PDF 417 of white code on black wall cannot be recognized if the code color is white code or self-adaptive.

10.5 Set Setting Codes of Code Reading Quantity

You can set the device's code reading quantity via scanning the specific setting codes as shown below.

Steps

1. Read setting codes of editing quantity of code reading.

Figure 10-2 Edit Quantity of Code Reading

2. Read the corresponding digital codes according to actual demands.

Note

- The quantity of code reading is related with code reading mode.
- If the code reading mode is batch mode and the quantity of code reading is smaller than or equal to 21, you should scan the digital code of tens digit first, and then scan the single digit. If the quantity of code reading is single digit, the digital code of tens digit is 0. For example, if the quantity of code reading is 12, scan the digital code of 1 first, and then scan 2.
- If the code reading mode is continuous mode, the quantity of code reading is not limited. You should scan the digital code in the first place, and then scan the digital code in the

second place, etc. For example, if the quantity of code reading is 530, scan 5 first, and then 3, and 0 at last.

3. Read the setting codes of saving to save the parameter settings.

Figure 10-3 Setting Codes of Saving

Table 10-5 Digital Codes

Function	Setting Codes	Function	Setting Codes
Digital Code 0		Digital Code 1	
Digital Code 2		Digital Code 3	
Digital Code 4		Digital Code 5	
Digital Code 6		Digital Code 7	

Function	Setting Codes	Function	Setting Codes
Digital Code 8		Digital Code 9	

10.6 Set Setting Codes of Data Processing

You can set the device's outputted code results via scanning the specific setting codes as shown below.

Steps

1. Read setting codes of enabling prefix or suffix.

Table 10-6 Setting Codes of Enabling Prefix or Suffix

Function	Setting Codes	Function	Setting Codes
Enable Prefix		Disable Prefix	
Enable Suffix		Disable Suffix	

2. Read setting codes of editing prefix or editing suffix.

Table 10-7 Setting Codes of Editing Prefix or Suffix

Function	Setting Codes	Function	Setting Codes
Edit Prefix		Edit Suffix	

Table 10-8 Setting Codes of Data Processing

Function	Setting Codes	Function	Setting Codes
Enable Stop Text		Disable Stop Text	
Edit Stop Text		--	--

3. Read the setting codes of saving to save the parameter settings.

Figure 10-4 Setting Codes of Saving

10.7 Set Setting Codes of Aiming System

The aiming system is used to locate codes in the field of view to help read codes easily. The setting codes of aiming system can enable, disable, delay or set delay time of the aiming system.

Table 10-9 Set Setting Codes of Aiming System

Function	Setting Codes	Function	Setting Codes
Enable Aiming System		Disable Aiming System	

Function	Setting Codes	Function	Setting Codes
Enable Aiming System Delay		Disable Aiming System Delay	
Set Delay Time 1 s		Set Delay Time 2 s	
Set Delay Time 5 s		Set Delay Time 10 s	

10.8 Set Setting Codes of Light Source

The setting codes of light source can enable or disable the light source, set polling interval, etc. After enabling **Light Polling**, you can let red and while light sources polling alternately in accordance with configured interval when code reading succeeds or before ending trigger.

Note

- By default, the polling interval is 2 s.
- The supported setting codes of light source may differ by device models.

Table 10-10 Set Setting Codes of Light Source

Function	Setting Codes	Function	Setting Codes
Enable White Light		Disable White Light	

10.9 Set Setting Codes of Buzzer

The setting codes of buzzer can enable or disable the buzzer function, set its duration, etc.

Note

The supported setting codes of buzzer may differ by device models.

Table 10-11 Set Setting Codes of Buzzer

Function	Setting Codes	Function	Setting Codes
Enable Buzzer When Reading Codes		Disable Buzzer When Reading Codes	
Set Buzzer Duration 50 ms When Reading Codes		Set Buzzer Duration 100 ms When Reading Codes	
Set Buzzer Duration 150 ms When Reading Codes		--	--

10.10 Set Setting Codes of USB Communication

The setting codes of USB communication can enable or disable the USB communication function, set baud rate, etc.

Note

Only the USB type device supports the USB communication.

Table 10-12 Set Setting Codes of USB Communication

Function	Setting Codes	Function	Setting Codes
Enable USB Communication		Disable USB Communication	
USB HID Communication Mode		USB CDC Communication Mode	

10.11 Set Setting Codes of Serial Port

The setting codes of serial port can enable or disable serial port function, set the baud rate, parity bit, and stop bit.

Note

Only the fast Ethernet type device supports serial port function.

Table 10-13 Set Setting Codes of Serial Port

Function	Setting Codes	Function	Setting Codes
Enable Serial Port Function		Disable Serial Port Function	
Set Baud Rate as 4800		Set Baud Rate as 9600	

Function	Setting Codes	Function	Setting Codes
Set Baud Rate as 19200		Set Baud Rate as 38400	
Set Baud Rate as 57600		Set Baud Rate as 115200	
Set None Parity		Set Odd Parity	
Set Even Parity		Set Stop Bit 1	
Set Stop Bit 2			

10.12 Set Setting Codes of Sending Device Information

The device can send its information to the PC via reading specific setting codes, and the device information includes name, version, algorithm version, hardware version, serial number, etc.

Table 10-14 Set Setting Codes of Sending Device Information

Function	Setting Codes	Function	Setting Codes
Send Device Name		Get Device Version	
Get Hardware Version		Get Algorithm Version	
Get Serial Number		--	--

10.13 Set Setting Codes of Trigger

The setting codes of trigger can let the device switch the trigger mode, including pressing trigger switch, self-trigger, response trigger, and support disabling trigger mode.

Table 10-15 Set Setting Codes of Trigger

Function	Setting Codes	Function	Setting Codes
Disable Trigger Mode		Response Trigger	

Function	Setting Codes	Function	Setting Codes
Self-Trigger		Auto Run	
High Sensitivity		Middle Sensitivity	
Low Sensitivity		--	--

10.14 Set Setting Codes of Management

The setting codes of management can save or initialize user parameters, and restart the device.

Table 10-16 Set Setting Codes of Management

Function	Setting Codes	Function	Setting Codes
Save		Initialize User Parameters	

Function	Setting Codes	Function	Setting Codes
Restart Device		--	--

Chapter 11 I/O Electrical Feature and Wiring

The device's LineIn 1 is non-isolated input signal, and LineOut 3 is non-isolated output signal, and Line 2 is bi-directional I/O signal.

11.1 I/O Electrical Feature

11.1.1 Non-isolated Input Circuit

The internal circuit of other devices' non-isolated input signal is as follows. The pull-up resistor of the input signal is 4.7 KΩ.

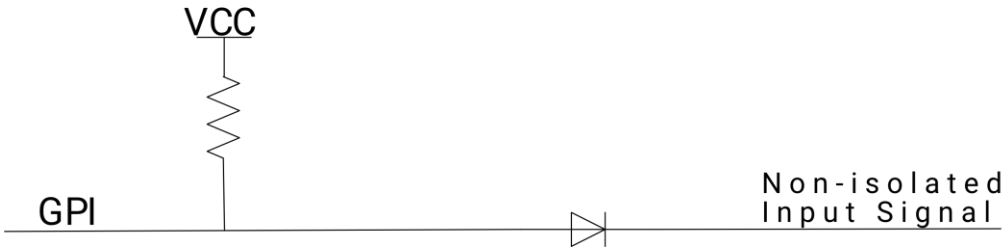


Figure 11-1 Internal Circuit of Input Signal

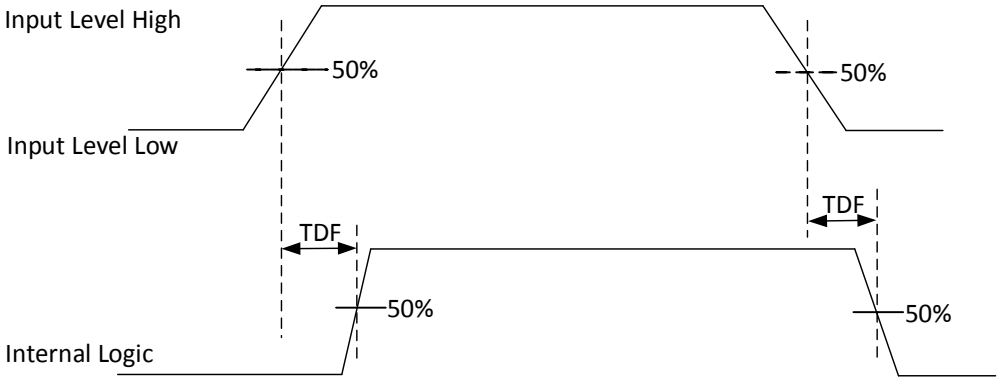


Figure 11-2 Input Logic Level

Table 11-1 Input Electrical Feature

Parameter Name	Parameter Symbol	Value
Input Logic Level Low	VL	0.6 VDC
Input Logic Level High	VH	2 VDC
Input Falling Delay	TDF	200 ns
Input Rising Delay	TDR	1 μs

11.1.2 Non-isolated Output Circuit

The internal circuit of the device's non-isolated output signal is as follows.

Figure 11-3 Internal Circuit of Output Signal

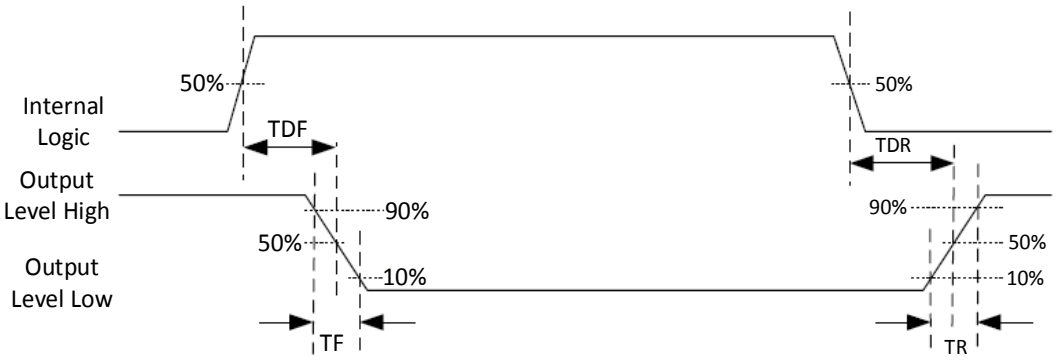


Figure 11-4 Output Logic Level

When the external voltage is 12 VDC and pull-up resistor is 1 KΩ, output electric feature is shown below.

Table 11-2 Output Electrical Feature

Parameter Name	Parameter Symbol	Value
Output Logic Level Low	VL	550 mV
Output Logic Level High	VH	12 VDC (external pull-up resistor)
Output Falling Delay	TDF	330 ns
Output Rising Delay	TDR	4.4 μs
Output Falling Time	TF	116 ns
Output Rising Time	TR	3.8 μs

Relation between different external voltages and output logic level low is shown below.

Table 11-3 Parameters of Output Logic Level Low

External Voltage	Output Logic Level Low (VL)
3.3 VDC	180 mV
5 VDC	260 mV

External Voltage	Output Logic Level Low (VL)
12 VDC	500 mV
24 VDC	900 mV

11.1.3 Bi-directional I/O Circuit

The bi-directional signal in I/O signal can be use as input signal or output signal according to demands. Its internal circuit is shown below.

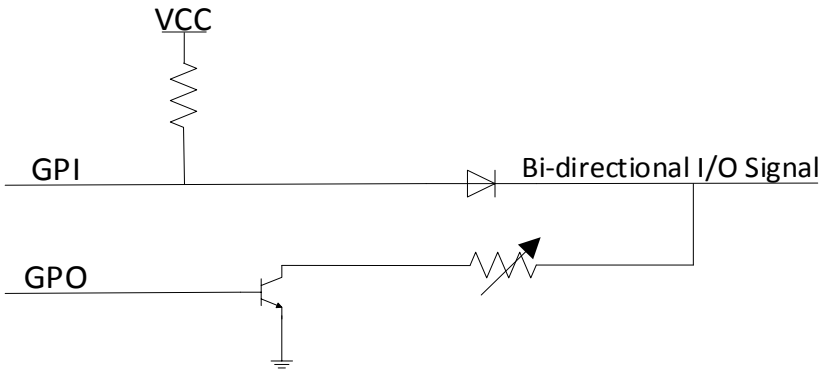


Figure 11-5 Internal Circuit of Bi-Directional Signal

Configured as Input Signal

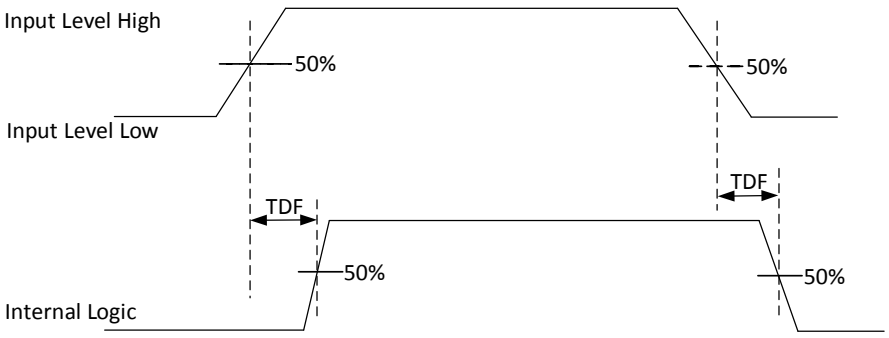


Figure 11-6 Input Logic Level

Table 11-4 Input Electrical Feature

Parameter Name	Parameter Symbol	Value
Input Logic Level Low	VL	0.6 VDC
Input Logic Level High	VH	2 VDC
Input Falling Delay	TDF	200 ns
Input Rising Delay	TDR	1 μs

Configured as Output Signal

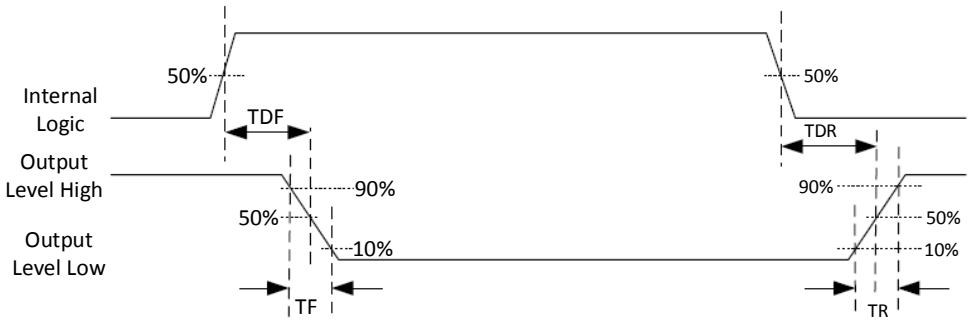


Figure 11-7 Output Logic Level

When the external voltage is 12 VDC and pull-up resistor is 1 KΩ, output electric feature is shown below.

Table 11-5 Output Electrical Feature

Parameter Name	Parameter Symbol	Value
Output Logic Level Low	VL	550 mV
Output Logic Level High	VH	12 VDC (external pull-up resistor)
Output Falling Delay	TDF	330 ns
Output Rising Delay	TDR	4.4 μs
Output Falling Time	TF	116 ns
Output Rising Time	TR	3.8 μs

Relation between different external voltages and output logic level low is shown below.

Table 11-6 Parameters of Output Logic Level Low

External Voltage	Output Logic Level Low (VL)
3.3 VDC	180 mV
5 VDC	260 mV
12 VDC	500 mV
24 VDC	900 mV

11.2 I/O Wiring

11.2.1 Input Signal Wiring

The device can receive the external input signal, and this section introduces input signal wiring.

Note

- Input signal wiring may differ by external device types.
- The voltage of VCC should be equal to or less than that of PWR. Otherwise, the output signal exception may occur.

PNP Device

The device uses external pull-down resistor, it is recommended to use 1 KΩ pull-down resistor.

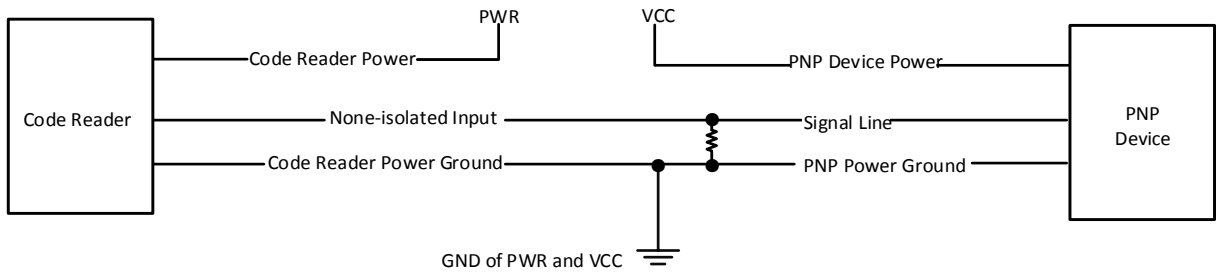


Figure 11-8 Input Signal Connecting to PNP Device

Note

Do not use the pull-down resistor that is larger than 1 KΩ.

NPN Device

The device uses external pull-up resistor, it is recommended to use 1 KΩ pull-up resistor.

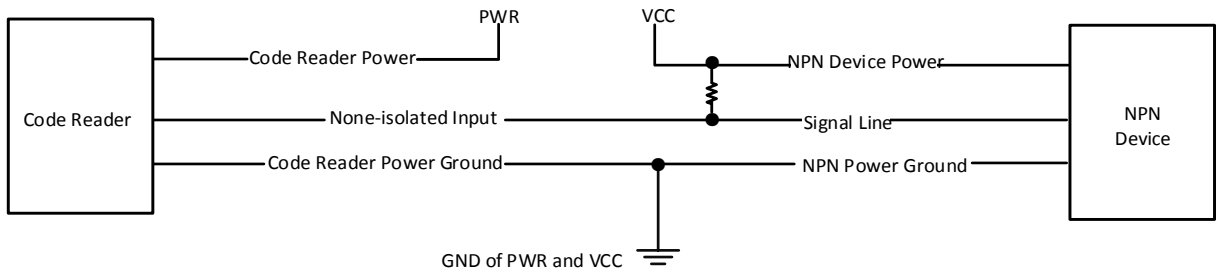


Figure 11-9 Input Signal Connecting to NPN Device

Switch

The switch can provide low electrical level to trigger the bi-directional I/O.

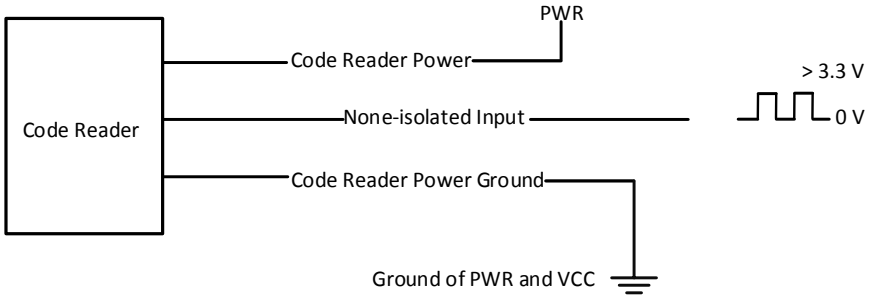


Figure 11-10 Input Signal Connecting to Switch

11.2.2 Output Signal Wiring

Note

- Output signal wiring may differ by external device types.
- The voltage of VCC should be equal to or less than that of PWR. Otherwise, the output signal exception may occur.

PNP Device

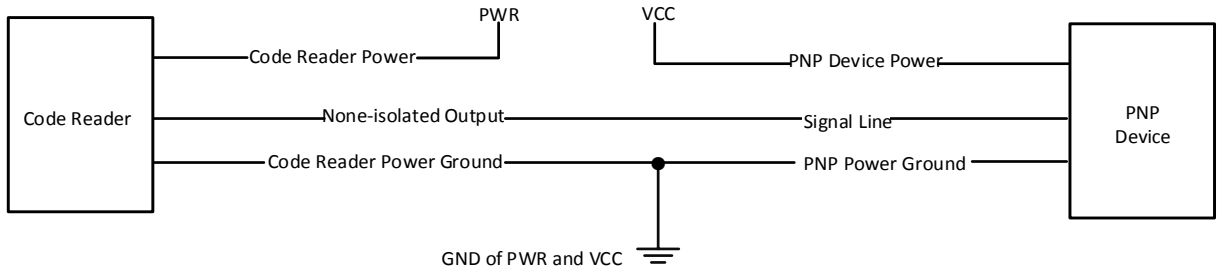


Figure 11-11 Output Signal Connecting to PNP Device

NPN Device

The device uses external pull-up resistor, it is recommended to use 1 KΩ pull-up resistor.

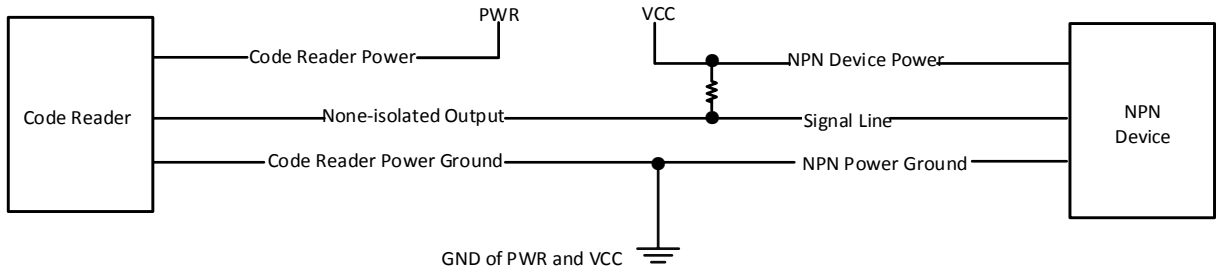


Figure 11-12 Output Signal Connecting to NPN Device

11.3 RS-232 Serial Port

The device supports outputting data via RS-232 serial port, and the supplied cable has a 9-pin female serial port connector. Refer to the figure and table below for pin definitions.

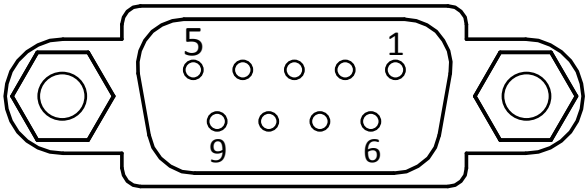


Figure 11-13 9-Pin Connector

Table 11-7 Pin Definitions

Pin No.	Name	Description
2	TX	Transmits Data
3	RX	Receives Data
DC Core	PWR	Power Supply (12 VDC To 24 VDC)
5+DC Shell	GND	Signal Ground

Caution

You cannot use DB9 serial port and VCC of the open line to power the device at the same time. Otherwise, damaging to power supply may occur.

Chapter 12 FAQ (Frequently Asked Question)

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

Problem

Run IDMVS client, there is no listed device.

Reason

The device is powered off.

Solution

Check the device's power connection (observe whether the PWR indicator is solid green) to make sure the device is powered up normally.

12.2 Why the image is very dark?

Problem

All black or too dark during live view.

Reason

Too small value of exposure and gain.

Solution

Increase exposure and gain appropriately.

12.3 Why there is no image in the live view?

Problem

No image in the live view.

Reason

Enabled trigger mode, but there is no trigger signal.

Solution

Sent the trigger signal to the device, or disable the trigger mode.