

Hikrobot Co., Ltd.

IDH7000 Series Wireless Handheld 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 IDH7000 Series Wireless Handheld Code Reader.

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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.
- Install the device in accordance with the installation method mentioned in this manual, and makes sure that the device is firmly fixed.
- 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 install, wire or maintain the device when it is powered on, otherwise there is a danger of electric shock.
- Using the wrong type of battery for replacement (for example, some types of lithium batteries) may cause the safety protection to fail.

- Protective measures like wearing safety goggles are required when installing, maintaining and debugging the device.
- 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 75% or less 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).
- 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.
- 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.
- 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.

1.4 Laser Product

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



Figure 1-1 Laser 2

Other parameters regarding the laser information are as follows:

- Laser safety class: Class 2
- Wavelength: 650 nm
- Pulse width: 8 ms
- Maximum power: 1 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) to observe the laser beam.
- Do not place optical instruments (such as mirrors) 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 IDH7000 series wireless handheld code reader decodes different types of 1D and 2D codes rapidly. With the built-in intelligent code reading algorithm, it can easily decoding codes with spots, defects and low contrast ratio, and entry level DPM codes. With adaptive smart bases, the code reader can realize charging and data communication.

2.2 Key Features

- Built-in code reading algorithm for decoding different types of 1D and 2D codes.
- Provides good robustness to read codes with spots, defects and low contrast ratio.
- Adopts Bluetooth 5.0 wireless technology to provide convenient and efficient operations.
- With a smart base, parameter configuration and device management via IDMVS client software are supported.
- Adopts 3150 mAh battery to provide long battery life.
- Adopts illumination system to provide direct lighting and diffused reflection lighting.
- Supports IP65 and drop height of 2.0 m.

Note

Refer to the specification of the device for detailed parameters.

Chapter 3 Appearance and Indicator

3.1 Appearance

Note

- Appearance here is for reference only. Refer to the device's specification for detailed dimension information.
- The IDH7000 series wireless handheld code reader should be used with a smart base.

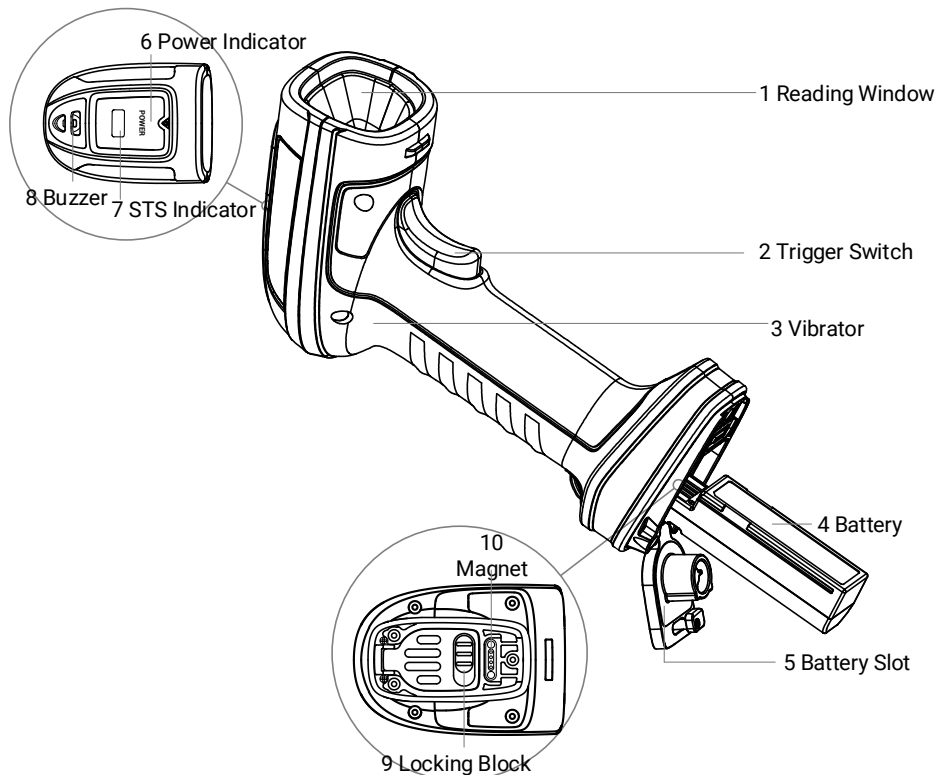


Figure 3-1 Appearance of Device

Table 3-1 Component Description

No.	Name	Description
1	Reading Window	It is used to acquire images, and consists of image sensor, lens, lighting, aiming system, etc.

No.	Name	Description
		 Caution Do not look directly at the laser beam from the reading window.
2	Trigger Switch	When the device is in an external trigger mode, you can press the trigger switch to trigger the device once.  Note Press and hold the trigger switch for 10 seconds, and release it when you hear a beep. After hearing the beep again, press and hold the trigger switch for 3 seconds to restore to factory settings.
3	Vibrator	It indicates the device's operation status via vibration. Refer to Component Status for details.
4	Battery	It has a removable battery for power supply.
5	Battery Slot	It is used to install the battery.
6	Power Indicator	It indicates the status of battery level, power supply, or Bluetooth connection. Refer to Device Indicator for details.
7	STS Indicator	It indicates the status of powering on, code reading, or calling. Refer to Device Indicator for details.
8	Buzzer	It indicates the device's operation status via buzzer. Refer to section Component Status for details.
9	Locking Block	It is used to lock the battery cover.
10	Magnet	It is used to fasten the device to the smart base to prevent falling.

The device should be used with the smart base during connection and charging.

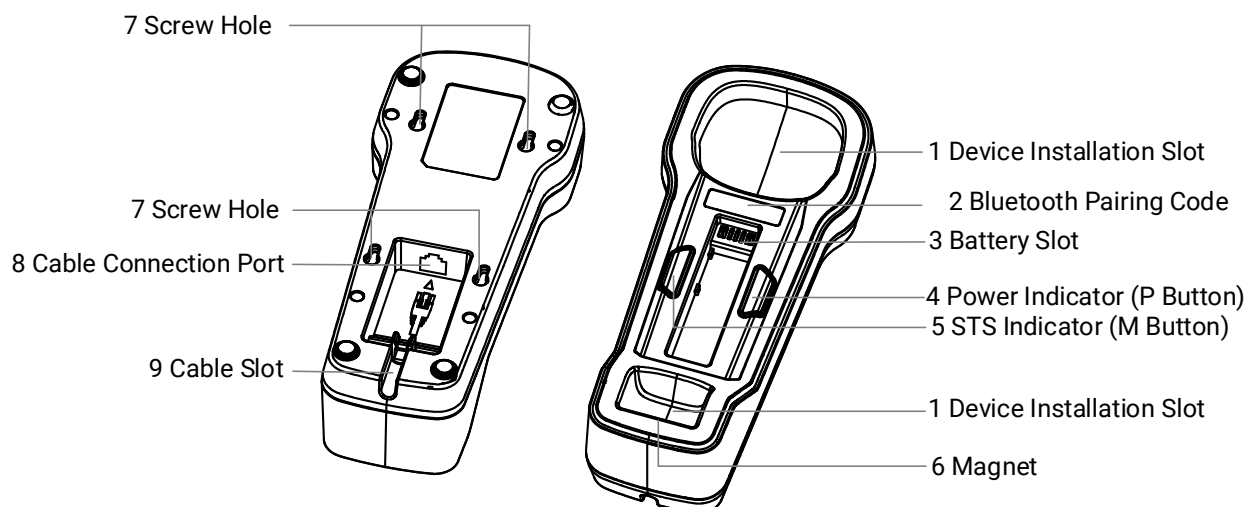


Figure 3-2 Appearance of Smart Base

Table 3-2 Component Description

No.	Name	Description
1	Device Installation Slot	It is used to install the device.
2	Bluetooth Pairing Code	You can scan the Bluetooth pairing code to connect the device to the smart base via Bluetooth, and connect to the client software via the smart base for parameter viewing and settings.
3	Battery Slot	It is used to install the battery.
4	Power Indicator (P Button)	It is located on the right side of the smart base, and indicates the power status of the smart base, and it also can be used for Fine Me function. Note Shortly press the P button three times within 2 seconds to send a Find Me command to the connected device. Repeat the triple-press within 2 seconds to stop the command transmission.
5	STS Indicator (M Button)	It is located on the left side of the smart base, and also can be used for disconnection between the device and the smart base. Note Press and hold the M button for 3 seconds to disconnect the

No.	Name	Description
		smart base from the device.
6	Magnet	It is used to fasten the device to the smart base to prevent falling.
7	Screw Hole	It is used to install and fix the smart base.
8	Cable Connection Port	It is used to connect to a cable for power supply or data transmission.  Note The function of cables may differ by device models. Refer to section Device Connection for details.
9	Cable Slot	It is used to insert a cable.

3.2 Component Status and Indicator

3.2.1 Component Status

You can refer to the table below for the status of the components.

Table 3-3 Component Status

Component	Status Description
Buzzer	• The buzzer beeps three times when the device starts up. • The buzzer beeps twice when the device scans Bluetooth pairing code. • The buzzer beeps once when the Bluetooth connection is succeeded. • The buzzer beeps twice when the Bluetooth connection is failed. • The buzzer beeps once when the device is placed into the smart base. • After Bluetooth connection is succeeded, the buzzer beeps once when the device reads codes successfully. • After Bluetooth connection is failed, the buzzer beeps twice when the device reads codes successfully. • The buzzer beeps twice when the device reads configuration codes successfully. • The buzzer beeps once for 3 seconds when the device fails to upgrade firmware. • The buzzer beeps three times in circle when the smart base calls the device.

Component	Status Description
Vibrator	- The device vibrates once for 300 ms when it is powered on. - The device vibrates once when Bluetooth is connected. - The device vibrates once when Bluetooth is disconnected. - The device vibrates twice (duration: 300 ms, interval: 300 ms) when it reads configuration codes successfully. - The device vibrates once (duration: 2 seconds) when it enters into low consumption mode.

Note

You can set the parameters of buzzer and vibrator via the configuration codes or **I/O Control Settings** in the IDMVS client software. Refer to section [Configuration Codes](#) for details.

3.2.2 Device Indicator

You can observe the device's indicator to check whether the device operates normally or not.

Table 3-4 Indicator Description

Device Status		Power Indicator		STS Indicator	
Normal Status	Powering On		Solid red		Solid red
	Bluetooth Disconnected		Solid green	-	Unlit
	Bluetooth Connection Progress		Flashing green	-	Unlit
	Bluetooth Connected		Solid orange	-	Unlit
Code Reading Status	Successful Code Reading	-	-		Green on
	Failed Code Reading	-	-		Red on
	Successful Configuration Code Reading	-	-		Green on
Firmware Upgrade Status	Firmware Upgrade Progress		Flashing orange	-	Unlit
	Successful Firmware Upgrade		Solid green (device restarting after 3 seconds)	-	Unlit
	Failed Firmware Upgrade		Solid red (device restarting after 3 seconds)	-	Unlit

Device Calling	-	Unlit		Flashing red for 3 times
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3.2.3 Smart Base Indicator

You can observe the smart base's indicator to check the device operation.

Table 3-5 Indicator Description

Device Status		Power Indicator (P Button)	STS Indicator (M Button)
Charging Status	Not Charging	Unlit	-
	Charging (0% to 20%)	Flashing red	-
	Charging (20% to 80%)	Flashing yellow	-
	Charging (80% to 100%)	Flashing green	-
	Charging Completed (100%)	Solid green	-
Connection Status	Network Connection and Bluetooth Connection Normal	-	Solid green
	Network Disconnected	-	Solid red
	Bluetooth Disconnected	-	Solid red
Firmware Upgrade Status	Firmware Upgrade Progress	Flashing yellow	-
	Successful Firmware Upgrade	Solid green (device restarting after 3 seconds)	-
	Failed Firmware Upgrade	Solid red (device restarting after 3 seconds)	-

Chapter 4 Quick Start Guide

The basic operation flow includes unboxing, connection, installation, code reading, debugging, and charging.

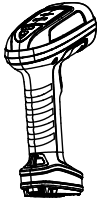
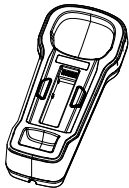
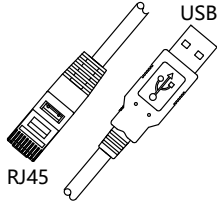
4.1 Device Unboxing

Refer to the table below for the included device and accessories in the package.

Note

The images below are for reference only.

Table 4-1 Included Device and Accessories

No.	Name	Image	Quantity	Description
1	Handheld Code Reader		1	It refers to the IDH7000 series wireless handheld code reader.
2	Smart Base		1	It is used to fix the device, charge it, achieve data communication, or connect the device to the client software. It has two types, including network type and USB type.
3	Cable		1	It is used to connect to the device and provide power, and is included in the package. • Network type: You should use it with the smart base with network interface. • USB type: You should use it with the smart base with USB interface.  Note The image is the USB type cable.
4	Power Adapter		1	It is used to provide power supply for the device. The power adapter with 12 V is included in the package.  Note Standard power adapter is recommended.

4.2 Device Connection

The device realizes communication connection via its smart base, and the smart base has two interfaces, including network interface and USB interface. Refer to content below for connection.

Note

The images of cables below are for reference only.

4.2.1 Smart Base with Network Interface

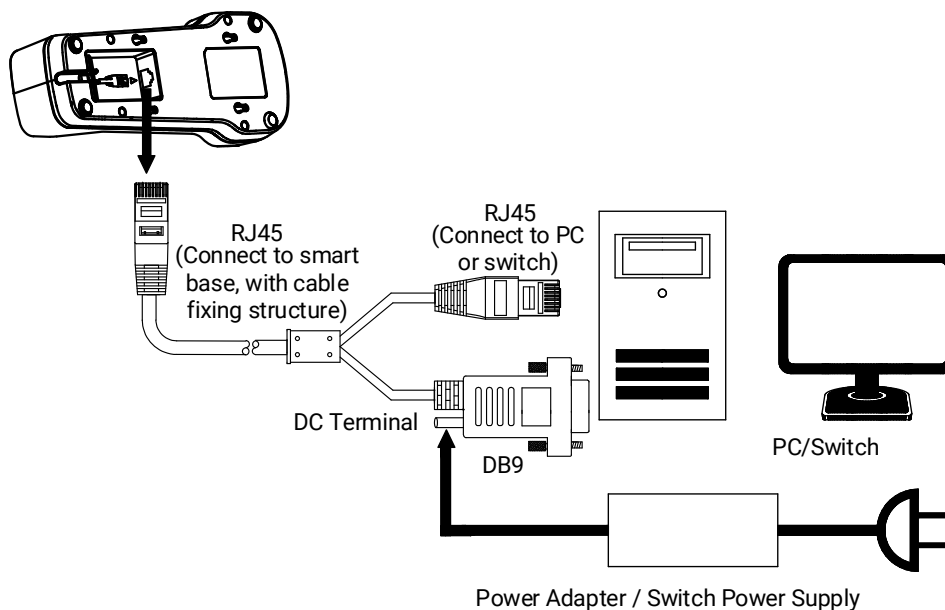


Figure 4-1 Connection of Smart Base with Network Interface

Note

Please use the cable in the package to connect the smart base to the PC. If other cables are used, the client software may fail to find the device.

Steps

1. Connect the RJ45 connector with cable fixing structure to the data interface of the smart base, and tighten the cap.
2. Connect the RJ45 connector at the other end to a switch or a PC for image debugging or data communication.
3. (Optional) Connect the DB9 connector of the cable to the PC if you want to use the serial

port function.

4. Connect the DC terminal to a power adapter for power supply.

Note

The device can only be connected to a power supply with internal positive and external negative, otherwise the device may be damaged.

5. Use the device to scan the Bluetooth pairing code on the smart base. If you hear prompt sound and the STS indicator (M button) on the smart base is in green color, the device has been connected to the smart base via the Bluetooth.

Note

Press and hold the M button on the smart base for 3 seconds to disconnect the device from the smart base, and then the smart base is in standby status.

6. (Optional) Shortly press the P button on the smart base three times within 2 seconds to send a Find Me command to the connected device. After receiving the commands, the device's status indicator is flashing red for three times and buzzer beeps three times with interval of 1.5 seconds.

Note

Shortly press the P button three times within 2 seconds again, and the smart base stops sending Find Me command after you hear prompts. You can also press the device's trigger switch for less than 3 seconds to stop calling.

4.2.2 Smart Base with USB Interface

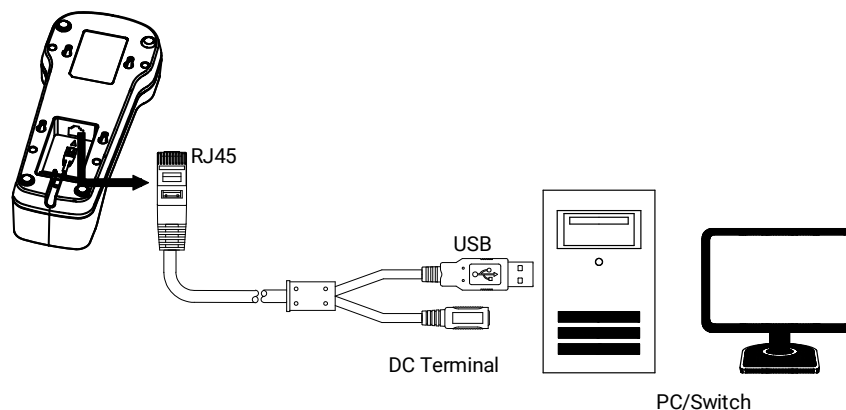


Figure 4-2 Connection of Smart Base with USB Interface

Note

- The DC power supply is required for the charging of the smart base with USB interface.
 - When only the USB interface is connected, the device supports enumeration, recognition, and image acquisition, but does not support charging of the smart base.
-

Steps

1. Connect the RJ45 connector to the data interface of the smart base.
 2. Connect the USB interface of the cable to a PC.
 3. Connect the DC terminal to a power adapter for power supply.
-

Note

The device can only be connected to a power supply with internal positive and external negative, otherwise the device may be damaged.

4. Use the device to scan the Bluetooth pairing code on the smart base. If you hear prompt sound and the STS indicator (M button) on the smart base is in green color, the device has been connected to the smart base via the Bluetooth.
-

Note

Press and hold the M button on the smart base for 3 seconds to disconnect the device from the smart base, and then the smart base is in standby status.

5. (Optional) Shortly press the P button on the smart base three times within 2 seconds to send a Find Me command to the connected device. After receiving the commands, the device's status indicator is flashing red for three times and buzzer beeps three times with interval of 1.5 seconds.
-

Note

Shortly press the P button three times within 2 seconds again, and the smart base stops sending Find Me command after you hear prompts. You can also press the device's trigger switch for less than 3 seconds to stop calling.

4.2.3 Mobile Terminal Connection via Bluetooth

You can connect the device to a mobile terminal via Bluetooth, such as mobile phone or tablet.

Steps

1. Bluetooth mode settings: After the device is started, you can scan a configuration code of **Request of Switching Bluetooth to HID Mode** and a configuration code of **Confirmation of Switching Bluetooth to HID Mode** respectively. After code reading is succeeded, the device will vibrate, and the indicator be on and the buzzer beep after 10 seconds.



Figure 4-3 Request of Switching Bluetooth to HID Mode



Figure 4-4 Confirmation of Switching Bluetooth to HID Mode

2. Connection: Open the Bluetooth settings on the mobile terminal, and select the device serial No. for connection. After connection is succeeded, the device will vibrate.

 Note

On the Bluetooth settings page, the device will be shown in a keyboard icon.

3. (Optional) If you need to switch to the smart base mode, scan a configuration code of **Request of Switching Bluetooth to Smart Base Mode** and a configuration code of **Confirmation of Switching Bluetooth to Smart Base Mode** respectively. After code reading is successful, the device will vibrate and the buzzer will beep.



Figure 4-5 Request of Switching Bluetooth to Smart Base Mode



Figure 4-6 Confirmation of Switching Bluetooth to Smart Base Mode

4.2.4 External Device Connection

The device supports connecting to the external device via the USB-HID protocol, such as Pro-face screen, industrial display, Android industrial computer, or other third-party device. You can connect the device directly to the USB interface of the external device. The code reading results will be sent to the external device automatically.

Note

When the device uses the USB-HID protocol, the **Composite HID Mode** is used by default. If the Pro-face screen should be connected, you can scan the keyboard mode code to change to the **Simple HID Mode**. Under the keyboard mode, the device cannot be enumerated.



Figure 4-7 Keyboard Mode

4.3 Device Installation

When the device is not in use, you can fix and install the smart base to a plane and put the device into the smart base.

Before You Start

Make sure that the wiring and connection of the smart base is done.

Steps

1. Drill four holes in a plane according to the smart base's screw holes.
 2. Install M3 screws into four holes.
-

Note

Refer to the smart base's specification for hole locations.

3. Align the smart base with four holes on the plane via the smart base's holes.

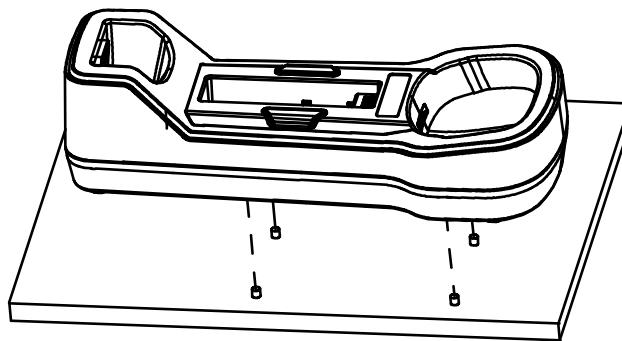


Figure 4-8 Install Smart Base

4. Slide the smart base towards the right to fix the smart base.
5. Put the device into the smart base after the device finishes reading codes.

4.4 Code Reading

After the device connection is completed, you can press the trigger switch and aim at the code to read.

Before You Start

Place the cursor at any of the text input locations on the PC, and scan any of the following codes. If “123456” is sent to the PC, it means that the device is connected.



Figure 4-9 Test Code

Steps

Place the device close to the code, press the trigger switch, and aim at the code to read. The device will emit a cross aiming line for reading.



Figure 4-10 Code Reading

Note

The buzzer beeps once and the STS indicator is in green color when the device reads codes successfully.

4.5 Debugging

The device supports configuring parameters via reading special codes that are called

configuration codes or debugging in the client.

Debugging via Configuration Code

The configuration code consists of three parts.



Figure 4-11 Configuration Code

Table 4-2 Configuration Code Description

No.	Description
1	It is the code part of the configuration 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 configuration code.

You can configure parameters according to the demands. Refer to section [Configuration Codes](#) for details.

Debugging via Client Software

Note

Refer to section [Client Software Installation and Operation](#) for the basic operations in the IDMVS client software.

Before You Start

Make sure the client software is installed and the device is connected.

Note

You can get the installation package of the IDMVS client software from <https://en.hikrobotics.com/>. It is recommended to use the latest version of the client software. In the IDMVS client software, you can set parameters related to image, algorithm, input/output, communication protocol, or code reading result. Refer to **IDMVS Client Software User Manual** for details.

Steps

1. Select codes in **Algorithm Settings** according to the demands.
2. Set trigger mode in **I/O Control Settings** and communication protocols in **Communication Settings**.

Note

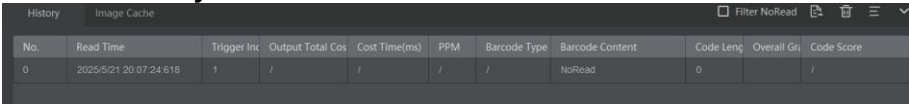
- The supported trigger modes are button trigger, brightness trigger, self trigger, and serial port trigger.
- The communication protocols supported by the USB type device are SmartSDK, USB, and Bluetooth. The communication protocols supported by the network type device are SmartSDK, TCP Client, Serial, FTP, TCP Server, UDP, Profinet, Ethernet/IP, Bluetooth, ModBus, Melsec/SLMP, and FINS.
- If you select the communication protocols except SmartSDK, please change the running mode to **Normal**.
- If you select Profinet, ModBus, Ethernet/IP, Melsec/SLMP, and FINS, please refer to **Smart Code Reader Industrial Protocol** on the official website for connection.

3. In the Normal mode, click  to start acquisition.

Note

During the image debugging, you can change the running mode to Test to obtain the image and code information output by the device.

4. View the code reading time, code type, code content, code length, and other code-related information in the **History** at the bottom of the client software.



No.	Read Time	Trigger Int.	Output Total Cos	Cost Time(ms)	PPM	Barcode Type	Barcode Content	Code Leng	Overall Gri	Code Score
0	2025/5/21 20:07:24.618	1	/	/	/	/	NoRead	0	/	/

Figure 4-12 History

5. Go to **Image Settings** to adjust parameters, such as exposure time, gain, or Gamma.

Note

If you want to adjust exposure time and gain manually, go to **Feature Tree** → **Image Setting** to disable **Exposure Auto** and **Gain Auto**.

4.6 Device Charging

The device supports two charging methods: smart base charging and battery charging.

Note

- If the battery level is lower than 4%, the device will shut down automatically.
- If the battery level is lower than 10%, the device will have low battery level prompts, that is, the buzzer beeps once every 5 minutes and the device vibrates once. The low battery

level prompts will stop automatically once you put the device into the smart base.

Smart Base Charging

Put the device into the smart base, and connection between the device and the smart base is done after you hear prompt sound once.

Before You Start

Make sure that the smart base is connected to external power supply before charging.

During the charging, the statuses of the indicator on the smart base are introduced below.

- Charging (0% to 20%): Flashing red
 - Charging (20% to 80%): Flashing yellow
 - Charging (80% to 100%): Flashing green
 - Charging completed (100%): Solid green
-

Note

When both the device and the battery are put into the smart base, the device will be charged first. The battery starts charging after the device is fully charged.

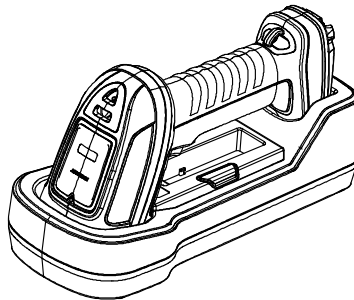


Figure 4-13 Smart Base Charging

Battery Charging

Remove the battery from the device, and then put it into the smart base for charging.

Before You Start

Make sure that the smart base is connected to external power supply before charging.

Steps

1. Open the locking block, and the battery cover will automatically release.

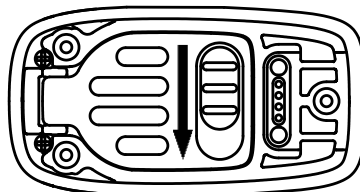


Figure 4-14 Open Locking Block

2. Remove the battery from the device.
3. Put the battery into the smart base for charging.
4. After charging is completed, install the battery on the device.

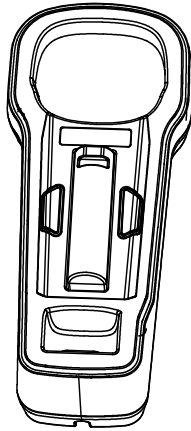


Figure 4-15 Battery Charging

Chapter 5 Configuration Codes

Via reading configuration codes, the device can set communication, set data processing, set code reading, set trigger input, set aiming system, set light source, set buzzer, set vibration, set switching mode, set sending device information, set management, etc.

**Note**

Parameters of configuration code may differ by device model and firmware version.

5.1 Set Configuration Codes of Communication

5.1.1 USB Communication

Communication Method

The configuration codes of USB communication can enable or disable the USB communication function.

**Note**

- Only the USB type device supports the USB communication.
- By default, the device's communication is USB HID. By reading specific configuration codes, the device's communication method can be switched to USB CDC.
- The USB HID communication includes two types: compound mode and keyboard mode. If the external device should be connected, you can switch to keyboard mode. Refer to section [External Device Connection](#) for details.

Table 5-1 Set Configuration Codes of USB Communication

Function	Configuration Codes	Function	Configuration Codes
Enable USB Communication		Disable USB Communication	

Function	Configuration Codes	Function	Configuration Codes
USB HID Communication Mode		USB CDC Communication Mode	
Compound Mode		Keyboard Mode	

Language Output

Under the HID communication mode, the device also supports language output, including Chinese, German, Japanese, Thai, Vietnamese, and Korean. Refer to section [Set USB-HID Data Output](#) for details.

Table 5-2 Set Configuration Codes of Language Output

Function	Configuration Codes	Function	Configuration Codes
Chinese		Other Languages	
Input Encoding Format: UTF-8		Input Encoding Format: GBK	
Output Encoding Format: GBK		Output Encoding Format: Unicode	

Function	Configuration Codes	Function	Configuration Codes
Enable Keyboard		Disable Keyboard	
Windows System Output		Linux System Output	

Output Speed

You can set output interval and character output quantity. Refer to section [Output Speed Settings](#) for details.

Table 5-3 Set Configuration Codes of Output Speed

Function	Configuration Codes	Function	Configuration Codes
Set Output Interval as 20 ms		Set Output Interval as 50 ms	
Set Output Interval as 100 ms		/	/

5.1.2 Serial Port Communication

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

Note

Parameters of configuration code may differ by device model and firmware version.

Table 5-4 Set Configuration Codes of Serial Port

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

Function	Configuration Codes	Function	Configuration Codes
Set Stop Bit 2		/	/

5.2 Set Configuration Codes of Data Processing

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

5.2.1 Prefix/Suffix Editing

Steps

1. Read configuration codes of editing prefix or editing suffix.

Table 5-5 Configuration Codes of Editing Prefix or Suffix

Function	Configuration Codes	Function	Configuration Codes
Edit Prefix		Edit Suffix	

2. Set prefix and suffix characters according to actual demands, find the corresponding hexadecimal code value in ASCII table (refer to section [Appendix A ASCII Table](#) for details), and read the corresponding digital codes. For example, if the defined prefix and suffix content is *, the corresponding ASCII code is 2a. Use to the device to read the digital code 2 and digital code a in turn. If the defined prefix and suffix content is 1, the corresponding ASCII code is 31. Use to the device to read the digital code 3 and digital code 1 in turn.

Note

Before setting prefix and suffix, you should scan codes of editing prefix or suffix, scan the digital codes, and scan codes of saving respectively.

Table 5-6 Configuration Codes of a to f and 0 to 9

Function	Configuration Codes	Function	Configuration 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	
Digital Code 8		Digital Code 9	
Digital Code a		Digital Code b	

Function	Configuration Codes	Function	Configuration Codes
Digital Code c		Digital Code d	
Digital Code e		Digital Code f	

3. Set separator among the codes. Use semicolon (;) to separate if there is more than one code.
4. Set stop text for the code.

Table 5-7 Configuration Codes of Data Processing

Function	Configuration Codes	Function	Configuration Codes
Edit Separator		Clear Separator	
Edit Stop Text		Enable Newline	
Disable Newline		Enable Enter	

Function	Configuration Codes	Function	Configuration Codes
Disable Enter		Enable Horizontal TAB	
Disable Horizontal TAB		Enable Enter and Newline	
Disable Enter and Newline		Disable All Special Characters	

5. Read the configuration codes of saving to save the parameter settings.



Figure 5-1 Configuration Code of Saving

5.2.2 Case Sensitivity Output

You can scanning the configuration codes below to set the case sensitivity of the output result.

Table 5-8 Configuration Codes of Case Sensitivity

Function	Configuration Codes	Function	Configuration Codes
Normal Output		Uppercase Output	

Function	Configuration Codes	Function	Configuration Codes
Lowercase Output		Toggle Case Output	

5.3 Set Configuration Codes of Code Reading

5.3.1 Code Type

The device can be set what code type to be read via reading specific configuration 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, MicroQR, AZTEC, HANXIN, PDF417, GS1-128, GS1-DM, and GS1-QR.

Note

The supported code types may differ by device models.

Table 5-9 Set Configuration Codes of Code Type

Function	Configuration Codes	Function	Configuration Codes
Enable All 1D Codes		Disable All 1D Codes	
Enable All 2D Codes		Disable All 2D Codes	

Function	Configuration Codes	Function	Configuration Codes
Enable Code 39		Disable Code 39	
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	

Function	Configuration Codes	Function	Configuration Codes
Enable EAN 8		Disable EAN 8	
Enable EAN 13		Disable EAN 13	
Enable UPCA		Disable UPCA	
Enable UPCE		Disable UPCE	
Enable QR Code		Disable QR Code	
Enable Data Matrix		Disable Data Matrix	

Function	Configuration Codes	Function	Configuration Codes
Enable MicroQR Code		Disable MicroQR Code	
Enable AZTEC Code		Disable AZTEC Code	
Enable HANXIN Code		Disable HANXIN Code	
Enable PDF 417		Disable PDF 417	
Enable GS1-128, GS1-DM, and GS1-QR		Disable GS1-128, GS1-DM, and GS1-QR	

5.3.2 Code Scanning Mode

The device supports setting different code scanning modes via scanning configuration codes, including common mode, accurate mode, continuous mode, batch mode, and fixed

mode. Refer to section [Code Scanning Settings](#) for details.

Table 5-10 Set Configuration Codes of Code Scanning Mode

Function	Configuration Codes	Function	Configuration Codes
Common Mode		Accurate Mode	
Continuous Mode		Batch Mode	

Under the batch mode, you can scan the configuration codes below to set the code output mode.

Table 5-11 Set Configuration Codes of Code Output Mode

Function	Configuration Codes	Function	Configuration Codes
Free Mode		Fixed Mode	
Code Quantity Upper Limit (Under Free Mode)		Code Quantity Lower Limit (Under Free Mode)	
Target Code Quantity (Under Fixed Mode)		/	/

Note

The supported code scanning modes may differ by device models.

5.3.3 Code Reading Quantity

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

Steps

1. Read configuration codes of editing code reading quantity.



Figure 5-2 Edit Code Reading Quantity

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

Note

- The code reading quantity is supported when the code scanning mode is batch mode.
- When the code scanning mode is batch mode and the code reading quantity is no greater than 20, you should scan the digital code of tens digit first, and then scan the single digit. If the code reading quantity is single digit, the digital code of tens digit is 0. For example, if the code reading quantity is 12, scan the digital code of 1 first, and then scan 2.

Table 5-12 Digital Codes

Function	Configuration Codes	Function	Configuration Codes
Digital Code 0		Digital Code 1	
Digital Code 2		Digital Code 3	

Function	Configuration Codes	Function	Configuration Codes
Digital Code 4		Digital Code 5	
Digital Code 6		Digital Code 7	
Digital Code 8		Digital Code 9	

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



Figure 5-3 Configuration Code of Saving

5.3.4 Code Color

You can set the device's code color via scanning the specific configuration codes as shown below.

Table 5-13 Digital Codes

Function	Configuration Codes	Function	Configuration Codes
Black Code on White Background		White Code on Black Background	

Function	Configuration Codes	Function	Configuration Codes
Self-Adaption		/	/

5.4 Set Configuration Codes of Trigger Input

The configuration codes of trigger can let the device switch the trigger mode, including button trigger, self-trigger, brightness trigger, serial port trigger, software trigger, TCP client trigger, TCP server trigger, UDP trigger, and USB trigger, and support disabling trigger mode.

Table 5-14 Set Configuration Codes of Trigger

Function	Configuration Codes	Function	Configuration Codes
Disable Trigger Mode		Button Trigger	
Self-Trigger		Brightness Trigger	
Serial Port Trigger		Software Trigger	

Function	Configuration Codes	Function	Configuration Codes
TCP Server Trigger		TCP Client Trigger	
UDP Trigger		/	/

Under the trigger mode, you can set sensitivity, unrespond time, and timeout duration via scanning the specific configuration codes.

Table 5-15 Set Configuration Codes of Trigger-Related Parameters

Function	Configuration Codes	Function	Configuration Codes
Sensitivity of Brightness Trigger			
Sensitivity: 80		Sensitivity: 90	
Sensitivity: 97		/	/
Unrespond Time of Brightness Trigger			
Unrespond Time: 300 ms		Unrespond Time: 500 ms	

Function	Configuration Codes	Function	Configuration Codes
Unrespond Time: 800 ms		Unrespond Time: 1000 ms	
Unrespond Time: 2000 ms		Unrespond Time: 3000 ms	
Timeout Duration of Brightness Trigger			
Timeout Duration: 1000 ms		Timeout Duration: 1500 ms	
Timeout Duration: 2000 ms		Timeout Duration: 3000 ms	
Timeout Duration: 4000 ms		Timeout Duration: 5000 ms	

5.5 Set Configuration Codes of Aiming System

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

Table 5-16 Set Configuration Codes of Aiming System

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

5.6 Set Configuration Codes of Light Source

The configuration codes of light source can enable the light source.

Table 5-17 Set Configuration Codes of Light Source

Function	Configuration Codes	Function	Configuration Codes
Enable White Light		Disable White Light	

Function	Configuration Codes	Function	Configuration Codes
Enable Red Light		Disable Red Light	
Enable Lighting Polling		Disable Lighting Polling	
Set Polling Interval 500 ms		Set Polling Interval 1 s	
Set Polling Interval 2 s		Set Polling Interval 5 s	
Set Polling Interval 10 s		/	/

5.7 Set Configuration Codes of Buzzer

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

Note

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

Table 5-18 Set Configuration Codes of Buzzer

Function	Configuration Codes	Function	Configuration Codes
Enable Buzzer When Reading Codes		Disable Buzzer When Reading Codes	
Set Buzzer Duration 40 ms		Set Buzzer Duration 50 ms	
Set Buzzer Duration 80 ms		Set Buzzer Duration 100 ms	
Set Buzzer Duration 120 ms		Set Buzzer Duration 150 ms	
Set Buzzer Duty Ratio 25%		Set Buzzer Duty Ratio 50%	
Set Buzzer Duty Ratio 75%		/	/

5.8 Set Configuration Codes of Vibration

The configuration codes of vibration can enable or disable the vibration function and set its duration.

Table 5-19 Set Configuration Codes of Vibration

Function	Configuration Codes	Function	Configuration Codes
Enable Vibration		Disable Vibration	
Set Vibration Duration 100 ms		Set Vibration Duration 200 ms	
Set Vibration Duration 300 ms		Set Vibration Duration 500 ms	
Set Vibration Duration 1000 ms		Set Vibration Duration 2000 ms	

5.9 Set Configuration Codes of Switching Mode

The device can switch to shutdown mode, low consumption mode, Bluetooth mode etc.

Table 5-20 Set Configuration Codes of Switching Shutdown Mode and Low Consumption

Mode

Function	Configuration Codes	Function	Configuration Codes
Enter Shutdown Mode		Not Enter Shutdown Mode	
Enter Low Consumption Mode		Not Enter Low Consumption Mode	

Table 5-21 Set Configuration Codes of Switching Bluetooth Mode

Function	Configuration Codes	Function	Configuration Codes
Request of Setting Bluetooth as Smart Base Mode		Confirmation of Setting Bluetooth as Smart Base Mode	
Request of Switching Bluetooth to HID Mode		Confirmation of Switching Bluetooth to HID Mode	
Request of Deleting Pairing Information		Confirmation of Deleting Pairing Information	
Bluetooth Disconnected		Enable Bluetooth Broadcast	

Function	Configuration Codes	Function	Configuration Codes
Disable Bluetooth Broadcast		/	/

You can scan the configuration code below to output cached data under batch mode.

Note

You should set **BLE DATATRANS MODE** to **Batch Mode** first. Refer to section [Set Bluetooth](#) for details.



Figure 5-4 Configuration Code of Outputting Cached Data Under Batch Mode

You can scan the configuration codes below to set keep-alive duration under shutdown mode and sleep mode.

Table 5-22 Set Configuration Codes of Setting Keep-Alive Duration

Function	Configuration Codes	Function	Configuration Codes
Set Keep-Alive Duration as 30 min Under Shutdown Mode		Set Keep-Alive Duration as 60 min Under Shutdown Mode	
Set Keep-Alive Duration as 180 min Under Shutdown Mode		Set Keep-Alive Duration as 300 min Under Shutdown Mode	

Function	Configuration Codes	Function	Configuration Codes
Set Keep-Alive Duration as 420 min Under Shutdown Mode		Set Keep-Alive Duration as 600 min Under Shutdown Mode	
Set Keep-Alive Duration as 720 min Under Shutdown Mode		Set Keep-Alive Duration as 900 min Under Shutdown Mode	
Set Keep-Alive Duration as 180 s Under Sleep Mode		Set Keep-Alive Duration as 600 s Under Sleep Mode	
Set Keep-Alive Duration as 1200 s Under Sleep Mode		Set Keep-Alive Duration as 1800 s Under Sleep Mode	
Set Keep-Alive Duration as 3600 s Under Sleep Mode		/	/

5.10 Set Configuration Codes of Sending Device Information

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

Table 5-23 Set Configuration Codes of Sending Device Information

Function	Configuration Codes	Function	Configuration Codes
Send Device Name		Get Device Version	
Get Hardware Version		Get Algorithm Version	
Get Serial Number		Get All Device Information	

5.11 Set Configuration Codes of Management

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

Table 5-24 Set Configuration Codes of Management

Function	Configuration Codes	Function	Configuration Codes
Save User Parameters		Initialize User Parameters	
Restart Device		Request of Restoring to Default Settings	

Function	Configuration Codes	Function	Configuration Codes
Confirmation of Restoring to Default Settings		/	/

Chapter 6 IDAS Mobile Client Operation

ID Android Set (in short, IDAS) is an Android program developed for handheld code readers. You can scan the configuration code generated by the Application offline to configure parameters and perform interactive operations.

You can contact technical support to get the IDAS installation package, and refer to the **ID Android Set User Manual** for details.



Figure 6-1 ID Android Set User Manual

Chapter 7 Client Software Installation and Operation

7.1 Install Client Software

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

Note

- The client software is compatible with 32/64-bit Windows 7/10, and 64-bit Windows 11.
- 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 USB type device supports IDMVS V2.3.0 and above that has integrated USB drive only. And there is no need to download and install other drivers.
- The graphic user interface may differ by different versions of client software you use.

Steps

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**.

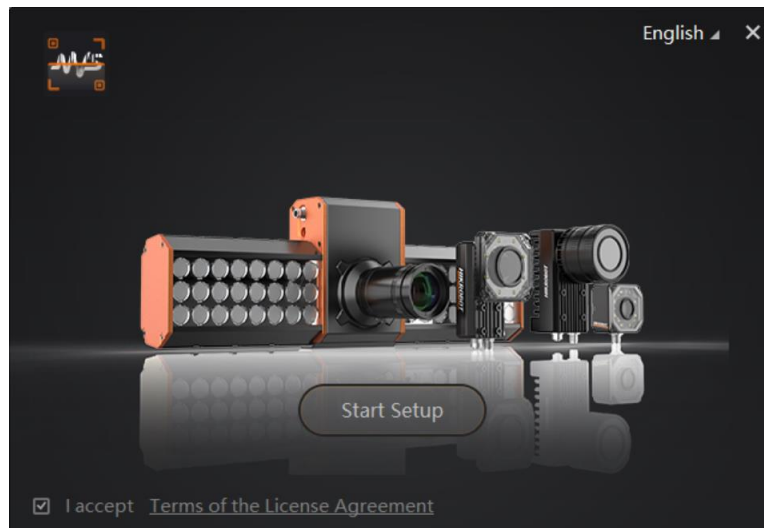


Figure 7-1 Installation Interface

6. Finish the installation according to the interface prompts.

7.2 Check USB Drive

Checking the USB drive on the PC is required before using the USB type device. After the USB type device is connected 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.

7.3 Set Device Network

You can connect the device to 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, and click **Modify IP**.
4. Set the IP address of the device in the same network segment with the PC.



Figure 7-2 Modify IP Address

5. Click **OK**.

7.4 Connect Device to Client Software

Make sure that your device IP address is in the same network segment with the PC where

you installed the client software before connecting the device to it.
Double click the device in device list or click  to connect it to the client software.

7.5 Client Software Layout

After connecting to the device, the client software can read the device information and display it.

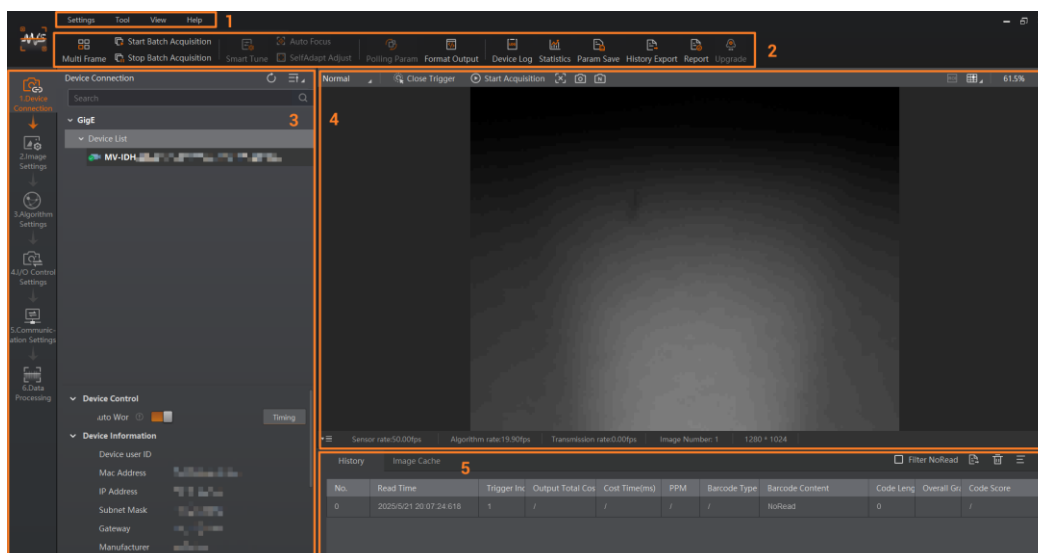


Figure 7-3 Main Window

Note

- The specific interfaces of the client software may differ by its versions.
- Refer to the user manual of the client software for detailed introductions and operations.

Table 7-1 Description of Main Window

No.	Name	Description
1	Menu Bar	The menu bar displays function modules, including Settings, Tool, View, and Help .
2	Control Toolbar	The control toolbar provides quick operations for the device. You can click different icons to start or stop batch acquisition, change window layout, view statistics information and device log.
3	Device Configuration Area	You can connect or disconnect device, set parameters, and modify device IP address in this area.
4	Live View Window	This area displays the acquisition images and algorithm reading result in real time. You can click different icons to capture and save image, record, etc.

No.	Name	Description
5	History Record and Image Cache	This area displays different barcode information read by the device in real-time. You can also set image cache here.

You can set device parameters in device configuration area.

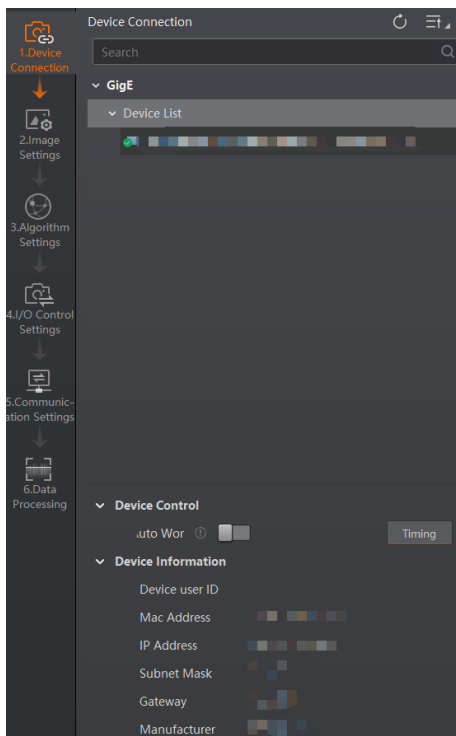


Figure 7-4 Device Configuration Area

Table 7-2 Configuration Area 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 codes, set number of codes, etc.
4	I/O Control Settings	You can set parameters related to input or output.
5	Communication Settings	You can select different communication protocols, and set related parameters.
6	Data Processing	You can set filter rule for output result.

Chapter 8 Device Settings

8.1 Device Mode Settings

The device supports 3 types of running modes, including **Test**, **Normal**, and **Raw**. You can select different modes in live view window according to actual demands.

Note

- Stopping the real-time acquisition is required before selecting modes.
- You need to set device mode as **Normal** before specific device settings. Otherwise, the device parameters may be different.

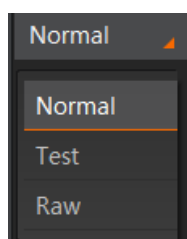


Figure 8-1 Select Device Mode

Table 8-1 Device 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.

You can click  in live view window to view images and code reading effect. If the effect is not very good, you can adjust related parameters like exposure time, gain, etc. in the **Image Settings** area.



Figure 8-2 Code Reading

8.2 Feature Tree Introduction

Note

The feature tree may differ by device models.

Table 8-2 Feature Tree Description

No.	Module Name	Description
1	Device Control	You can view device information, edit its name, restart it, etc.
2	Image Setting	You can set exposure, gain, Gamma, frame rate, etc.
3	Read Setting	You can set the device running mode and select code types.
4	Algorithm Control	You can set algorithm parameters of codes.
5	LightSource Control	You can set light source type and other related parameters.
6	Trigger and IO Control	You can set parameters related to input and output.
7	Filter Rules	You can set filter rules for output result.
8	Communication Control	You can select different communication protocols, and set related parameters for output result.
9	User Set Control	You can save and load user parameters, and restart the device.

8.3 Communication Settings

The communication protocol is used to transmit and output code reading result and image. The communication protocol is related to the device running mode. With various

device running modes, the device supports different communication protocols and corresponding parameters.

When device running mode is **Test**, the device only supports **SmartSDK** protocol and no parameter settings are required. While in **Normal** mode, the USB type device supports **SmartSDK**, **USB**, and **Bluetooth** protocol, and the network type device supports **SmartSDK**, **TCP Client**, **Serial**, **FTP**, **TCP Server**, **UDP**, **Profinet**, **Ethernet/IP**, **Bluetooth**, **ModBus**, **Melsec/SLMP**, and **FINS** communication protocols, and you need to set corresponding parameters.

 Note

- The **Profinet**, **Ethernet/IP**, **ModBus**, **Melsec/SLMP**, and **FINS** communication protocols are available on the device that supports industrial protocols.
 - The supported communication protocols may differ by device models and firmware version.
 - The specific parameters of communication protocols may differ by device models.
 - Only one communication protocol can be selected.
-

8.3.1 Set Smart SDK

If **SmartSDK** is selected as the communication protocol, you can configure the following parameters.

Table 8-3 SmartSDK Communication Protocol

Parameter	Description
SmartSDK Protocol	If it is enabled, the device will output data via SmartSDK.
SmartSDK Version	You can select SmartSDK 1.0 or SmartSDK 2.0 .

 Note

If you use the SDK for secondary development and data receiving, it is recommended to select **SmartSDK** as the **Communication Protocols**.

8.3.2 Set USB

If **USB** is selected as the communication protocol, you can configure the following parameters.

Table 8-4 USB Communication Protocol

Parameter	Description
USB Enable	If it is enabled, the device will output data via USB.
USB Output	You can select CDC or HID as the USB output method.

Parameter	Description
	 Note When the USB Output is HID , focus output is executed only. And there is not required to install the driver when the client software is not in use.

 Note

Only the USB type device supports the USB communication protocol.

8.3.3 Set TCP Server

If **TCP Server** is selected as the communication protocol, you can configure the following parameters.

Table 8-5 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	Enter the port No. of the TCP server that receives data. The default value is 2002.
Tcp Server Heartbeat Enable	If it is enabled, it can check the connection between the client software and the server, ensuring reliable and stable communication.
Tcp Server Barcode as Heartbeat	If it is enabled, the code read by the client will be sent as a heartbeat packet.
Tcp Server Heartbeat Text	Enter the content of heartbeat text. The heartbeat is entered by default, and the invisible characters are allowed.
Tcp Server Heartbeat Time	Set the duration of the heartbeat packet, and the unit is second. The default value is 5.

8.3.4 Set Serial

If **Serial** is selected as the communication protocol, you can configure the following parameters. The serial communication is commonly used in short-distance, low-speed, and anti-electromagnetic interference scenarios, such as connecting to legacy PLCs, sensors, and other devices.

Table 8-6 Serial Communication Protocol

Parameter	Description
Serial Protocols	If it is enabled, the device will output data via the RS-232 serial port.

Parameter	Description
Serial Baudrate	Set the serial port baud rate for the device used to receive data. The default value is 9600.  Note Make sure that the serial port baud rate of the code reader matches with that of the target device to prevent data loss or errors.
Serial Data Bits	Set the serial port data bit for the device used to receive data. You can select 7 or 8, and it is usually set to 8 bits.
Serial Parity	Set the serial port parity bit for the device used to receive data. You can set this parameter to NoParity, Odd Parity, or Even Parity. ● NoParity: Do not use the parity bit. ● Odd Parity: Add a parity bit at the end of the data to ensure that there is an odd number of 1s. Upon receiving the data, the receiver checks whether the count of 1s is odd. If it is not, a data transmission error is assumed. ● Even Parity: Add a parity bit at the end of the data to ensure that there is an even number of 1s. Upon receiving the data, the receiver checks whether the count of 1s is even. If it is not, a data transmission error is assumed.
Serial Stop Bits	Set the serial port stop bits for the device used to receive data. You can select 1 or 2, and the default value is 1.

8.3.5 Set FTP

If **FTP** is selected as the communication protocol, you can configure the following parameters, and files generated by the code reader (such as images, and decoding result files) will be transferred to the server.

Table 8-7 FTP Communication Protocol

Parameter	Description
FTP Protocol	If it is enabled, the device will output data via the FTP.
FTP Host Addr	Set the host IP address of the FTP that receives data.
FTP Host Port	Set the host port No. of the FTP that receives data.
FTP User Name	Enter a user name used for FTP server login.
FTP User PWD	Enter a password used for FTP server login.

8.3.6 Set TCP Client

If **TCP Client** is selected as the communication protocol, you can configure the following

parameters, and the code reader will act as a client to actively connect to external devices for data transmission.

Table 8-8 TCP Client Communication Protocol

Parameter	Description
TCP Protocol	If it is enabled, the device will output data via the TCP/IP.
TCP Dst Addr	Enter the IP address of the PC that receives data.
TCP Dst Port	Enter the port No. of the PC that receives data.
Heartbeat Enable	If it is enabled, the client software will send a data packet (heartbeat packet) to the server to check whether the data communication is normal.
Barcode as Heartbeat	If it is enabled, the code read by the client will be sent as a heartbeat packet.
Heartbeat Text	Enter the content of heartbeat text. The heartbeat is entered by default, and the invisible characters are allowed.
Heartbeat Time	Set the duration of the heartbeat, and the unit is second. If no heartbeat response is received in the set duration, the device will be released.

8.3.7 Set Profinet

Profinet is an Ethernet communication protocol for industrial automation that supports high-speed and real-time data transmission. When it is necessary to communicate with PLCs or other industrial devices that support the Profinet protocol, you can enable **Profinet Enable** and configure the following parameters.

Table 8-9 Profinet Communication Protocol

Parameter	Description
Profinet Enable	If it is enabled, the device will output data via the Profinet.
Profinet Device Name	Enter the device name of the code reader in the Profinet network. This name is used to distinguish the devices in the Profinet network, so please ensure that the device name is unique.
Profinet Result Module Size	Set the maximum length of the Profinet result. The unit is word.
Profinet Result Timeout (s)	Set the response time for the code reader after sending a request. If no response is received within this time, the code reader will consider the communication as timed out.

8.3.8 Set Ethernet/IP

Ethernet/IP is an Ethernet communication protocol for industrial automation, supporting high-speed, real-time data transfer and device control. When communicating with PLCs or other industrial devices supporting Ethernet/IP, you can enable the protocol and configure the following parameters.

Table 8-10 Ethernet/IP Communication Protocol

Parameter	Description
Ethernet/IP Enable	If it is enabled, the device will output data via the Ethernet/IP.
Input Assembly Size (Byte)	Set the buffer size of the code reader for receiving data from PLCs or other devices in bytes. This parameter determines the maximum number of received data.
Output Assembly Size (Byte)	Set the buffer size of the code reader for sending data to PLCs or other devices in bytes. This parameter determines the maximum number of transmitted data.
Byte Swap Endianness	Select whether to swap byte transmission order during data transmission. When it is enabled, bytes are transmitted in Big Endian mode. A high-order byte is the first, and a low-order byte is the last. Little Endian mode is the opposite.
Response Wait Time (s)	Set the response time for the code reader after sending a request. If no response is received within this time, the code reader will consider the communication as timed out.

8.3.9 Set ModBus

ModBus protocol is a commonly used industrial communication protocol. When communication with PLCs or other industrial devices supporting ModBus protocol is required, you can enable **Modbus Enable** and configure the following parameters.

Table 8-11 ModBus Communication Protocol

Parameter	Description
ModBus Enable	If it is enabled, the device will output data via the ModBus.
ModBus Mode	It includes server and client.
ModBusServerIP	It refers to the target IP address.  Note When the ModBus Mode is client, you can go to Feature Tree → Communication Control to set this parameter.

Parameter	Description
ModBusServerPort	It refers to the target port No.  Note When the ModBus Mode is client, you can go to Feature Tree → Communication Control to set this parameter.
Refresh Rate (ms)	Set the frequency of data synchronization between the code reader and the server. 100 is set by default.
ModBus Control Space	It refers to the control address space.
ModBus Control Offset	It refers to the control address offset, and is 0 by default.
ModBus Control Size (Word)	It refers to the control data volume, and is 1 by default.
ModBus Status Space	It refers to the status address space.
ModBus Status Offset	It refers to the status address offset, and is 1 by default.
ModBus Status Size (Word)	It refers to the status data volume, and is 1 by default.
ModBus Result Space	It refers to the result address space.
ModBus Result Offset	It refers to the result address offset.
ModBus Result Size (Word)	It sets maximum length of ModBus result.
ModBus Result Byte Swap	If it is enabled, the string bytes are stored in big-endian format. If not enabled, they are stored in little-endian format.
ModBus Result Timeout (s)	Set the waiting time before the PLC's response returns.

8.3.10 Set Melsec/SLMP

The Melsec/SLMP protocol is a communication protocol developed by Mitsubishi Electric for PLC communication, supporting high-speed data transmission and device control. When communication with a Mitsubishi PLC is required, you can enable the Melsec/SLMP

protocol and configure its parameters.

Table 8-12 Melsec/SLMP Communication Protocol

Parameter	Description
Melsec/SLMP Enable	If it is enabled, the device will output data via the Melsec/SLMP.
PLC Address	Set the IP address for the code reader to connect to the PLC.
Server Port	Set the port for the code reader to connect to the PLC.
Message Frame Type	Set the communication frame format used by the code reader in the Melsec/SLMP protocol.
Network Number	Set the network identity for the code reader in the Melsec/SLMP network.
PLC Number	Set the unique identity for the target PLC to ensure that the code reader can address and communicate correctly.
PLC Target IO Number	Set the starting number of the input/output registers used by the code reader for data exchange in the Melsec/SLMP protocol.
Refresh Rate	Set the frequency of data synchronization between the code reader and PLCs or other external devices.
Control Space	It refers to the control address space.
Control Region Address Offset	Set the control data register address offset of the code reader in the corresponding communication protocol network, i.e., set the start of control data in the network to ensure correct communication with external devices.
Control Size	It refers to the control data volume.
Status Space	It refers to the status address space.
Status Region Address Offset	Set the status data register address offset of the code reader in the corresponding communication protocol network, i.e., set the start of status data in the network to ensure correct reading and writing of status data.
Status Size	It refers to the status data volume.
Result Space	It refers to the result address space.
Result Region Address Offset	Set the result data register address offset of the code reader in the corresponding communication protocol network, i.e., set the start of result data in the network to ensure correct reading of decoding results or other output data.
Result Region Size (word)	Set the number of registers used for result data in the corresponding communication protocol network for the code reader, in word units. This parameter determines the capacity of

Parameter	Description
	output result data.
Byte Swap Endianness	Select whether to swap byte transmission order during data transmission. When it is enabled, bytes are transmitted in Big Endian mode. A high-order byte is the first, and a low-order byte is the last. Little Endian mode is the opposite.
Response Wait Time (s)	Set the response time for the code reader after sending a request. If no response is received within this time, the code reader will consider the communication as timed out.

8.3.11 Set Fins

Fins protocol is a communication protocol developed by Fuji Electric for PLC communication, supporting high-speed data transfer and device control. When communicating with Fuji PLCs, you can enable the Fins protocol and configure the parameters.

Table 8-13 Fins Communication Protocol

Parameter	Description
Fins Enable	If it is enabled, the device will output data via the Fins.
Fins Communication Method	Select the communication method when using the Fins communication protocol. The options are as follows. • UDP: The UDP communication method has a faster transmission speed but lower data communication reliability compared to the TCP protocol. It is suitable for scenarios that require high real-time performance and can tolerate some data loss. • TCP: The TCP communication method is more reliable than UDP and suitable for scenarios that require data integrity and transmission order.
Server IP	Enter the IP address of the target server (i.e., PLC or other devices) that connects to the code reader.
Server Port	Set the port number of the target server that connects to the code reader.
Refresh Rate	Set the frequency of data synchronization between the code reader and PLCs or other external devices.
Control Space	It refers to the control address space.
Control Region Address Offset	Set the control data register address offset of the code reader in the corresponding communication protocol network, i.e., set the start of control data in the network to ensure correct

Parameter	Description
	communication with external devices.
Control Size	It refers to the control data volume.
Status Space	It refers to the status address space.
Status Region Address Offset	Set the status data register address offset of the code reader in the corresponding communication protocol network, i.e., set the start of status data in the network to ensure correct reading and writing of status data.
Status Size	It refers to the status data volume.
Result Space	It refers to the result address space.
Result Region Address Offset	Set the result data register address offset of the code reader in the corresponding communication protocol network, i.e., set the start of result data in the network to ensure correct reading of decoding results or other output data.
Result Region Size (word)	Set the number of registers used for result data in the corresponding communication protocol network for the code reader, in word units. This parameter determines the capacity of output result data.
Byte Swap Endianness	Select whether to swap byte transmission order during data transmission. When it is enabled, bytes are transmitted in Big Endian mode. A high-order byte is the first, and a low-order byte is the last. Little Endian mode is the opposite.
Response Wait Time (s)	Set the response time for the code reader after sending a request. If no response is received within this time, the code reader will consider the communication as timed out.

8.3.12 Set UDP

If **UDP** is selected as the communication protocol, you can configure the following parameters.

Table 8-14 UDP Communication Protocol

Parameter	Description
UDP Protocol Enable	If it is enabled, the device will output data via the UDP.
UDP Dst IP	Set the IP address of the PC that receives data.
UDP Dst Port	Set the port No. of the PC that receives data.

8.3.13 Set Bluetooth

If **Bluetooth** is selected as the communication protocol, you can configure the following parameters.

Table 8-15 Bluetooth Communication Protocol

Parameter	Description
BLE Output	You can select IDA or Mobile devices (HID output) as the data output mode. • IDA: The device executes data communication by connecting to smart base via Bluetooth. • Mobile devices (HID output): The device executes data communication by connecting to mobile phone or PC via Bluetooth. Refer to section for Mobile Terminal Connection via Bluetooth details.
BLE DATATRANS MODE	You can select Real time Mode, ReTrans Mode, or Batch Mode as data processing mode during Bluetooth disconnection. • Real time Mode: The device will not cache data. • ReTrans Mode: The device will cache data, and automatically retransmit the data upon Bluetooth reconnection. You can set Ble Cache Num.  Note Ble Cache Num refers to the maximum number of code data that the code reader can store when the Bluetooth is disconnected. The default value is 256. • Batch Mode: The device will cache data, and execute data transmission in batch after Bluetooth is reconnected and configuration code of outputting cached data is scanned.

Note

- The Bluetooth communication protocol may differ by device models and firmware versions. Refer to the device you purchased for actual conditions.
- Refer to section [Set Configuration Codes of Switching Mode](#) for details of outputting data in batch mode.

8.4 Code Reading Result Settings

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

8.4.1 Set Result Format

Result format settings allow you to set the format and contents contained in the output code information. Result format is related to communication protocol and trigger mode. With different selected communication protocol and trigger mode, you need to set corresponding parameters.

Note

- The supported communication protocols may differ by device models.
 - Result format settings are not available for **Smart SDK**.
 - For details about communication protocol, see section [Communication Settings](#) for details.
-

Result Output via Smart SDK

When the communication protocol is **SmartSDK**, device running mode is **Normal**, and trigger mode is **On**, there is no need to set any parameters in the **Data Processing**.

Result Output via FTP

If **FTP** is selected as **Communication Protocols**, you need to set following parameters.

FTP Picture Name Format

Click **Edit** to open **Format Output** window, and select one or multiple items to be contained in the picture name and click **Save**. The selected items will be displayed in the frame below. You can also enter more contents directly in the frame.

Encode Format

You can select **GB2312** or **UTF8**.

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 output by the device to FTP server.

All refers to upload the data always.

Read Code refers to upload the data only when the code is read by the device.

No Read Code refers to upload the data only when no code 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 code.

Just Picture refers to only upload the code picture.

Result and Picture refers to upload both the content of the code and the picture.

FTP File Name Content

You can select frame No., code content, code type, and other options.

FTP Picture Name

It sets the name of the picture uploaded to FTP server. The file does not include the extension, which varies depending on the selected image format.

FTP Time Format

Select a format type from the drop-down list for the time stamp contained in the file name.



Note

You can go to **Feature Tree** → **Result Setting Control** to set the above parameters.

Result Output via Other Communication Protocols

If TCP Client, TCP Server, Serial, Profinet, Ethernet/IP, ModBus, UDP, USB, Melsec/SLMP, FINS, or Bluetooth is selected as **Communication Protocols**, you need to set following parameters.



Note

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

** Output Format

Click **Edit** to open **Format Output** window, and select one or multiple items to be contained in the picture name and click **Save**.

** Output NoRead Enable

If it is enabled, the device will output the content you set in **** Output NoRead Text** when no code is recognized.

** Output Start Text

It refers to the contents of the start part of the data output. You can set the contents according to actual condition.

** Output Stop Text

It refers to the contents of the end part of the data output. You can set the contents according to actual condition.

** Output Serial Delimiter

It sets the separator between codes. Semicolon (;) is set by default. This function is valid only when there are multiple codes for outputting.

** Output Barcode Enter Character Enable

If it is enabled, carriage return will be added at the last of a code.

** Output Barcode Newline Character Enable

If it is enabled, a newline will be added at the last of a code.

** Output Barcode Horizontal Tab Character Enable

If it is enabled, a horizontal space will be added between the front and back codes based on 4 characters.

8.4.2 Set Format Output

The Format Output supports organizing data output through communication protocols according to specific structures, formats, or rules, including adding or removing output content or characters, configuring the start and end portions of the output content, and more.

IDMVS supports format configuration based on communication protocols, allowing you to flexibly format output data that has enabled communication protocols. The operation steps are as follows.

Note

Before using **Format Output**, you should enable communication protocols on the **Communication Configuration** page, except for the **Smart SDK Protocol**.

1. In the navigation bar of IDMVS main interface, select the **Data Processing** → **Format Output**, and open the **Format Output** window.
2. Above the **String Preview** content box, select the communication protocol.
3. In the **String Preview** content box, click to specify the cursor position, which determines where the content will be inserted.
4. In the **String Preview** content box below, select the content to be added, set the prefix and suffix of output content, and other parameters.
5. Click **Save**. The settings will be added to the **** Output Format**.

Figure 8-3 Set Format Output

Note

- In the upper right corner of the **String Preview** content box, characters can be added by clicking ASCII Table. For the supported character description, please refer to section [Appendix A ASCII Table](#) for details.
 - All the added content boxes can be deleted by clicking **Clear**.
-

The configurable parameters for each communication protocol are described below.

FTP Protocol

If **FTP** is selected as **Communication Protocols**, you need to set following parameters: **Read Bar Result, Code Content, Code Type, Frame Time, Trigger No., Frame No., Incremental Value**, and characters in **ASCII Table**.

Other Communication Protocols

If other communication protocols are selected as **Communication Protocols**, you need to set following parameters: **Code Content, Code Type, Angle of DMcode L Shaped, Trigger Start Time, Mirror Mask, Trigger No., Frame No., Line Feed, Carriage Return, Horizontal Tab**, and characters in **ASCII Table**.

Note

- **Angle of DMcode L Shaped** is available when you select DataMatrix in **Algorithm Settings** → **Select Code** → **2D Code**. You can select this parameter for output to check for code deformation or misalignment.
 - After **Mirror Mask** is selected, mirror code is marked in the output data as numbers or text. Text format is used by default.
-

8.4.3 Set Sorting Rule

The sorting rule module supports setting rules to sort multiple code data, applicable for scenarios requiring ordered processing of decoded data. You can go to **Data Processing** → **Data Processing** → **Sorting Rules** to select the rule.

- **Center Coordinate X ASC/DESC**: Output results based on ascending or descending X-coordinate of code center points.
- **Center Coordinate Y ASC/DESC**: Output results based on ascending or descending Y-coordinate of code center points.
- **Scan ASC/DESC**: Output results based on ascending or descending scanning sequence of codes.
- **Code Type ASC/DESC**: Output results based on ascending or descending code types.
- **Code Length ASC/DESC**: Output results based on ascending or descending content length of codes.

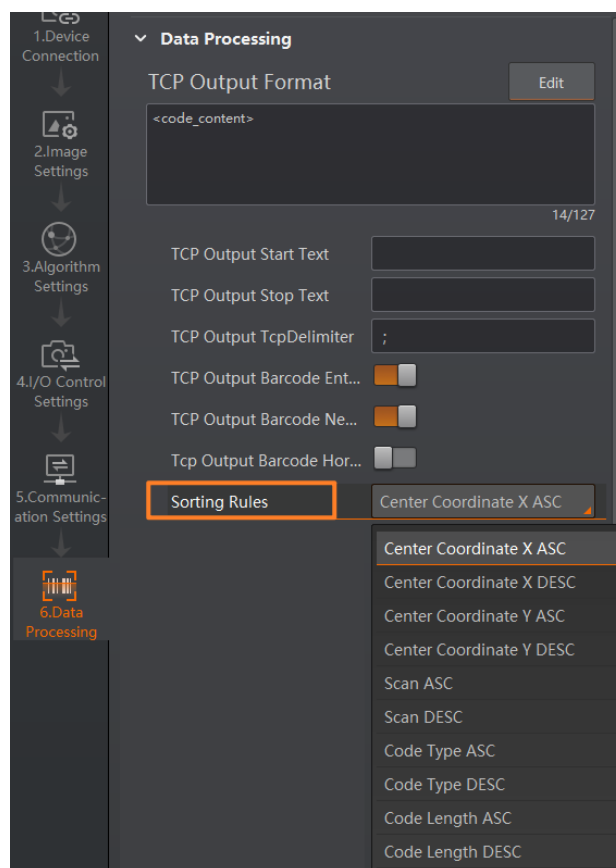


Figure 8-4 Set Sorting Rule

8.4.4 Set Filter Rule

You can set rules to filter unwanted codes to improve the reading efficiency in **Filter Rule**. The filter modes include normal mode, regular expression mode, and script mode.

Note

The filter rule parameters may differ by device model or firmware version.

Normal Mode

When the filter mode is **Normal**, you can set the following parameters according to actual demands.

Numeral Filter

If this parameter is enabled, the device will only parse and read the numeral contents of the codes, and the non-numeral contents will be filtered out.

Non Mirror Code Enable

If this parameter is enabled, the non-mirror code can be outputted, and the mirror code be filtered.

Note

The mirror code or non-mirror code is determined by algorithm. Except for 2D codes, all other code symbologies are set to non-mirrored.

Begin with Specific Character for Result

If this parameter is enabled, the device will only read the codes which begin with a specific character. Otherwise, the codes will be filtered out. You can enter the specific character in **Begin with**.

Include Specific Character in Code

If this parameter is enabled, the device will only read the codes which include a specific character. Otherwise, the codes will be filtered out. You can enter the specific character in **Character**.

Exclude Specific Character in Code

If this parameter is enabled, the device will only read the codes which exclude a specific character. Otherwise, the codes will be filtered out. You can enter the specific character in **Character**.

Min. Code Length

If the length of a code is shorter (in terms of the number of characters contained in the code) than the configured value, the device will not parse the contents of the code. For example, if you set the value as 6, the device will not parse the contents of the codes which contain less than 6 characters.

Max. Code Length

If the length of a code is longer (in terms of the number of characters contained in the code) than the configured value, the device will not parse the contents of the code. For example, if you set the value as 9, the device will not parse the contents of the codes which contain more than 9 characters.

History Filter Mode

You can select **Time-based** and **Quantity-based**.

Time-based: Set **Filter Time(ms)**. Duplicate codes are filtered within the set time range.

Quantity-based: Set **Max. History Code Number**. The codes are filtered when the maximum number of history codes is reached. The default value is 20, and the range is 1 to 20.

Note

Under trigger mode, you can enable **De-duplication Enable By Trigger** to filter duplicate codes within specific trigger times that you set in **De-duplication Windows Size**.

Cut Mode

You can select **Code Offset** and **Character Expression**.

Code Offset: You can set Code Start Offset Num and Code End Offset Num to crop the

barcode from the start or end of the specified content length, and output the remaining code information.

Character Expression: You can set Range of the Character Expression to crop the code. For example, the code content is 123456789.

- When the character expression is set as (5), 5 will be output.
- When the character expression is set as (1-6), 123456 will be output.
- When the character expression is set as (1-2,4,6-), 1246789 will be output.
- When the character expression is set as (M1-M2), 56 will be output.
- When the character expression is set as (MN1-MN2), 45 will be output.
- When the character expression is set as (N1-N6), 456789 will be output.
- When the character expression is set as (N1-N2,N4,N6-), 1234689 will be output.
- When the character expression is set as (N3-), 1234567 will be output.
- When the character expression is set as (2-N2), 2345678 will be output.
- When the character expression is set as (MN3-M3), 34567 will be output.
- When the character expression is set as (1-MN2), 1234 will be output.
- When the character expression is set as (-)/(1-N1)/(1-)/(N1-), 123456789 will be output.

Note

- M means the middle value. When the number of the code content is odd, the M is taken as the middle one; when it is even, the M is taken as the left value of the two middle values.
- N means the value counted from the right.
- You can go to **Feature Tree** → **Filter Rules** to test the character expression.

Read Times Threshold

If the reading result of a code is same for the configured times, the code will be regarded as valid and its reading result will be output. Or the code will be regarded as invalid and its reading result will not be output.

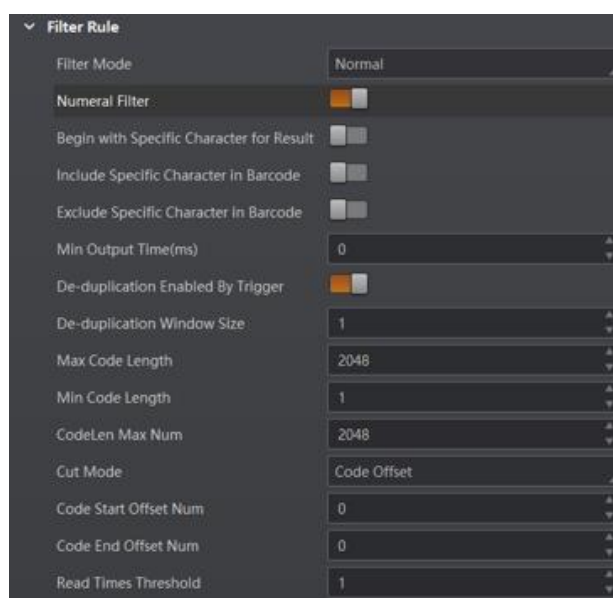


Figure 8-5 Normal Mode

Regular Expression Mode

When the filter mode is **Regular Expression**, you can follow the steps below to set parameters.

Steps

1. Refer to normal mode to set parameters of **Min. Code Length**, **Max. Code Length**, **Read Times Threshold**, and **History Filter Mode**.
2. Select **Regular Expression** as the **Filter Mode**, and click **Set** in **Regular Expression Filter** to enter regular expression filter settings window.
3. 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.

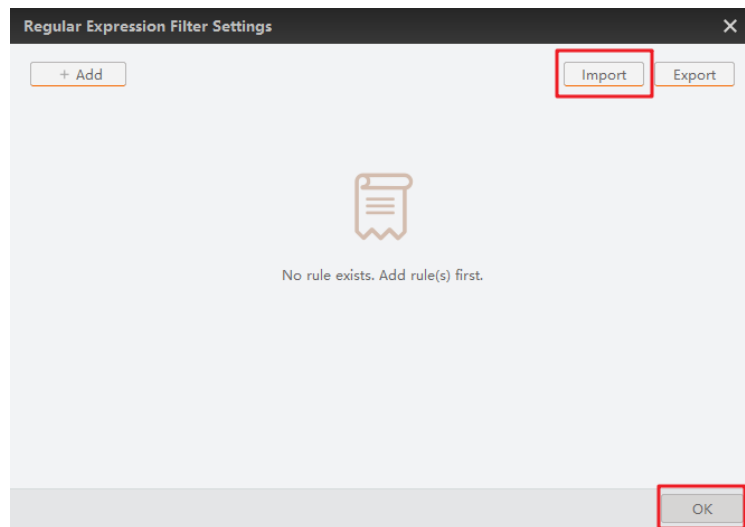


Figure 8-6 Regular Expression Filter Settings

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

Note

Up to 10 filter rules can be added.

Figure 8-7 Enter Customized Regular Expression Filter Rules

Table 8-16 Filter Rule Parameters

Parameter	Description
Rule Name	The default rule name is Rule1, and cannot be edited.
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.  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.

Parameter	Description
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.
Character	Set a filter for a specific character in the code that must start from a certain position. The first digit from left to right represents the 0th position. For example, if you set this parameter to aa from 2 Bit Start , the code "1aa23" does not meet the requirement, whereas "12aa3" does.
Other Conditions	You can select uppercase, lowercase, digit or Chinese.

4. (Optional) After setting filter rule, enter the code in **Code Check** to check if the filter rule is successful.

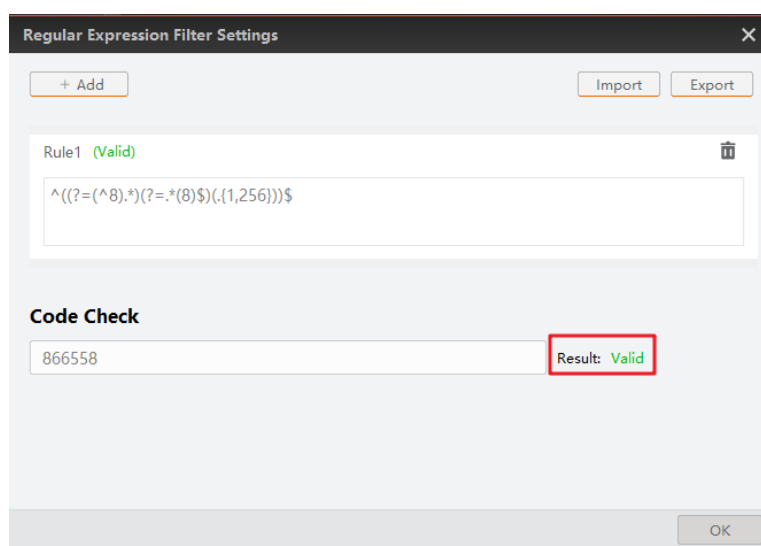


Figure 8-8 Code Check

Note

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

5. (Optional) Click  or  to delete or edit the filter rules.
 6. (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.

Script Mode

When the filter mode is **Script**, you can set the following parameters according to actual demands.

Max. Code Length

If the length of a code is longer than the configured value, the device will not parse the contents of the code.

Min. Code Length

If the length of a code is shorter than the configured value, the device will not parse the contents of the code.

CodeLen Max Num

If the length of a code is longer than the configured value, the device will not output the code.

Note

The **CodeLen Max Num** is available when the trigger is on.

Cut Mode

You can select **Code Offset** and **Character Expression**.

Code Offset: You can set **Code Start Offset Num** and **Code End Offset Num** to crop the barcode from the start or end of the specified content length, and output the remaining code information.

Character Expression: You can set Range of the Character Expression to crop the code. For example, the code content is 123456789.

- When the character expression is set as (5), 5 will be output.
 - When the character expression is set as (1-6), 123456 will be output.
 - When the character expression is set as (1-2,4,6-), 1246789 will be output.
 - When the character expression is set as (M1-M2), 56 will be output.
 - When the character expression is set as (MN1-MN2), 45 will be output.
 - When the character expression is set as (N1-N6), 456789 will be output.
 - When the character expression is set as (N1-N2,N4,N6-), 1234689 will be output.
 - When the character expression is set as (N3-), 1234567 will be output.
 - When the character expression is set as (2-N2), 2345678 will be output.
 - When the character expression is set as (MN3-M3), 34567 will be output.
 - When the character expression is set as (1-MN2), 1234 will be output.
-

- When the character expression is set as $(-)/(1-N1)/(1-)/(N1-)$, 123456789 will be output.

Note

- M means the middle value. When the number of the code content is odd, the M is taken as the middle one; when it is even, the M is taken as the left value of the two middle values.
 - N means the value counted from the right.
 - You can go to **Feature Tree** → **Filter Rules** to test the character expression.
-

Range	(1-)
Barcode Spec Test Input	123456789
Barcode Spec Test Output	
Barcode Spec Run Test	Execute

Figure 8-9 Test

History Filter Mode

You can select **Time-based** and **Quantity-based**.

Time-based: Set **Filter Time(ms)**. Duplicate codes are filtered within the set time range.

Quantity-based: Set **Max. History Code Number**. The codes are filtered when the maximum number of history codes is reached. The default value is 20, and the range is 1 to 20.

Note

Under trigger mode, you can enable **De-duplication Enable By Trigger** to filter duplicate codes within specific trigger times that you set in **De-duplication Windows Size**.

Read Times Threshold

If the reading result of a code is same for the configured times, the code will be regarded as valid and its reading result will be output. Or the code will be regarded as invalid and its reading result will not be output.

JPEG Transmission Conditions

You can set the transmission condition for JPEG picture output. Options include **All**, **ReadBarcode**, and **NoReadBarcode**.

8.4.5 Set USB-HID Data Output

The device supports data output settings via the USB-HID protocol. It provides two functions: language output settings and output speed settings.

Before You Start

Make sure the **USB** is selected as the communication protocol, **USB Enable** is enabled, and

the **USB Output** is **HID**.

Language Output Settings

The device supports language output, including Chinese, German, Japanese, Thai, Vietnamese, and Korean. You can go to **Feature Tree** → **Communication Control** to set related parameters.

Before You Start

1. Make sure the device is in the Normal mode.
 2. Select operating system (Windows system or Linux system) according to the system of the output device.
 3. Switch the keyboard input to English input method.
 4. Follow the content below to set the compatibility of the input method.
- For Windows 10 and Windows 11 operating system, it is recommended to use Sogou Input Method or iFLYTEK Input Method (both are from Chinese companies). If the Microsoft Pinyin Input Method is used, you need to right click the icon of input method, and go to **Settings** → **General** → **Compatibility** to enable it.

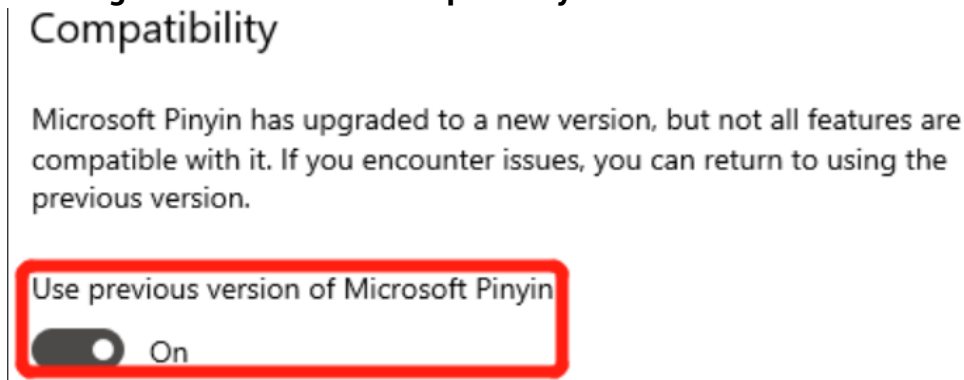


Figure 8-10 Compatibility Settings

- For Windows operating system earlier than Windows 10, there is no need to set.
- For Linux operating system, you need to install ibus Input Method, Fcitx Input Method, or Sogou Input method with Linux version. If you have some problems, contact technical support for help.

Language Output (China)

Steps

1. Go to **Feature Tree** → **Communication Control** → **Output Country**, and select **China**.
2. In **Priority Input Encoding**, select **GBK** or **UTF-8** according to the encoding method.

Note

- **UTF-8** is selected by default.
 - **UTF-8** is recommended when the encoding method is uncertain. For any code reading issues, you can switch the input encoding method.
-

3. In **Output Encoding**, select **GBK** or **Unicode** according to the encoding method of software.

Note

- **GBK** is selected by default.
 - The output encoding method may differ by software and operating system. For example, **GBK** should be selected for content output in Windows 10 Notepad, and **Unicode** selected in Office Word and in Windows 11 Notepad.
-

Language Output (Other Countries)

Steps

1. Go to **Feature Tree** → **Communication Control** → **Output Country**, and select **Other Countries**.
 2. In **Priority Input Encoding**, select **GBK** or **UTF-8** according to the encoding method.
-

Note

- **UTF-8** is selected by default.
 - **UTF-8** is recommended when the encoding method is uncertain. For any code reading issues, you can switch the input encoding method.
 - If there is an exception in output, you can disable **KeyBoard Enable**.
-

Output Speed Settings

The device supports outputting code content in batches. You can go to **Feature Tree** → **Communication Control** to set **Output Interval** and **Output Number after Interval**.

Output Interval(μs)

This parameter refers to the time interval between batches of character outputs after a single trigger of the device. Increasing this value appropriately can help alleviate system processing pressure and prevent data loss, while reducing this value can improve response speed for high-efficiency and rapid code reading scenarios.

Output Number after Interval

This parameter indicates the number of characters output per batch after a single trigger of the device. Combined with the **Output Interval**, the device will output the set number of characters, wait for the preset interval, and then continue with subsequent batches.

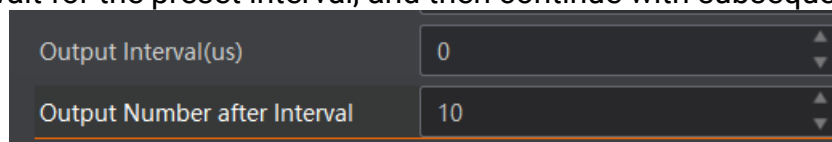


Figure 8-11 Output Speed Settings

8.4.6 Set Result Process

The device supports adjustment of the code content, such as toggle case and character replacement.

Go to the Control Toolbar and click .

Note

You can also set the toggle case and character replacement via Lua script. Refer to *IDMVS Client Software User Manual* for details.

Convert Mode

You can select **Normal**, **UpperCase**, **LowerCase**, or **Reverse**.

- **Normal**: Refers to the original format.
- **UpperCase**: All letters will be changed to uppercase format. For example, abc123 will be changed to ABC123.
- **LowerCase**: All letters will be changed to lowercase format. For example, ABC123 will be changed to abc123.
- **Reverse**: All letters will be switched between uppercase and lowercase formats in a reversible manner. For example, AbC123 will be changed to aBc123.

Replace Mode

Select **Open** in the **Replace Mode**. The specified string will be replaced by the target string. For example, when the origin text is yu and replace text is ok, the code content XYyuC789 will be changed to XYokC789.

- **When the replace text is empty**, the origin text will be removed. For example, when the origin text is 12A and replace text is empty, the code content B12A9 will be changed to B9.
- **When the replace text is an invisible character**, e.g., a line break (\n), the code content XYyu2 will be changed to $\begin{matrix} XY \\ 2 \end{matrix}$.
- **When the replace text contains **, you should enter \\ to finish the replacement. For example, if you want to change the code content XYyu2 to XY\2, you should set the origin text as yu and replace text as \\.

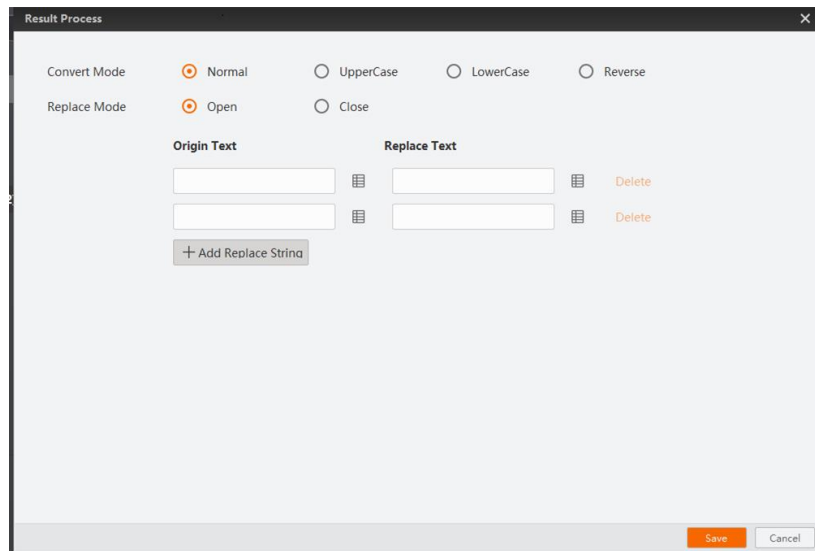


Figure 8-12 Result Process Settings

Note

- The **Replace Mode** is available only when the running mode is **Normal**.
- The Chinese characters are not supported in **Replace Mode**.
- You can click **Add Replace String** to add more rules. Up to 32 rules can be added.
- When multiple replacement rules are added, the client software will execute the replacements in the order that you added. The output of each rule will serve as the input for the next rule until all rules are completed.
For example, the original code content is B12A9,
Rule 1: Origin text is 12A, and replace text is C. Therefore, the output content is BC9.
Rule 2: Origin text is B, and replace text is D. Therefore, the output content is DC9.
- When the **Convert Mode** and **Replace Mode** are enabled at the same time, the client software will execute **Replace Mode** first, and then execute **Convert Mode**.
For example, the original code content is 123qw,
Convert Mode: **UpperCase** selected,
Replace Mode: Origin text is 123, and replace text is 456as,
Therefore, the final output content is 456ASQW.

8.5 Code Scanning Settings

The code scanning method determines how the device identifies and processes code data during code reading. You can go to **Feature Tree** → **Trigger and IO Control** to select the code reading method: **Common Mode**, **Accurate Mode**, **Continuous Mode**, **Batch Mode**, and **Fixed Mode**.

Table 8-17 Code Scanning Mode

Code Scanning Mode	Description
Common Mode	It reads codes that are closest to the cross laser center only. The code reading process ends if codes are read successfully or the trigger switch is released.
Accurate Mode	The code can still be properly read and output as long as it falls within the adjustable recognition frame extension range, even when it is not aligned with the laser center. You may configure the extension ranges in four directions: top, bottom, left, and right.
Continuous Mode	It reads codes containing the cross laser center in the code area only. The device reads codes continuously when the trigger switch is pressed and ends reading when the switch is released. The corresponding code information and prompt will be output once the code is read successfully. The same code is filtered according to the filter rules while the trigger switch is pressed.  Note For optimal scanning in continuous mode, the following should be noted: • 1D code: Place the code horizontally. A vertical direction may cause scanning failure. • 2D code: Avoid oversized code. • Angle: The scanning angle should be kept as perpendicular as possible to the code surface. • Refer to section Set Sorting Rule to sort multiple codes.
Batch Mode	It can read multiple codes when the trigger switch is pressed. After code reading is finished, the result will be packaged and output. 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.
Fixed Mode	After selecting this mode, multiple methods will be applied to control the start/stop of image acquisition and code reading.

Under the **Batch Mode**, you can select **Free Mode** or **Fixed Mode** according to the needs.

Free Mode

After the trigger button is released, the device will output the code content immediately. **Read Code Num Min** and **Read Code Num Max** should be set.

Read Code Num Min: When the code reading quantity is less than the min. value, the code content will not be outputted, and the red light is flashing. The min. value is 1 by default, and it should be between 1 and the max. value.

Read Code Num Max: When the code reading quantity is greater than the max. value N, the content of the first N codes will be outputted, and the subsequent codes omitted. The max. value is 5 by default, and it should be between 1 and 20.

Fixed Mode

After the trigger button is released, or the code reading quantity is reached the value set in **Read Code Num Target**, the code reading is finished. If the code reading quantity is less than the value of **Read Code Num Target**, the code content will not be outputted, and the buzzer will beep once. The value is 5 by default, and it should be between 1 and 20.

Note

The **Free Mode** is set by default.

Under the **Accurate Mode**, you can select the following parameters according to the needs.

- **Accurate Top Offset (px):** Set the pixel value for expanding the barcode reading frame upward. The default value is 10, indicating that barcodes within 10 pixels above the laser center can be read.
 - **Accurate Bottom Offset (px):** Set the pixel value for expanding the barcode reading frame downward. The default value is 15, indicating that barcodes within 10 pixels below the laser center can be read.
 - **Accurate Left Offset (px):** Set the pixel value for expanding the barcode recognition frame to the left. The default value is 150, indicating that barcodes within 150 pixels to the left of the laser center can be read.
 - **Accurate Right Offset (px):** Set the pixel value for expanding the barcode recognition frame to the right. The default value is 150, indicating that barcodes within 150 pixels to the right of the laser center can be read.
-

Note

It is recommended to set the **Accurate Top Offset (px)** and **Accurate Bottom Offset (px)** parameters at first.

8.6 Device Control Settings

Note

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

Go to **Device Control**, you can view battery value, temperature, and other information of the

device and smart base.

8.6.1 Device Parameters

Table 8-18 Device Parameters

Device Parameters	Description
IDH Battery State	It displays the battery state of the device, including Charge, Leave, Charge, Discharge, Not Discharge and Not Charge.
IDH Battery Value	It displays the battery value of the device, ranging from 0% to 100%.
IDH Battery Temperature	It displays the battery temperature of the device.
IDH Battery KeepAlive Timeout (s)	If no operation is performed on the device within the configured duration, the device will enter low consumption mode. The unit is second, and the value range is from 0 to 65535.
IDH Power Off Timeout (min)	It sets the duration for switching low consumption mode to shutdown mode. All power supplies will be closed except low consumption MCU when the device shuts down. The unit is minute, and the value range is from 0 to 65535.
Battery Manager Version	It displays the battery version of the device.
IDH Ble SoftVersion	It displays the Bluetooth version of the device.

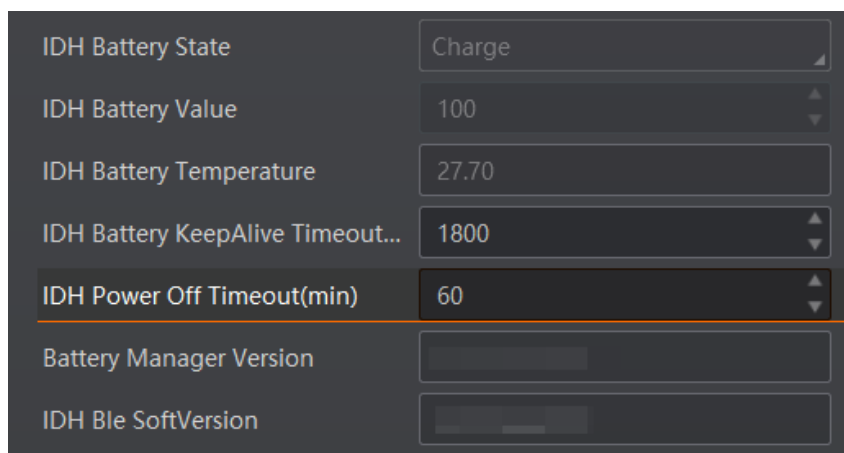


Figure 8-13 Device Parameters

8.6.2 Smart Base Parameters

Table 8-19 Smart Base Parameters

Smart Base Parameters	Description
Connect Status	It displays the connection status between the smart base and the device.
IDA Battery State	It displays the charging status of the smart base, including Leave, Charge, Discharge, Not Discharge and Not Charge.
IDA Ble SoftVersion	It displays the Bluetooth version of the smart base.
Connected IDH Number	It displays the number of devices that are connected to the smart base.

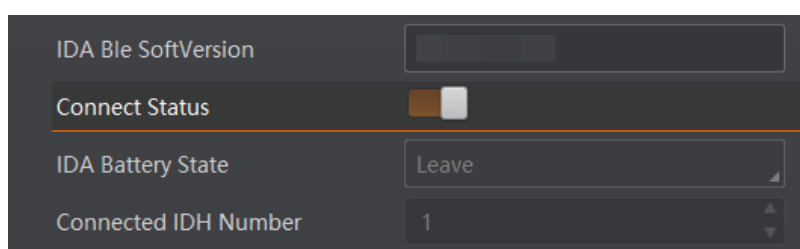


Figure 8-14 Smart Base Parameters

8.7 Prompt Settings

Note

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

The device's buzzer, vibrator, indicator, and buttons of the smart base can be configured via the client software.

8.7.1 Set Buzzer

Go to **Tigger and IO Control**, and you can set buzzer parameters of the device after code reading is successful.

- **Buzzer Enable:** If it is enabled, you can set buzzer parameters.
- **Buzzer Duration(ms):** It sets the output duration of the buzzer, and the unit is ms.
- **Buzzer Frequency(hz):** It sets output frequency of the buzzer, and the unit is hz.

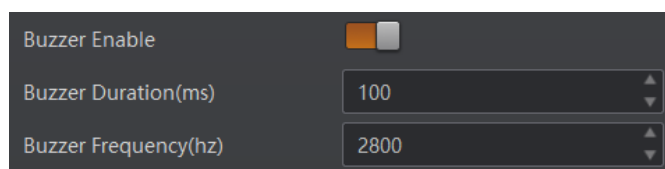


Figure 8-15 Set Buzzer

8.7.2 Set Vibrator

Go to **Tigger and IO Control**, and you can set vibrator parameters of the device after code reading is successful.

- **Vibrator Enable:** If it is enabled, you can set vibrator parameters.
- **Bcr Vibrator Duration(ms):** It sets the output duration of the vibrator, and the unit is ms.

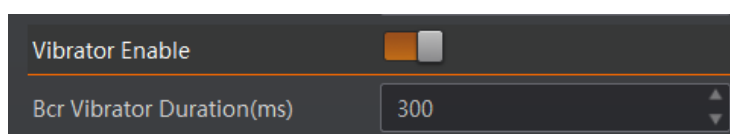


Figure 8-16 Set Vibrator

8.7.3 Set Button on Smart Base

Go to **Device Control**, and you can set parameters of button on smart base.

- **Left Key Enable:** It sets the left button on the smart base. After it is enabled, press the left button for 3 seconds to disconnect the device from the smart base. The smart base is in standby status.
- **Right Key Enable:** It sets the right button on the smart base. After it is enabled, press the right button for 3 seconds, and the smart base sends **Find Me** command to the device. After receiving the commands, the device will have indicator and buzzer prompts. Press it for 3 seconds again, and the smart base stops sending **Find Me** command.



Figure 8-17 Set Button on Smart Base

8.8 Image 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.

8.8.1 Set Image

You can set different image parameters like exposure time, gain, Gamma, and acquisition frame rate in image parameters.

Note

- Make sure the device to be set is selected in Device Connection before setting image parameters.
 - For specific parameter range like exposure time, gain and acquisition frame rate, refer to the device's specification for details.
-

Exposure Time(μ s)

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(dB)

You can increase gain to improve image brightness.

Note

- To some extent, increasing gain will create more image noises, and impact image quality.
 - If you want to set exposure time and gain manually, go to **Feature Tree** → **Image Settings** to disable exposure auto and gain auto.
-

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 number of images that is acquired by the device per second.

Go to **Feature Tree** → **Image Settings** to set other parameters.

Average Rate of Algorithm Identify

It refers to the absolute value of the maximum allowable acquisition frame rate. The absolute value is a floating-point value that represents the maximum acquisition frame rate based on the current settings that the exposure time and bandwidth are configured.

Width Max

It refers to the maximum width of the image, and the unit is pixel.

Height Max

It refers to the maximum height of the image, and the unit is pixel.

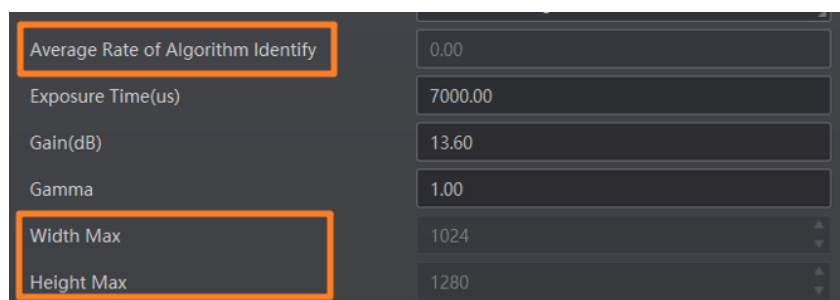


Figure 8-18 Image Settings in Feature Tree

8.8.2 Set Exposure

The device supports two types of exposure modes, including off and continuous. Refer to the table below for details.

Go to **Feature Tree** → **Image Settings** → **Exposure Auto**, and select it according to actual demands.

Table 8-20 Exposure Mode

Exposure Auto	Description
Off	The device exposures according to the value configured by the user in Exposure Time (μs) .
Continuous	The device adjusts the exposure time continuously according to the image brightness.

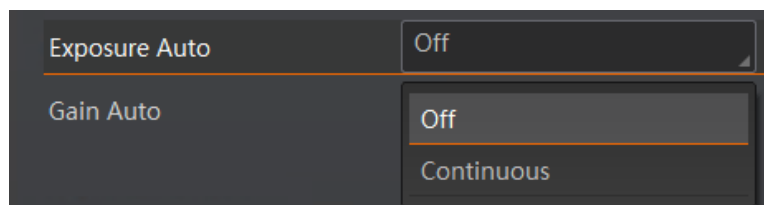


Figure 8-19 Set Exposure

8.8.3 Set Gain

The device supports two types of gain modes, including off and continuous. Refer to the table below for details.

Go to **Feature Tree** → **Image Settings** → **Gain Auto**, and select it according to actual demands.

Table 8-21 Gain Mode

Gain Auto	Description
Off	The device adjust gain according to the value configured by the user in Gain (dB) .
Continuous	The device adjusts gain continuously according to the image brightness.

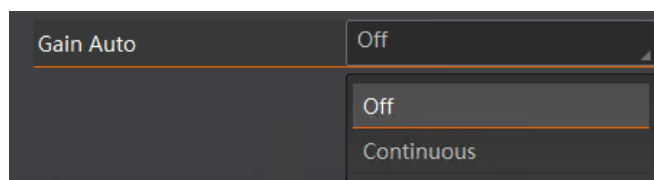


Figure 8-20 Set Gain

8.8.4 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.

Note

- Light source parameters may differ by device models.
 - Make sure you have selected the device to be set in **Device Connection** before setting light source parameters.
-

AimingLight Enable

It enables or disables the device's aiming light.

AimingLight Delay Enable

After this parameter is enabled, you can enter **AimingLight Delay Duration** to delay the close time of the aiming light.

Light Polling

After this parameter is enabled, you can set polling time of white light and red light.

Idh Light Poll Time(ms)

You can set polling time of the light according to the actual demands.

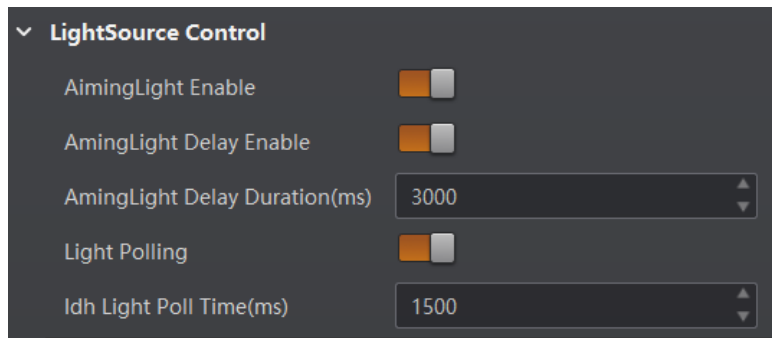


Figure 8-21 Set Light Source

Note

If **Light Polling** is disabled, **Red Light Enable** is enabled by default.

8.8.5 Set Test Pattern

You can select the test pattern for image quality test. If image exception exists during acquisition, you can check if similar exception exists in the test to determine the reason of the exception.

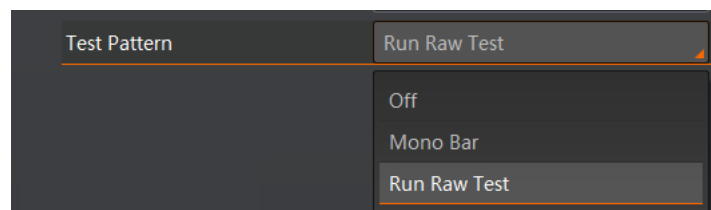


Figure 8-22 Set Test Pattern

Off

If you select **Off**, the device will output the real-time image.

Mono Bar

If you select **Mono Bar**, the device will output the test image, and the image pattern is black and white vertical stripes.

Run Raw Test

The test images used by the code reader are sourced from its test image folder, where all images are preloaded via FTP instead of being captured in real-time. You can follow the steps below to upload the test image.



Figure 8-23 Test Image Process

Steps

1. Go to **Settings** → **Capturing**, and open **Capturing** window.
2. Set image format as **RAW** or **BMP**. **JPG** is not supported.
3. (Optional) Set other parameters according to the needs, such as Saving Path, **File Naming Rule**, or **Continuous Capture**.

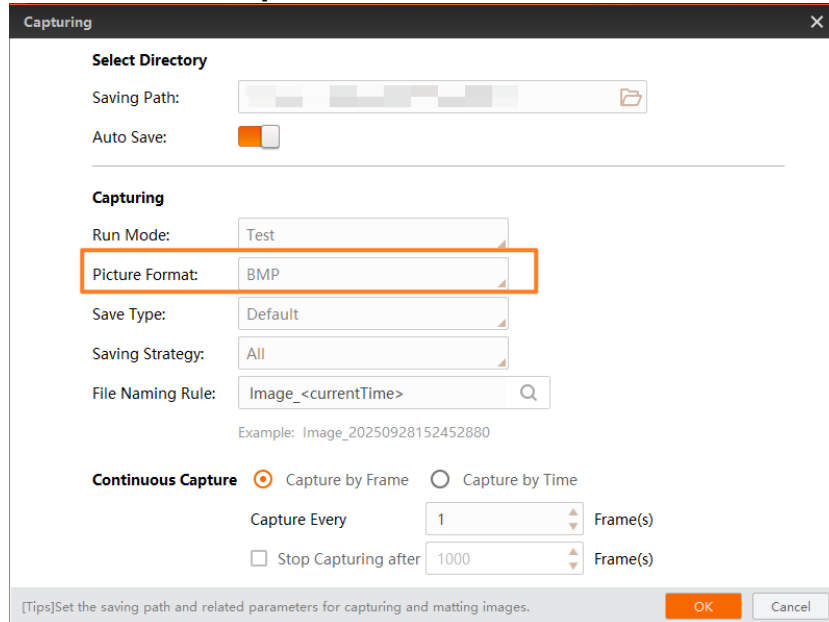


Figure 8-24 Capturing Settings

4. Start acquisition, and click  to capture image. The image will be saved to the saving path.
5. Stop acquisition, right click the device name in the device list, and select **File Access**.
6. Select **Test Img** in **File Access** window, and click **Import**.

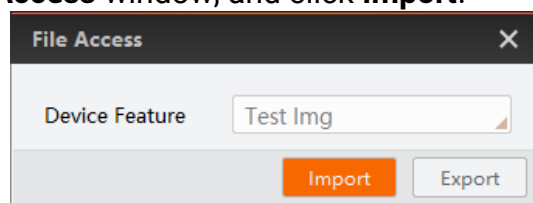


Figure 8-25 Test Img

7. Open the saving path of captured image, and import the image.
 8. Select **Run Raw Test** in **Test Pattern**.
- Upon acquisition, the code reader will process the imported test image, without reading the code in the scene.

8.9 Algorithm Settings

The code reader supports reading multiple types of 1D code, 2D code and stacked code,

and you can add and set code parameters via the client software.

8.9.1 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**, you can select types of codes to be read, and set the **Number of 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.
 - The code reader may output actual code number when the mismatch between the actual code number and the code number set in the client software occurs.
 - **Number of code** is shown when code scanning mode is batch mode.
-

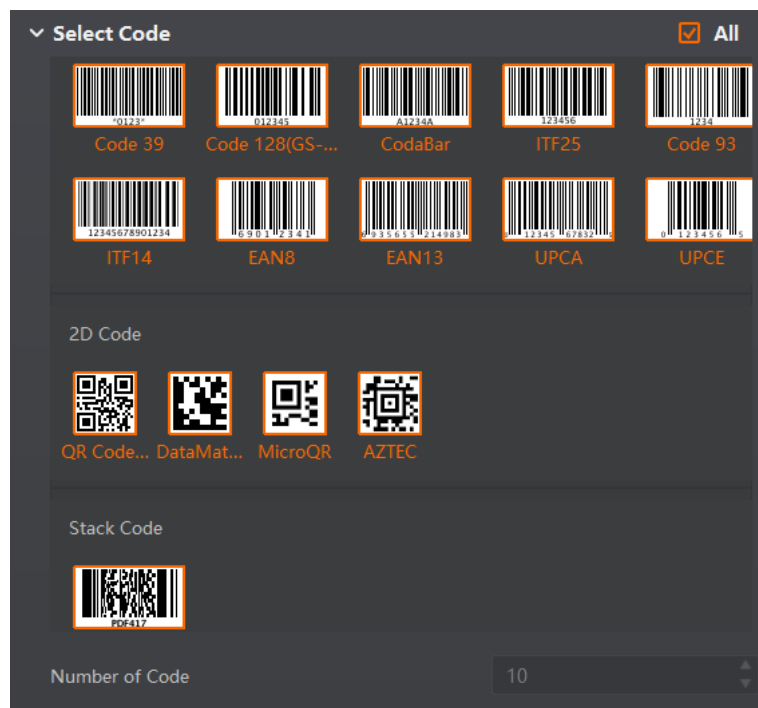


Figure 8-26 Add Code

8.9.2 Set Algorithm Parameter

Click **All** on the upper-right to display all algorithm parameters.

Note

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

Waiting Time(ms)

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.

DM Code Type

You can select **All**, **ECC140**, or **ECC200** according to the needs.

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.

Code39 Check

Enable this parameter if Code 39 uses the parity bit.

Note

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

ITF25 Check

Enable this parameter if ITF 25 uses the parity bit.

Note

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

GS1 Format Output Enable

Enable this parameter if GS1 codes are required. GS1-128, GS1-DM, and GS1-QR are supported.

Note

The **GS1 Format Output Enable** should be set in **Feature Tree** → **Algorithm Control**.

8.10 Signal Input Settings

In the signal input module, you can set the trigger-related parameters. In general, the device supports different trigger sources, including software trigger, button trigger, TCP server trigger, UDP trigger, serial trigger, self trigger, brightness trigger, TCP client trigger, and USB trigger.

Note

- The specific parameters may differ by device models and firmware versions.
 - The stop trigger command can be set in the stop trigger settings module to configure the end trigger condition for the corresponding trigger source. Refer to section [Stop Trigger Settings](#) for details.
-

8.10.1 Set and Execute Software Trigger

The trigger signal is issued by the software and transmitted to the code reader via a Gigabit or 10-Gigabit Ethernet network for image capturing.

Steps

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

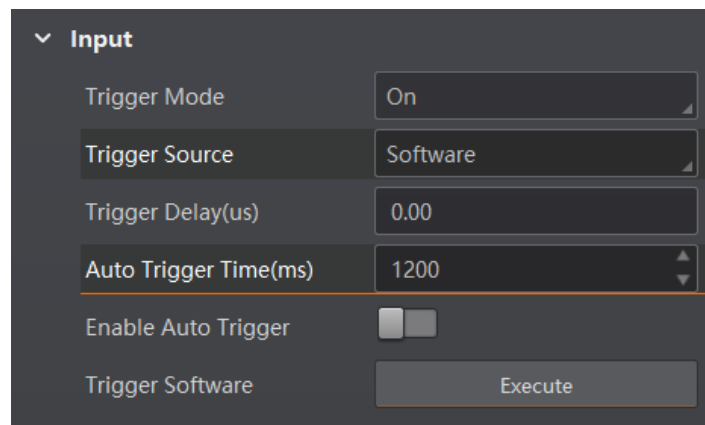


Figure 8-27 Set and Execute Software Trigger Mode

8.10.2 Set and Execute Button Trigger

The code reader is triggered when its trigger button is pressed.

Steps

1. Go to **I/O Control Settings** → **Input** → **Trigger Mode**.
2. Select **On** as **Trigger Mode**.
3. Select **Button Trigger(1)** as **Trigger Source**, and set **Debounce Time**, **Start Delay Time**, **End Delay Time**, and **Trigger Activation** accordingly.
 - **Debounce Time:** If the duration of a signal is shorter than the configured debounce time, the signal will be regarded as invalid. You can set debounce time to avoid false triggers due to environmental disturbance (e.g., electromagnetic interference) or device exceptions. The sequence diagram of trigger delay is shown below.

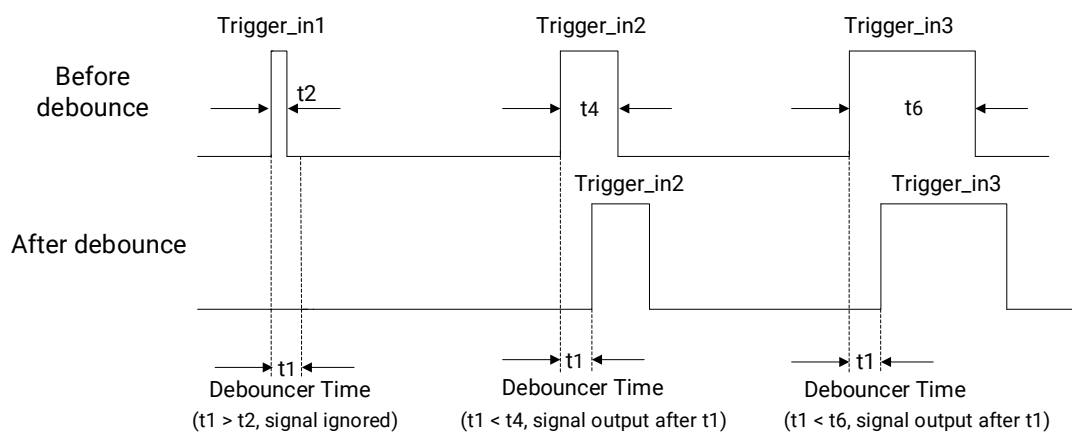


Figure 8-28 Sequence Diagram of Trigger Debounce

- **Trigger Activation:** You can select **Level High**. And **Start Delay Time** and **End Delay Time** should be set.
- **Start Delay Time:** Specify the delay for the code reader to acquire images after receiving trigger signals. 0 is by default.
- **End Delay Time:** Specify the delay for the code reader to stop acquiring images after trigger signals end. 0 is by default.

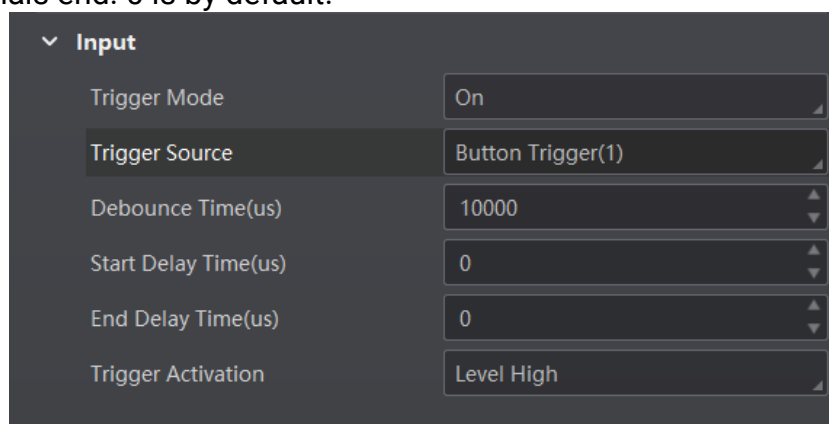


Figure 8-29 Set and Execute Button Trigger

8.10.3 Set and Execute TCP Server Trigger

TCP server start specifies the TCP server as the source for the trigger signal. When the server receives the specified string text, the trigger signal will be output.

Steps

1. Go to **I/O Control Settings** → **Input** → **Trigger Mode**.
2. Select **On** as **Trigger Mode**.
3. Select **TCP Server Start** as **Trigger Source**.
4. Set the following parameters according to the actual demands.
 - **TCP Server Trigger Port**: Set the TCP server port No. for receiving TCP trigger.
 - **TCP Server Trigger Text Format**: Set the TCP trigger text format, including **Str** or **Hex**.
 - **TCP Server Start Trigger Text/Hex Command**: Set the TCP trigger command. The trigger command can be self-defined based on the selected **TCP Server Trigger Text Format**. When the text format is **Hex**, click **Edit** on the right side, popping up the Hex ASCII table for selection.
 - **TCP Server Handshake Request Text**: Customize the handshake request command under the TCP. The default text is **hello**.
 - **TCP Server Handshake Response Text**: Customize the handshake response command under the TCP. The default text is **world**.
 - **TCP Server Return Data to Trigger Port**: Select whether to return the output result to the triggering port.
 - **TCP Server Auto Reconnect**: Select whether to reconnect the client software after the network interruption.
 - **Fuzzy Trigger**: Select whether to enable fuzzy matching for the start trigger text and stop trigger command string. When it is enabled, as long as the sent text contains the start trigger text, triggering will start; as long as the sent text contains the stop trigger command string, triggering will stop. If the start trigger text and stop trigger command string contain each other, only exact matching is supported, and fuzzy matching will no longer be applied.
 - **Continuous Command Triggering**: Configure whether the code reader keeps triggering until receiving the corresponding stop trigger command.

8.10.4 Set and Execute UDP Trigger

UDP start specifies the UDP server as the source for the trigger signal. When the server receives the specified string text, the trigger signal will be output.

Steps

1. Go to **I/O Control Settings** → **Input** → **Trigger Mode**.
2. Select **On** as **Trigger Mode**.
3. Select **UDP Start** as **Trigger Source**.
4. Set the following parameters according to the actual demands.
 - **UDP Trigger Port**: Set the port No. of UDP trigger.
 - **UDP Trigger Text Format**: Set the UDP trigger text format, including **Str** or **Hex**.

- **UDP Start Trigger Text:** Set the UDP trigger command. The trigger command can be self-defined based on the selected **UDP Trigger Text Format**. When the text format is **Hex**, click **Edit** on the right side, popping up the Hex ASCII table for selection.
- **UDP Handshake Request Text:** Customize the handshake request command under the UDP. The default text is **hello**.
- **UDP Handshake Response Text:** Customize the handshake response command under the UDP. The default text is **world**.
- **Fuzzy Trigger:** Select whether to enable fuzzy matching for the start trigger text and stop trigger command string. When it is enabled, as long as the sent text contains the start trigger text, triggering will start; as long as the sent text contains the stop trigger command string, triggering will stop. If the start trigger text and stop trigger command string contain each other, only exact matching is supported, and fuzzy matching will no longer be applied.
- **Continuous Command Triggering:** Configure whether the code reader keeps triggering until receiving the corresponding stop trigger command.

8.10.5 Set and Execute Serial Port Trigger

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 output.

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 the following parameters according to the actual demands.
 - **Serial Baud Rate:** Select the serial port baud rate of the code reader, which represents the number of bits (bit/s) transmitted per second by the serial port. **9600** is set by default.

Note

Please ensure that the serial port baud rate of the code reader and the target device are consistent to avoid data loss or errors.

- **Serial Data Bit:** Set the bit for each character during data transmission, including 7 and 8. It is usually set to 8 bits.
-

Note

The Hex trigger is only available for 8 serial data bits.

- **Serial Stop Bit:** Set the bit used to identify the end of strings after data transmission, including 1 or 2.
- **Serial Parity Check:** Set the bit used to detect transmission errors, with the following three methods:
 - NoParity:** Do not use the parity bit.

Odd Parity: Add a parity bit at the end of the data to ensure that there is an odd number of 1s. Upon receiving the data, the receiver checks whether the count of 1s is odd. If it is not, a data transmission error is assumed.

Even Parity: Add a parity bit at the end of the data to ensure that there is an even number of 1s. Upon receiving the data, the receiver checks whether the count of 1s is even. If it is not, a data transmission error is assumed.

- **Serial Trigger Text Format:** Set the serial trigger text format, including **Str** or **Hex**.
- **Serial Start Trigger Text/Hex Command:** Set the serial trigger command. The trigger command can be self-defined based on the selected **Serial Trigger Text Format**. When the text format is **Hex**, click **Edit** on the right side, popping up the Hex ASCII table for selection.
- **Fuzzy Trigger:** Select whether to enable fuzzy matching for the start trigger text and stop trigger command string. When it is enabled, as long as the sent text contains the start trigger text, triggering will start; as long as the sent text contains the stop trigger command string, triggering will stop. If the start trigger text and stop trigger command string contain each other, only exact matching is supported, and fuzzy matching will no longer be applied.
- **Continuous Command Triggering:** Configure whether the code reader keeps triggering until receiving the corresponding stop trigger command.

8.10.6 Set and Execute Self Trigger

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

Steps

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

Note

- **Self Trigger Period** should be greater than the reciprocal of the actual frame rate.
- If the **Self Trigger Count** is set to 0, it means that the device can be triggered indefinitely until the execution of self-trigger stops.

-
4. Click **Execute** in **Self Trigger Start** to let the device perform the trigger operation with configured **Self Trigger Period** and trigger will automatically stop when trigger count reaches configured **Self Trigger Count**.
 5. (Optional) Click **Execute** in **Self Trigger Stop** to stop trigger.

Note

- If the code scanning mode is batch mode, the self trigger is not available.
 - You can use the device's trigger switch to start and stop self trigger.
-

8.10.7 Set and Execute Brightness Trigger

When the change of the brightness exceeds the configured trigger sensitivity, the code reading and code output will be triggered automatically.

Note

If the device fails to read the code, you can press the button to rescan.

Steps

1. Go to **I/O Control Settings** → **Input** → **Trigger Mode**.
2. Select **On** as **Trigger Mode**.
3. Select **Brightness** as **Trigger Source**, and set **Brightness Sensitivity**, **Brightness Unrespond Time**, **Brightness Timeout**, and **Brightness Fill Light** accordingly.
 - **Brightness Sensitivity**: The code reader is triggered to acquire images when the brightness change exceeds the configured sensitivity threshold.
 - **Brightness Unrespond Time**: The interval between the current trigger and the next trigger.
 - **Brightness Timeout**: If no code is read within the set timeout period, the current trigger is forcibly ended.
 - **Brightness Fill Light**: After it is enabled, the supplement light will be turned on.

8.10.8 Set and Execute TCP Client Trigger

The external device sends TCP commands as the TCP client to the code reader to acquire images.

Steps

1. Click **I/O Control Settings** → **Input** → **Trigger Mode**.
2. Select **On** as **Trigger Mode**.
3. Select **TCP Client Start** as **Trigger Source**.
4. Set the following parameters according to the actual demands.
 - **TCP Dst Trigger IP**: Set the host IP address for TCP trigger.
 - **TCP Dst Trigger Port**: Set the host port No. for TCP trigger.
 - **TCP Client Trigger Text Format**: Set the TCP trigger text format, including **Str** or **Hex**.
 - **TCP Client Start Trigger Text/Hex Command**: Set the TCP trigger command. The trigger command can be self-defined based on the selected **TCP Client Trigger Text Format**. When the text format is **Hex**, click **Edit** on the right side, popping up the Hex ASCII table for selection.
 - **TCP Client Handshake Request Text**: Customize the handshake request command under the TCP. The default text is **hello**.
 - **TCP Client Handshake Response Text**: Customize the handshake response command under the TCP. The default text is **world**.
 - **TCP Server Auto Reconnect**: Select whether to reconnect the client software after the network interruption.

- **Fuzzy Trigger:** Select whether to enable fuzzy matching for the start trigger text and stop trigger command string. When it is enabled, as long as the sent text contains the start trigger text, triggering will start; as long as the sent text contains the stop trigger command string, triggering will stop. If the start trigger text and stop trigger command string contain each other, only exact matching is supported, and fuzzy matching will no longer be applied.
- **Continuous Command Triggering:** Configure whether the code reader keeps triggering until receiving the corresponding stop trigger command.

8.10.9 Set and Execute USB Trigger

The external device sends USB commands to the code reader to acquire images.

Note

Only USB type device supports this function.

Steps

1. Go to **I/O Control Settings** → **Input** → **Trigger Mode**.
2. Select **On** as **Trigger Mode**.
3. Select **USB Start** as **Trigger Source**.
4. Set the following parameters according to the actual demands.
 - **USB CDC Trigger Text Format:** Set the USB trigger text format, including **Str** or **Hex**.
 - **USB CDC Trigger Text/Hex Command:** Set the USB trigger command. The trigger command can be self-defined based on the selected **USB CDC Trigger Text Format**. When the text format is **Hex**, click **Edit** on the right side, popping up the Hex ASCII table for selection.
 - **USB CDC Handshake Request Text:** Customize the handshake request command under the USB. The default text is **hello**.
 - **USB CDC Handshake Response Text:** Customize the handshake response command under the USB. The default text is **world**.

8.11 Stop Trigger Settings

The device supports stopping trigger via TCP server, TCP client, UDP, software, serial port, and USB. You can also set code reading timeout duration or max. code amount to be read to stop trigger. After a trigger is stopped, the device will not respond to the trigger again.

Note

- For specific trigger stopping methods, refer to the actual device you got.
 - The Stop Trigger will be shown when the code scanning mode is fixed mode.
-

8.11.1 Stop Trigger via TCP Sever

When the TCP server receives the specified string text, the trigger will be stopped.

Steps

1. Go to **I/O Control Settings** → **Stop Trigger**.
2. Enable **TCP Server Stop Trigger Enable**.
3. Set following parameters according to actual demands.
 - **TCP Trigger Port**: Set the port No. of the TCP server sending the stop command.
 - **TCP End Trigger Format**: You can select the text format from the drop-down list, including **Str** and **Hex**.
 - **TCP Stop Trigger Text/Hex Command**: Set the TCP stop trigger command. The trigger command can be self-defined based on the selected **TCP End Trigger Format**. When the text format is **Hex**, click **Edit** on the right side, popping up the Hex ASCII table for selection.

8.11.2 Stop Trigger via TCP Client

When the TCP client receives the specified string text, the trigger will be stopped.

Steps

1. Go to **I/O Control Settings** → **Stop Trigger**.
2. Enable **TCP Client Stop Trigger Enable**.
3. Set following parameters according to actual demands.
 - **TCP Dst Trigger IP**: Set the IP address of the TCP client sending the stop command.
 - **TCP Dst Trigger Port**: Set the port No. of the TCP client sending the stop command.
 - **TCP Client End Trigger Format**: You can select the text format from the drop-down list, including **Str** and **Hex**.
 - **TCP Client Stop Trigger Text/Hex Command**: Set the TCP stop trigger command. The trigger command can be self-defined based on the selected **TCP Client End Trigger Format**. When the text format is **Hex**, click **Edit** on the right side, popping up the Hex ASCII table for selection.

8.11.3 Stop Trigger via UDP

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

Steps

1. Go to **I/O Control Settings** → **Stop Trigger**.
2. Enable **UDP Stop Trigger Enable**.
3. Set following parameters according to actual demands.
 - **UDP Trigger Port**: Set the port No. of the UDP stop trigger. It is 2002 by default.
 - **UDP End Trigger Format**: You can select the text format from the drop-down list, including **Str** and **Hex**.
 - **UDP Stop Trigger Text**: Set the UDP stop trigger command, and it is **stop** by default.

The trigger command can be self-defined based on the selected **UDP End Trigger Format**. When the text format is **Hex**, click **Edit** on the right side, popping up the Hex ASCII table for selection.

8.11.4 Stop Trigger via Software

Steps

1. Go to **I/O Control Settings** → **Stop Trigger**.
2. Click **Execute** in **Software Stop Trigger**.

8.11.5 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 End Trigger Format**: You can select the text format from the drop-down list, including **Str** and **Hex**.



Note

The Hex trigger is only available for 8 serial data bits.

- **Serial Stop Trigger Text**: Set the serial port stop trigger command, and it is **stop** by default. The trigger command can be self-defined based on the selected **Serial End Trigger Format**. When the text format is **Hex**, click **Edit** on the right side, popping up the Hex ASCII table for selection.
- **Serial Baudrate**: 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.

8.11.6 Stop Trigger via USB

The USB stop trigger function means that the device receives USB commands from the external device to stop image acquisition. At this time, the device acts as a USB server to receive commands, and the external device communicating with it acts as a USB client to send commands.

Steps

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

- **USB CDC End Trigger Format:** You can select the text format from the drop-down list, including **Str** and **Hex**.
- **USB CDC Stop Trigger Text:** Set the USB stop trigger command. The trigger command can be self-defined based on the selected **USB CDC End Trigger Format**. When the text format is **Hex**, click **Edit** on the right side, popping up the Hex ASCII table for selection.

8.11.7 Stop Trigger via Timeout Duration

Note

TimeOut Stop Trigger Enable is only available when the device running mode is set to Normal and the Trigger Mode is On.

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.

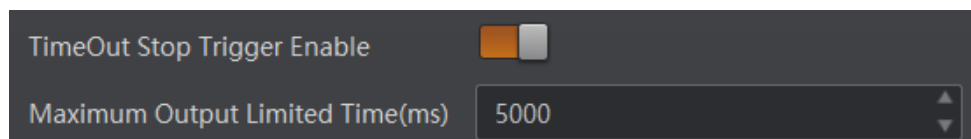


Figure 8-30 Stop Trigger via Timeout Duration

8.11.8 Stop Trigger via Code Number

Note

CodeNum Stop Trigger Enable is only available when the device running mode is set to Normal and the Trigger Mode is On.

This function means that the code quantity output 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 output code quantity is smaller than configured **CodeNum Stop Trigger Min**, and the device will output codes continuously.
- If the output code quantity reaches to the configured **CodeNum Stop Trigger Max**, and

the device will stop outputting codes.

- If the output 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 output codes reaches the configured number.
-

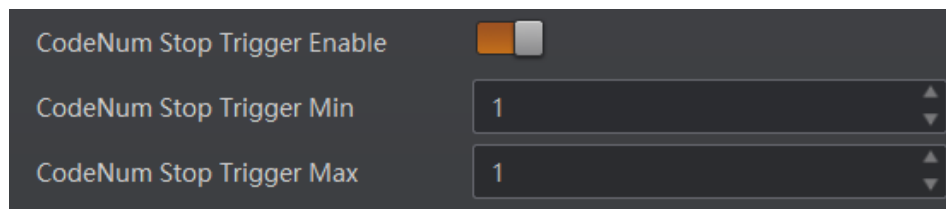


Figure 8-31 Stop Trigger via Code Number

Chapter 9 Other Operations

9.1 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., and export logs.

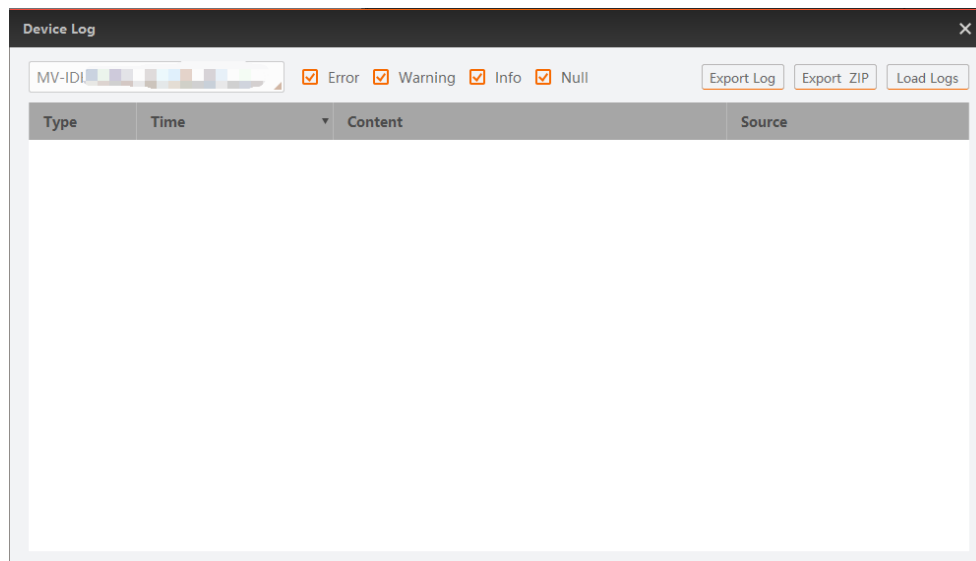


Figure 9-1 View Log

9.2 View Device Information

After the device is connected, you can view the basic information of the device under the **Device Connection**, including MAC address, IP address, subnet mask, gateway, manufacturer, device model, device serial number, device version, firmware version, and other information.

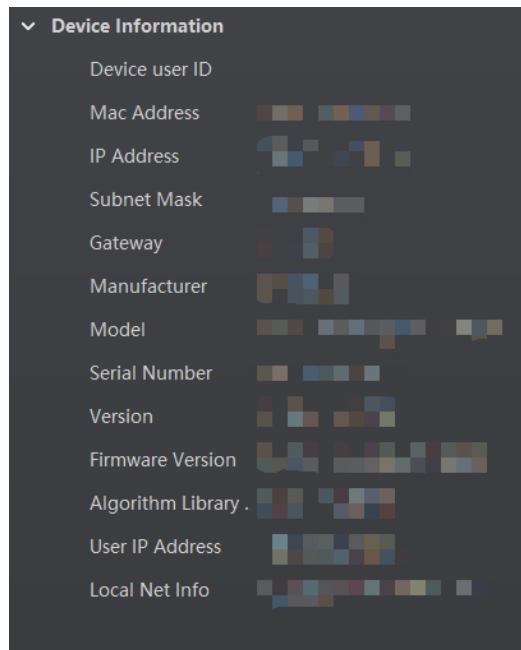


Figure 9-2 View Device Information

9.3 Set Time

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

Steps

1. Go to **Device Connection**, and click **Timing**.
2. Set parameters according to actual demands.

NTP Enable

When this parameter is enabled, the camera time will be corrected according to the parameters you configure.

IP Address

It refers to the IP address of the NTP server.

Interval

It refers to the interval for correcting camera time.

3. Click **OK** after settings.

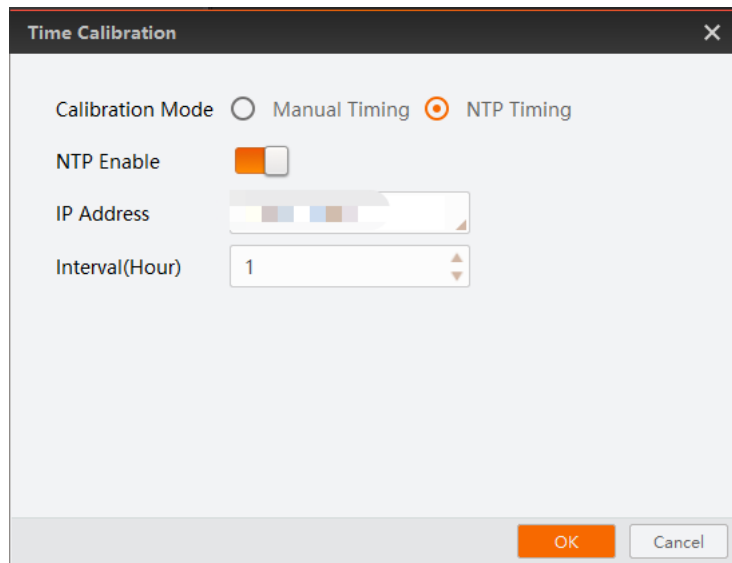


Figure 9-3 Set NTP Timing

9.4 Save Parameter

Click  on the control toolbar to save the parameters. You can save or load parameters, or set the default parameters.

9.5 Update Firmware

The device supports updating firmware via the client software.

Note

- Disconnect the device from the client software.
- Please use the firmware package of the corresponding device model for updating.
- Do not power off the device or disconnect network during upgrading, otherwise it may cause device damage.
- The device will restart 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.

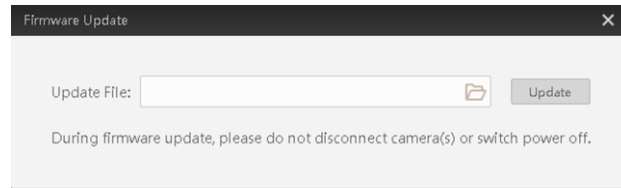


Figure 9-4 Update Firmware

9.6 Restart Device

You can select the device in the device list, right click the device, and click **Device Reset**.

Chapter 10 Device Maintenance

10.1 Prohibited Substances

Some substances may damage the housing of the code reader. Please avoid direct contact of the device with the following substances: bleach, ether, acetone, ammonia, ethyl alcohol, chlorinated hydrocarbon, benzene, toluene, gasoline, carboric acid, amino compound, ethanolamine, etc.

10.2 Reading Window Cleaning

The reading window needs to be cleaned regularly to avoid affecting the reading performance.

Steps

1. Use a soft and non-abrasive cloth wet with water or a mild cleaner to gently wipe the window.
2. (Optional) If a cleaner is used, wipe the window again with a soft cloth wet with water to avoid cleaner residue.
3. Dry the window with a soft cloth immediately after cleaning to prevent water streaks.

Note

- Do not immerse the device directly in liquids.
 - Do not wipe with an abrasive cloth, which may scratch the window.
 - Disconnect the device from the power supply before cleaning, and avoid wiping when the device is in use.
-

Chapter 11 FAQ (Frequently Asked Question)

11.1 Why there is no buzzer sound and the indicator is unlit after the device is connected?

Table 11-1 Question 1

Possible Cause	Solution
The device's drive is not installed successfully.	Install the device's drive again.

11.2 Why the device does not read codes after powering on and getting triggered?

Table 11-2 Question 2

Possible Cause	Solution
The function of Auto Work is not enabled.	Go to Feature Tree → Device Control , and enable Auto Work .

11.3 Why the device does not read codes after connecting to client software and getting triggered?

Table 11-3 Question 3

Possible Cause	Solution
Acquisition is not started in the client software.	Start acquisition and trigger the device again.

11.4 Why there is no buzzer sound after the device reads

codes successfully?

Table 11-4 Question 4

Possible Cause	Solution
The device's device mode is test mode.	Set the device mode as normal mode.

11.5 Why only a few codes read successfully on the batch code scanning mode?

Table 11-5 Question 5

Possible Cause	Solution
Improper settings in Algorithm Settings .	Go to Algorithm Settings → Add Barcode , set the 1D Code Number and 2D Code Number according to actual demands.

11.6 Why the image is very dark during the live view?

Table 11-6 Question 6

Possible Cause	Solution
The light source of the device is disabled.	Enable the light source of the device.
Too small value of exposure and gain.	Increase exposure and gain according to actual demands.

11.7 Why the USB type device cannot be listed when no error occurs in the driver and the gateway can discover the device?

Table 11-7 Question 7

Possible Cause	Solution
The device is found but the IP address is not obtained automatically.	Go to PC network settings page to set an IP address for the PC manually.

11.8 Why the USB type device cannot set plug and play mode?

Table 11-8 Question 8

Possible Cause	Solution
The USB type device is incompatible with the terminals, such as Pro-face screen, industrial display, Android industrial computer, or other third-party device.	Set Simple HID Mode in the USB type device, and then connect to the terminals to check.

Steps

1. Scan the configuration code of enabling.



Figure 11-1 Configuration Code of Enabling

2. Scan the configuration code of simple HID mode.



Figure 11-2 Configuration Code of Simple HID Mode

Note

After you set **Simple HID Mode**, the device cannot be listed in the client software. You should switch to **Composite HID Mode**, and then the device can be listed.

3. Scan the configuration code of enabling.



Figure 11-3 Configuration Code of Enabling

4. Scan the configuration code of composite HID mode.



Figure 11-4 Configuration Code of Composite HID Mode

11.9 Why the unreadable codes are output after you set HID as the USB output method?

Table 11-9 Question 9

Possible Cause	Solution
The loss of the content may be caused by excessive data, rapid HID output speed, and low speed of receiving and processing.	Limit the speed of data output. And contact the technical support for the firmware.

11.10 Why there is no live view and no parameters can be set?

Table 11-10 Question 10

Possible Cause	Solution
Only the model of the smart base is shown in the device list. The smart base is not connected to the device.	Use the device to scan the Bluetooth pairing code on the smart base. If you hear prompt sound and the STS indicator (M button) on the smart base is in green color, the device has been connected to the smart base via the Bluetooth.

11.11 What to do if the Bluetooth pairing code is damaged?

Table 11-11 Question 11

Possible Cause	Solution
The Bluetooth pairing code on the smart base is damaged.	You need to generate a connection code via the serial No. View the serial No. of

Possible Cause	Solution
	the smart base in the client software, and enter the code No. (\$IDA+serial No.+ >) in the code generation tool. Open the client software, and view the code in BLE Pair Code.  Note The serial No. entered in code No. should exclude the first two zeros.

11.12 What acquisition is failed when clicking Start Acquisition?

Table 11-12 Question 12

Possible Cause	Solution
The Bluetooth pairing is failed.	1. Check the battery level of the device, and make sure the device can be powered on and emit a cross aiming line for reading code. 2. Scan the Bluetooth pairing code on the smart base for connection. 3. When the power indicator of the device is in orange color, the client software displays the feature tree, and the running mode can be switched, you can click Start Acquisition.

Chapter 12 Revision History

Table 12-1 Revision History

Version No.	Date	Revision Details
V1.1.0	Oct. 9, 2025	• Add Section Output Speed. • Edit Section Code Type. • Edit Section Code Scanning Mode. • Edit Section Set Configuration Codes of Trigger Input. • Add Section IDAS Mobile Client Operation. • Edit Section Set TCP Server. • Edit Section Set Serial. • Edit Section Set Profinet. • Edit Section Set Ethernet/IP. • Edit Section Set ModBus. • Add Section Set Melsec/SLMP. • Add Section Set Fins. • Edit Section Set Result Format. • Add Section Set Format Output. • Add Section Set Sorting Rule. • Edit Section Set Filter Rule. • Edit Section Code Scanning Settings. • Add Section Set Test Pattern. • Add Section Set and Execute Software Trigger. • Add Section Set and Execute TCP Server Trigger. • Add Section Set and Execute UDP Trigger. • Add Section Set and Execute Serial Port Trigger. • Add Section Set and Execute TCP Client Trigger. • Add Section Set and Execute USB Trigger. • Add Section Stop Trigger Settings.
V1.0.0	Jul. 31, 2025	Original version.

Appendix A ASCII Table

Note

- Refer to section [Set Configuration Codes of Data Processing](#) for digital codes and letter codes.
- For function of prefix/suffix editing, the USB type device only supports the orange bold characters in the table below.

Table A-1 ASCII Table

Character	Value	Character	Value	Character	Value	Character	Value
NUL	0	(Space)	20	@	40	`	60
SOH	1	!	21	A	41	a	61
STX	2	"	22	B	42	b	62
ETX	3	#	23	C	43	c	63
EOT	4	\$	24	D	44	d	64
ENQ	5	%	25	E	45	e	65
ACK	6	&	26	F	46	f	66
BEL	7	'	27	G	47	g	67
BS	8	(	28	H	48	h	68
HT	9	)	29	I	49	i	69
LF/NL	0a	*	2a	J	4a	j	6a
VT	0b	+	2b	K	4b	k	6b
FF/NP	0c	,	2c	L	4c	l	6c
CR	0d	-	2d	M	4d	m	6d
SO	0e	.	2e	N	4e	n	6e
SI	0f	/	2f	O	4f	o	6f
DLE	10	0	30	P	50	p	70
DC1/XON	11	1	31	Q	51	q	71
DC2	12	2	32	R	52	r	72
DC3/XOFF	13	3	33	S	53	s	73

Character	Value	Character	Value	Character	Value	Character	Value
DC4	14	4	34	T	54	t	74
NAK	15	5	35	U	55	u	75
SYN	16	6	36	V	56	v	76
ETB	17	7	37	W	57	w	77
CAN	18	8	38	X	58	x	78
EM	19	9	39	Y	59	y	79
SUB	1A	:	3A	Z	5A	z	7A
ESC	1B	;	3B	[	5B	{	7B
FS	1C	<	3C	\	5C		7C
GS	1D	=	3D	]	5D	}	7D
RS	1E	>	3E	^	5E	~	7E
US	1F	?	3F	-	5F	DEL	7F



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