

Hikrobot Co., Ltd.

IDH2000 Series Wired Handheld Code Reader

User Manual

HIKROBOT

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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 IDH2000 Series Wired Handheld Code Reader.

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Contents

Chapter 1 Safety Instruction	1
1.1 Safety Claim	1
1.2 Safety Instruction	1
1.3 Electromagnetic Interference Prevention	2
1.4 Laser Product	3
Chapter 2 Overview	4
2.1 Introduction	4
2.2 Key Features	4
Chapter 3 Appearance and Indicator	5
3.1 Appearance	5
3.2 Component Status and Indicator	6
3.2.1 Component Status	6
3.2.2 Indicator	7
Chapter 4 Quick Start Guide	8
4.1 Device Unboxing	8
4.2 Device Connection	9
4.3 Code Reading	9
4.4 External Device Connection	10
4.5 Debugging	11
Chapter 5 Configuration Codes	14
5.1 Set Configuration Codes of Communication	14
5.1.1 USB Communication	14
5.1.2 Serial Port Communication	16
5.2 Set Configuration Codes of Data Processing	17
5.2.1 Prefix/Suffix Editing	17
5.2.2 Case Sensitivity Output	21
5.3 Set Configuration Codes of Code Reading	21
5.3.1 Code Type	21
5.3.2 Code Reading Mode	24

5.3.3 Code Reading Quantity	26
5.3.4 Code Color	27
5.4 Set Configuration Codes of Trigger Input	28
5.5 Set Configuration Codes of Aiming System.....	30
5.6 Set Configuration Codes of Light Source	31
5.7 Set Configuration Codes of Buzzer	32
5.8 Set Configuration Codes of Vibration	33
5.9 Set Configuration Codes of Sending Device Information	34
5.10 Set Configuration Codes of Management	35
Chapter 6 Client Software Installation and Operation	36
6.1 Install Client Software	36
6.2 Check USB Drive	37
6.3 Set Device Network.....	37
6.4 Connect Device to Client Software.....	37
6.5 Client Software Layout	38
Chapter 7 Device Settings	40
7.1 Device Mode Settings.....	40
7.2 Feature Tree Introduction	41
7.3 Communication Settings	41
7.3.1 Set Smart SDK.....	42
7.3.2 Set USB	42
7.3.3 Serial	43
7.4 Code Reading Result Settings	43
7.4.1 Set Result Format	43
7.4.2 Set Filter Rule	45
7.4.3 Set USB-HID Data Output	50
7.4.4 Set Result Process.....	52
7.5 Code Reading Settings	53
7.6 Image Settings	55
7.6.1 Set Image.....	55
7.6.2 Set Exposure.....	56
7.6.3 Set Gain.....	57

7.6.4 Set Light Source.....	57
7.6.5 Set Other Parameters	58
7.7 Algorithm Settings.....	59
7.7.1 Add Code.....	59
7.7.2 Set Algorithm Parameter.....	60
7.8 Signal Input Settings	61
7.8.1 Set and Execute Button Trigger.....	61
7.8.2 Set and Execute Brightness Trigger.....	62
7.8.3 Set and Execute Self Trigger.....	63
7.8.4 Set and Execute Serial Port	64
7.8.5 Set and Execute Software Trigger.....	65
Chapter 8 Other Operations	66
8.1 View Log	66
8.2 View Device Information	66
8.3 Set Time	67
8.4 Save Parameter	68
8.5 Update Firmware.....	68
8.6 Reboot Device	69
Chapter 9 Device Maintenance	70
9.1 Prohibited Substances	70
9.2 Reading Window Cleaning	70
Chapter 10 FAQ (Frequently Asked Question).....	71
10.1 Why there is no buzzer sound and the indicator is unlit after the device is connected?	71
10.2 Why the device does not read codes after powering on and getting triggered? ..	71
10.3 Why the device does not read codes after connecting to client software and getting triggered?	71
10.4 Why there is no buzzer sound after the device reads codes successfully?	71
10.5 Why only a few codes read successfully on the batch code reading mode?	72
10.6 Why the image is very dark during the live view?	72
10.7 Why the USB type device cannot be listed when no error occurs in the driver and the gateway can discover the device?	72

10.8 Why the USB type device cannot set plug and play mode?73

**10.9 Why the unreadable codes are output after you set HID as the USB output
method?74**

Chapter 11 Revision History 75

Appendix A ASCII Table 76

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.
- 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 1.3 MP 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: 15 ms (IDH2000P series device) or 8 ms (other devices)
- 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 IDH2000 series wired handheld code reader adopts code reading algorithm to provide good decoding capability for DPM, and good robustness to read codes with spots, defects and low contrast ratio. It is applicable to industries of intelligent manufacturing, retail, logistics, medical treatment, enterprise and public institutions. The IDH2000P series device also supports switching to white light, red light, or blue light, and supports polling of three-color light source, providing greater scene adaptability and enhanced code reading performance.

2.2 Key Features

- Built-in code reading algorithm for decoding different types of 1D codes and 2D codes.
- Provides good robustness to read codes with spots, defects and low contrast ratio.
- Supports switching to white light, red light, or blue light, and supports polling of three-color light source, providing greater scene adaptability and enhanced code reading performance.
- Supports multiple output modes, such as USB-HID, USB-CDC, and RS-232.
- Easy to replace components.
- IP42 and drop height of 1.8 m.
- Supports displaying device status via buzzer and indicator.

Note

- Refer to the specification of the device for detailed parameters.
 - Only IDH2000P series device supports three-color light source switching.
-

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.
- Compared with other models in appearance, the IDH2000P series device features a protective frame around the reading window. Please refer to the actual device.

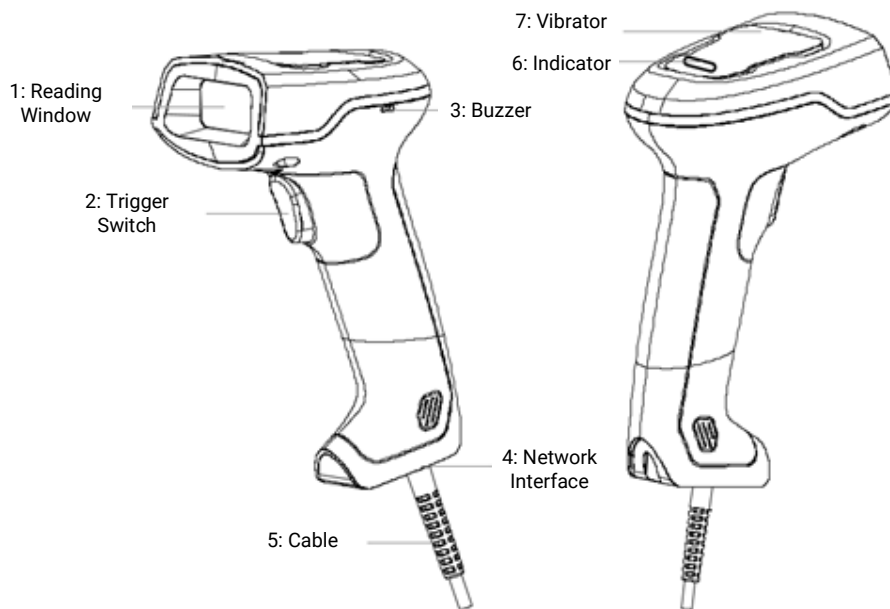


Figure 3-1 Appearance of Device

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.  Caution For 1.3 MP device, 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

No.	Name	Description
		the trigger switch to trigger the device once.
3	Buzzer	It indicates the device's operation status via buzzer. Refer to section Indicator for details.
4	Network Interface	It has 8-pin connector, and is used to transmit data and provide power.
5	Cable	It provides power and transmits data.  Note The function of cables may differ by device models. Refer to section Device Connection for details.
6	Indicator	It indicates the status of the device.
7	Vibrator	It indicates the device's operation status via vibration.

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 3-2 Component Status

Component	Status Description
Buzzer	• The buzzer beeps three times after the device is powered on. • The buzzer beeps once by default when the device reads codes successfully (configurable). • The buzzer beeps three times when the device reads configuration codes successfully. • The buzzer beeps once for 3 seconds when the device fails to upgrade firmware.
Vibrator	• The device vibrates once for 300 ms when it is powered on. • The device vibrates once for 300 ms when it reads codes. The vibrator is off by default. • The device vibrates twice (duration: 300 ms, interval: 300 ms) when it reads configuration codes successfully.

 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 Indicator

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

Table 3-3 Indicator Description

Device Status		Indicator
Normal Status	Powering On	Solid Green
	USB Connected	Unlit
Code Reading Status	Failed Code Reading	Unlit
	Successful Code Reading	Green On
Firmware Upgrade Status	Firmware Upgrade Progress	Flashing Green
	Failed Firmware Upgrade	Solid Green (device restarting after 3 seconds)
	Successful Firmware Upgrade	Unlit (device restarting after 3 seconds)

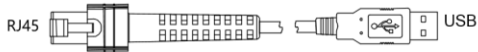
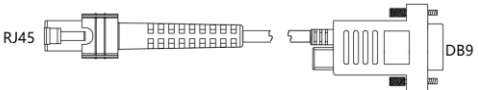
Chapter 4 Quick Start Guide

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

4.1 Device Unboxing

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

Table 4-1 Included Device and Accessories

No.	Name	Image	Quantity	Description
1	Handheld Code Reader		1	It refers to the IDH2000 series wired handheld code reader.
2	Cable	Cable with USB Interface: 	1	It is used to connect to the device and provide power, and is included in the package.
		Cable with Serial Port (Purchase Separately): 		If serial communication is required, you can purchase the cable with serial port separately, and use with 5 VDC power supply.
3	Power Adapter		1	It is used to provide power supply for the device. You can determine whether a power adapter is required based on the actual device and wiring method. If required, please purchase a power adapter separately.

4.2 Device Connection

Refer to the content below to connect to the device.

Note

- The device with USB interface supports replacement with the RS-232 serial cable and external communication via the serial protocol. You should purchase the serial cable separately.
- The images of cables below are for reference only.

Steps

1. Connect the RJ45 connector to the bottom of the device.
2. Connect the USB interface to the PC for data transmission or power supply.

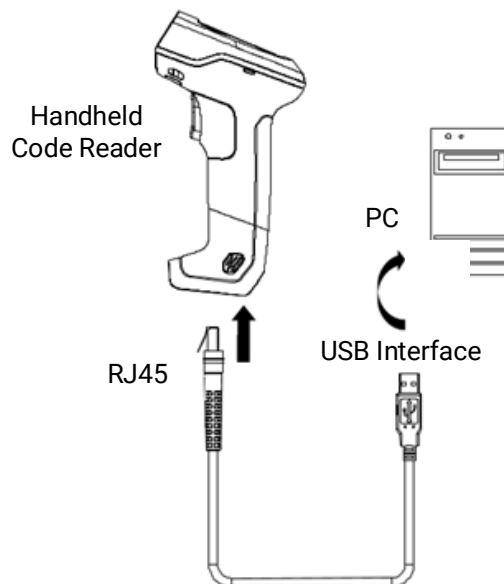


Figure 4-1 Insert RJ45 Connector

Caution

When the serial port cable is purchased separately, and the external DC power supply is required, the device can only be connected to a 5 VDC power supply with internal positive and external negative, otherwise the device may be damaged.

4.3 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 4-2 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 an orange LED aiming frame (0.3 MP device) or a cross aiming line (1.3 MP device) for reading.



Figure 4-3 Code Reading

Note

The buzzer beeps once and the green light is turned on when the device reads codes successfully.

4.4 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**.



Figure 4-4 Keyboard Mode

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 4-5 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 IDTVS, IDPS, or IDAS 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.
- Some device models do not support the IDPS or IDAS client software. If the device model supports, you can contact the technical support to get the installation package. In the IDPS or IDAS client software, you can generate a configuration code via the offline configuration function. Refer to **IDPS Client Software User Manual** or **IDAS Client Software User Manual** for details.
- Here we take the operations on the IDMVS client software as an example.

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, serial port trigger, and software trigger.
- The supported communication protocols are SmartSDK, USB, and Serial. If you select the communication protocols except SmartSDK, please change the running mode to Normal.
- If the serial communication is required, you should purchase the cable with serial port separately.

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.

History		Image Cache		Filter NoRead   							
No.	Read Time	Trigger Inc	Output Total Cos	Cost Time(ms)	PPM	Barcode Type	Barcode Content	Code Leng	Overall Gr	Code Score	
0	2025/5/21 20:07:24.618	1	/	/	/	/	NoRead	0		/	

Figure 4-6 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 Settings** to disable **Exposure Auto** and **Gain Auto**.

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 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 keyboard. By reading specific configuration codes, the device’s communication method can be switched to USB CDC.

Table 5-1 Set Configuration Codes of USB Communication

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

Function	Configuration Codes	Function	Configuration Codes
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: GBK		Input Encoding Format: UTF-8	
Output Encoding Format: GBK		Output Encoding Format: Unicode	
Enable Keyboard		Disable Keyboard	

Function	Configuration Codes	Function	Configuration Codes
Windows System Output		Linux System Output	

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 5-3 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	

Function	Configuration Codes	Function	Configuration Codes
Set Baud Rate as 57600		Set Baud Rate as 115200	
Set None Parity		Set Odd Parity	
Set Even Parity		Set Stop Bit 1	
Set Stop Bit 2		/	/

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 5-4 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.

Table 5-5 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	

Function	Configuration Codes	Function	Configuration Codes
Digital Code 6		Digital Code 7	
Digital Code 8		Digital Code 9	
Digital Code a		Digital Code b	
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 5-6 Configuration Codes of Data Processing

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

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



Figure 5-1 Configuration Codes 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 5-7 Configuration Codes of Case Sensitivity

Function	Configuration Codes	Function	Configuration Codes
Normal Output		Uppercase Output	
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, PDF417, GS128, GS1-DM, and GS1-QR.

Note

The supported code types may differ by device models.

Table 5-8 Set Configuration Codes of Code Type

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

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

Function	Configuration Codes	Function	Configuration Codes
Enable ITF 25		Disable ITF 25	
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	

Function	Configuration Codes	Function	Configuration Codes
Enable Data Matrix		Disable Data Matrix	
Enable MicroQR Code		Disable MicroQR Code	
Enable AZTEC Code		Disable AZTEC Code	
Enable PDF 417		Disable PDF 417	
Enable GS128, GS1-DM, and GS1-QR		Disable GS128, GS1-DM, and GS1-QR	

5.3.2 Code Reading Mode

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

to section [Code Reading Settings](#) for details.

Table 5-9 Set Configuration Codes of Code Reading 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 5-10 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 reading 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 reading mode is batch mode.
- When the code reading 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 5-11 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 Codes 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 5-12 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, and support disabling trigger mode.

Table 5-13 Set Configuration Codes of Trigger

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

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

Table 5-14 Set Configuration Codes of Trigger-Related Parameters

Function	Configuration Codes	Function	Configuration Codes
Sensitivity of Brightness Trigger			

Function	Configuration Codes	Function	Configuration Codes
Sensitivity: Low		Sensitivity: Medium	
Sensitivity: High		/	/
Unrespond Time of Brightness Trigger			
Unrespond Time: 300 ms		Unrespond Time: 500 ms	
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	

Function	Configuration Codes	Function	Configuration Codes
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 5-15 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	

Function	Configuration Codes	Function	Configuration Codes
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.

Note

Only the IDH2000P series device supports the settings of blue light.

Table 5-16 Set Configuration Codes of Light Source

Function	Configuration Codes	Function	Configuration Codes
Enable White Light		Disable White Light	
Enable Red Light		Disable Red Light	
Enable Blue Light		Disable Blue Light	
Enable Light Polling		Disable Light Polling	

Function	Configuration Codes	Function	Configuration Codes
All Lights Polling		Red and White Lights Polling	
Red and Blue Lights Polling		White and Blue Lights Polling	

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 5-17 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	

Function	Configuration Codes	Function	Configuration Codes
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 5-18 Set Configuration Codes of Vibration

Function	Configuration Codes	Function	Configuration Codes
Enable Vibration		Disable Vibration	

Function	Configuration Codes	Function	Configuration Codes
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 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 5-19 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	

Function	Configuration Codes	Function	Configuration Codes
Get Serial Number		/	/

5.10 Set Configuration Codes of Management

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

Table 5-20 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	
Confirmation of Restoring to Default Settings		/	/

Chapter 6 Client Software Installation and Operation

6.1 Install Client Software

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

Steps

Note

- The client software is compatible with 32/64-bit Windows 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.
-

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

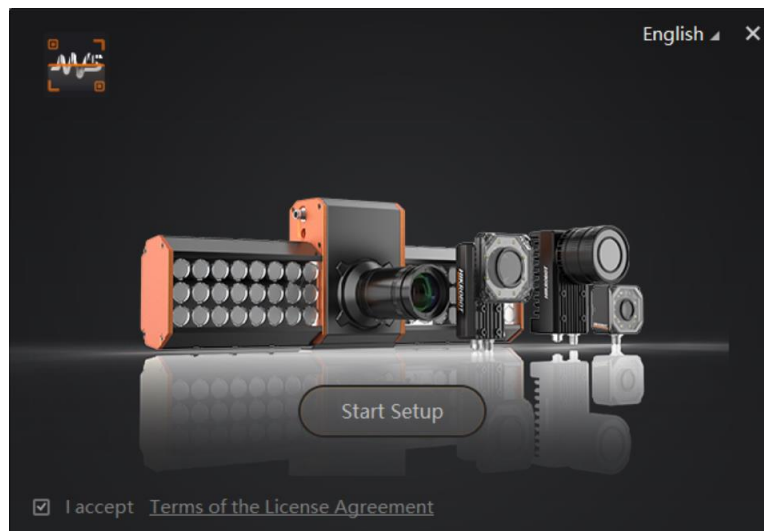


Figure 6-1 Installation Interface

6. Finish the installation according to the interface prompts.

6.2 Check USB Drive

Checking the USB drive on the PC is required before using the USB type device. After connecting the USB type device to the PC, the Windows system will automatically detect a new hardware device and install its corresponding drive.

Go to **Device Manager** by either pressing Win+X or right-clicking on the Windows menu button, and locate and expand the **Network adapters** to check the drive.

Note

You can use the drive management tool to reinstall the USB drive if the installation is failed.

6.3 Set Device Network

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

Steps

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



Figure 6-2 Modify IP Address

6. Click **OK**.

6.4 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.

6.5 Client Software Layout

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

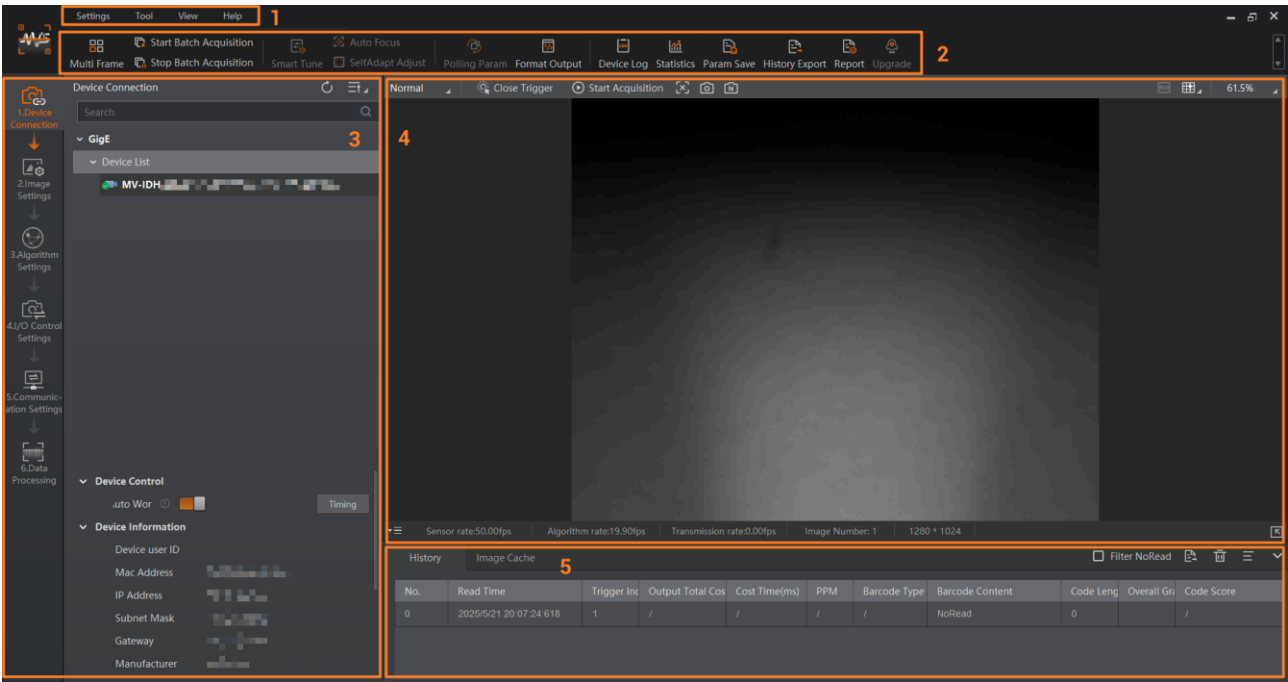


Figure 6-3 Main Window

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 6-1 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.

No.	Name	Description
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.
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.

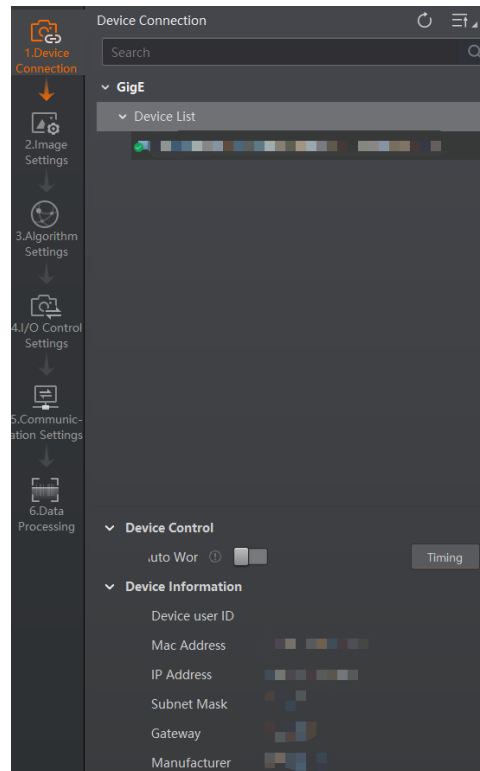


Figure 6-4 Device Configuration Area

Table 6-2 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 7 Device Settings

7.1 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.

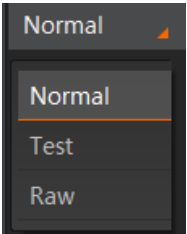


Figure 7-1 Select Device Mode

Table 7-1 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 7-2 Code Reading

7.2 Feature Tree Introduction

Note

The feature tree may differ by device models.

Table 7-2 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.

7.3 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 device supports **SmartSDK**, **USB**, and **Serial** protocol, and you need to set corresponding parameters.

 Note

If the serial communication is required, you should purchase the cable with serial port separately.

7.3.1 Set Smart SDK

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

Table 7-3 SmartSDK Communication Protocol

Parameter	Description
SmartSDK Protocol	If it is enabled, the device will output data via SmartSDK.
Encode JPEG Flag	The device will compress images in JPG format after enabling it.

 Note

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

7.3.2 Set USB

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

Table 7-4 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.  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.

7.3.3 Serial

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

Table 7-5 Serial Communication Protocol

Parameter	Description
Serial Protocols	If it is enabled, the device will output data via the RS-232 serial.
Serial Baudrate	Set the serial baudrate of the PC that receives data.
Serial Data Bits	Set the serial data bits of the PC that receives data.
Serial Parity	Set the serial parity of the PC that receives data.
Serial Stop Bits	Set the serial stop bits of the PC that receives data.

7.4 Code Reading Result Settings

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

7.4.1 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

- Result format settings are only available if you select **Serial** and **USB** as the communication protocol when device mode is **Normal**. Result format settings are not available for **Smart SDK**.
 - For details about communication protocol, refer to section [Communication Settings](#) for details.
-

Result Output via Smart SDK

When the communication protocol is **Smart SDK**, 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 Serial or USB

If **Serial** or **USB** is selected as **Communication Protocols**, you need to set following

parameters.

** Output Format

Click  to add the contents you want to output, or enter the contents in the input box. You can select multiple contents as needed.

** 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 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.

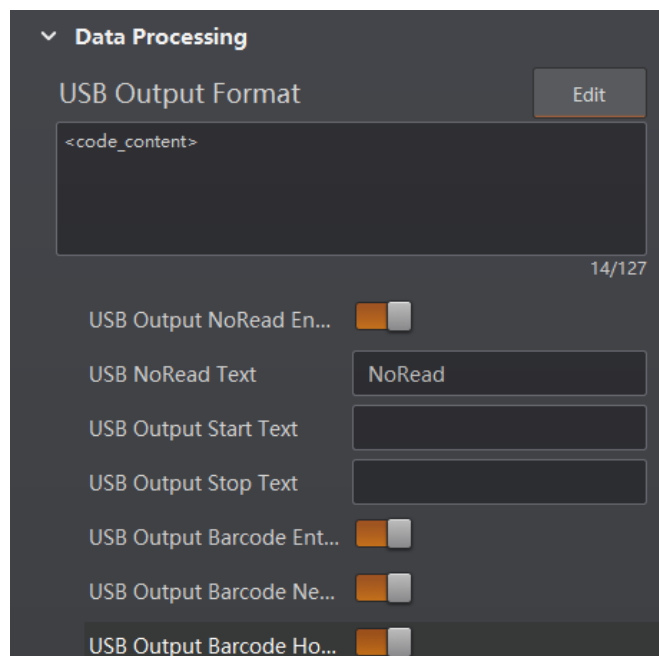


Figure 7-3 Result Output via Serial Port

7.4.2 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 and regular expression 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.

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

The **History Filter Mode** is available when the trigger is off. If the trigger is on, 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 barcode content is 123456789. When the character expression is set as (5), 5 will be output; when set as (1-4), 1234 will be output; when set as (1-4,6-9), 12346789 will be output; when set as (1-4,8-), 123489 will be output; when set as (1-), 123456789 will be output.

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.

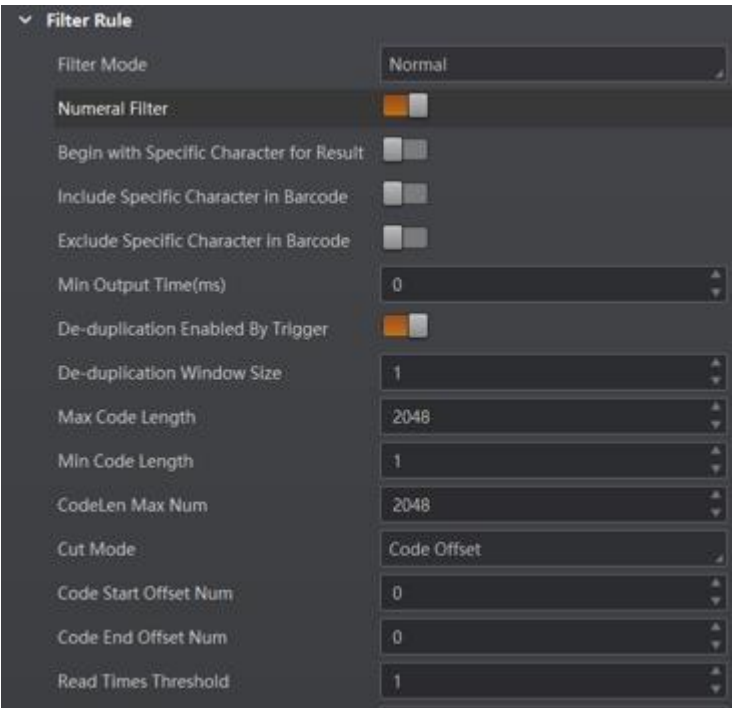


Figure 7-4 Normal Mode

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.

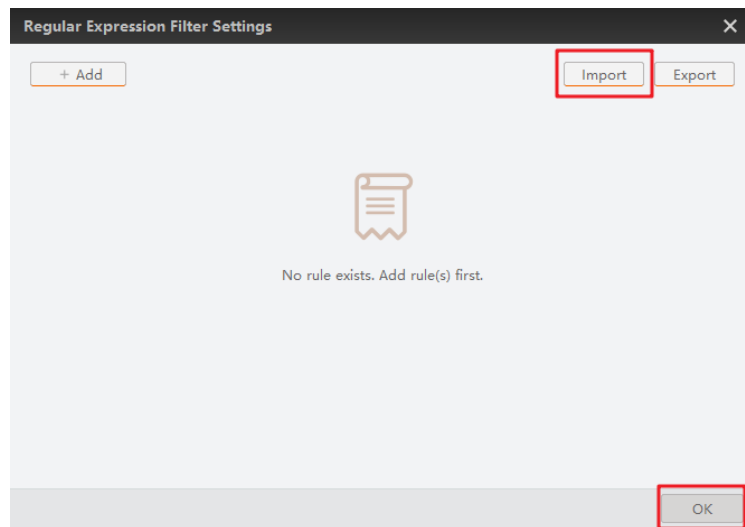


Figure 7-5 Regular Expression Filter Settings

- 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.

Regular Expression Filter Rules

Rule Name

Rule1

Length Limit

1

—

2048

Start With

Use ";" to separate multiple char...

End With

Use ";" to separate multiple char...

Not Start With

Use ";" to separate multiple char...

Not End With

Use ";" to separate multiple char...

Include

Use ";" to separate multiple char...

Exclude

Use ";" to separate multiple char...

Character

from

Bit Start

Other Conditions

☐ Upper

☐ Lower

☐ Digit

☐ CH

OK

Figure 7-6 Enter Customized Regular Expression Filter Rules

Table 7-6 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

Parameter	Description
	there are multiple characters.  Note If multiple characters are used, code meeting one of these characters is valid.
Included	It sets the code with specific content. You can use semicolon to separate if there are multiple characters.  Note If multiple characters are used, code meeting all these characters is valid.
Excluded	It sets the code without specific content. You can use semicolon to separate if there are multiple characters.  Note If multiple characters are used, code meeting all these characters is valid.
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.

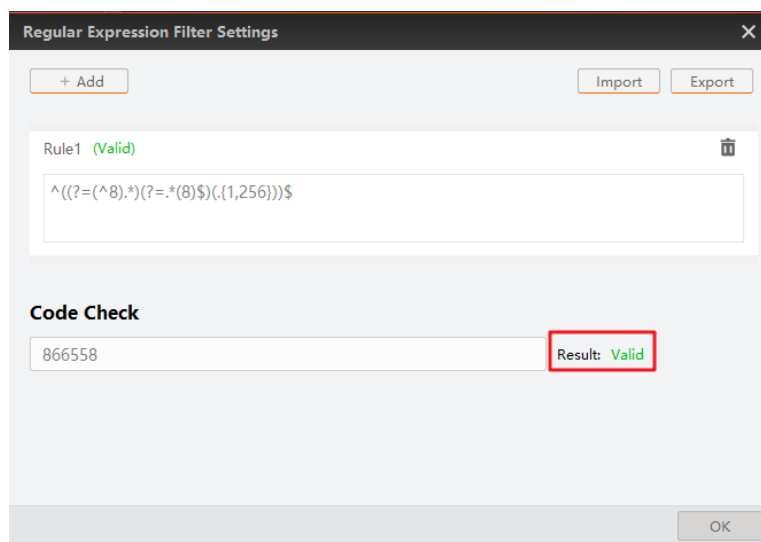


Figure 7-7 Code Check

 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.

7.4.3 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.

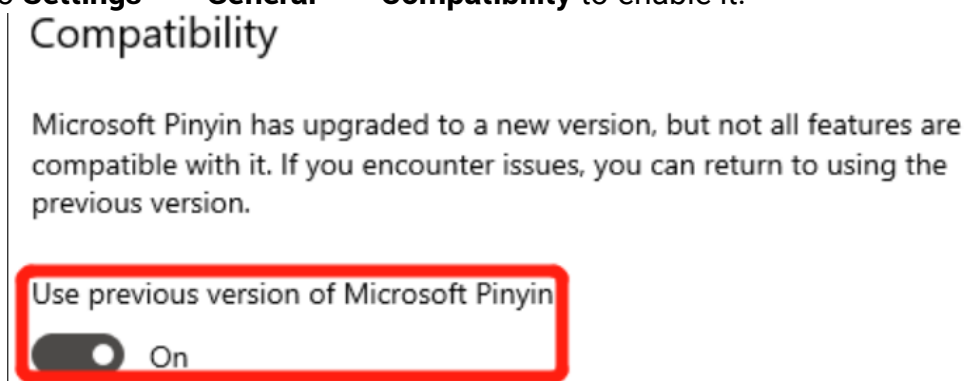


Figure 7-8 Compatibility Settings

- 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

- **GBK** 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

- **GBK** 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.

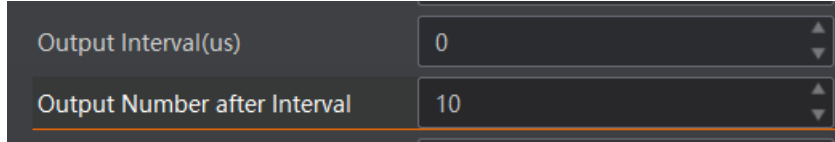


Figure 7-9 Output Speed Settings

7.4.4 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 \\.

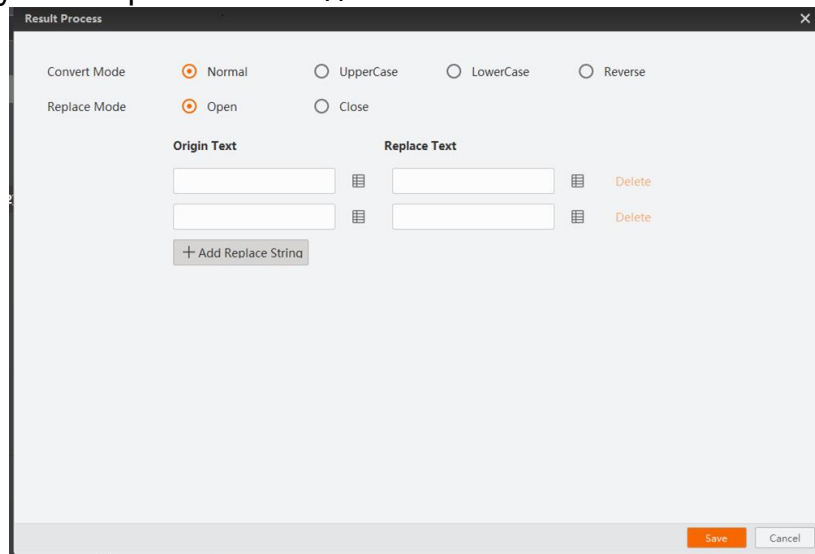


Figure 7-10 Result Process Settings

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.

7.5 Code Reading Settings

The code reading 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**, and **Batch Mode**.

Table 7-7 Code Reading Mode

Code Reading 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	It reads codes containing the cross laser center in the code area only. The code reading process ends if codes are read successfully or the trigger switch is released.
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.
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.

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.

7.6 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.

7.6.1 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.

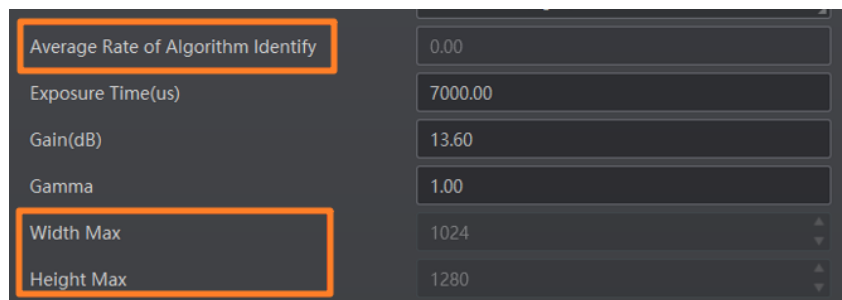


Figure 7-11 Image Settings in Feature Tree

7.6.2 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 7-8 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.

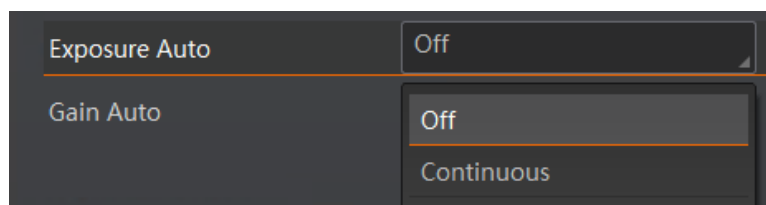


Figure 7-12 Set Exposure

7.6.3 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 7-9 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.

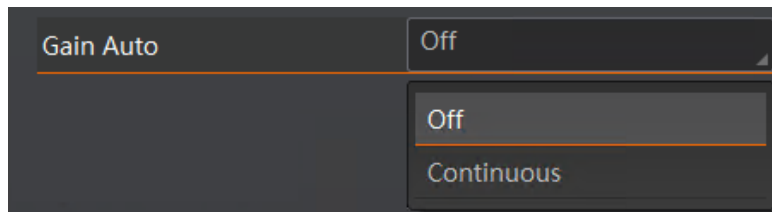


Figure 7-13 Set Gain

7.6.4 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.
-

IDH2000P Series Device

Regarding the IDH2000P series device, you can set the following parameters.

AimingLight Enable

After this parameter is enabled, the device will emit a cross aiming line for code reading.

AimingLight Delay Enable

After this parameter is enabled, you can set the delay time of aiming light disabling when the device is triggered.

Light Polling

After this parameter is enabled, you can set polling mode and polling time.

Light Polling Mode

You can select **Poll All**, **Poll Red White**, **Poll Red Blue**, or **Poll White Blue** according to the actual demands.

Idh Light Poll Time(ms)

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

White/Red/Blue Light Enable

After this parameter is enabled, the white/red/blue light will be enabled.

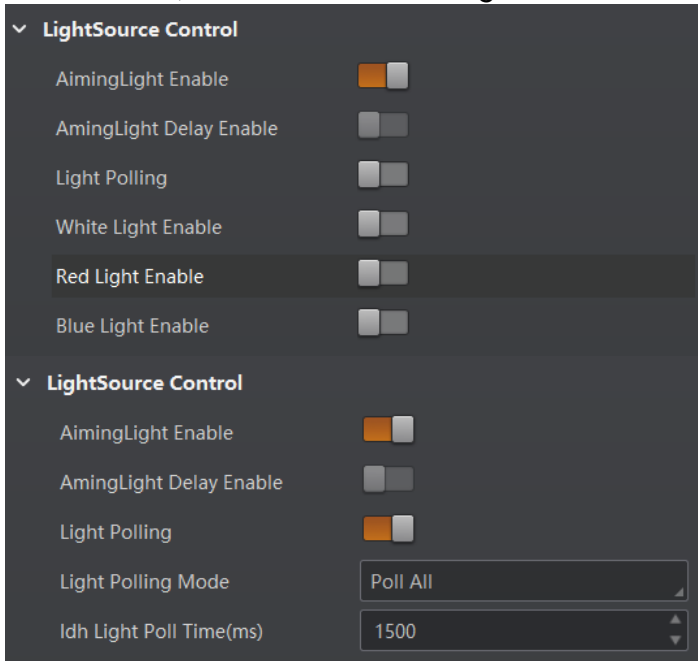


Figure 7-14 Set Light Source (IDH2000P Series Device)

IDH2000 Series Device

Regarding the IDH2000 series device, you can set the following 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.

Lighting Enable

After this parameter is enabled, the light source is available.

7.6.5 Set Other Parameters

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.

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.

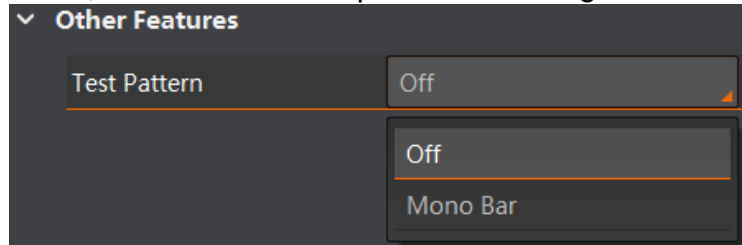


Figure 7-15 Set Test Pattern

7.7 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.

7.7.1 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 reading mode is batch mode.
-

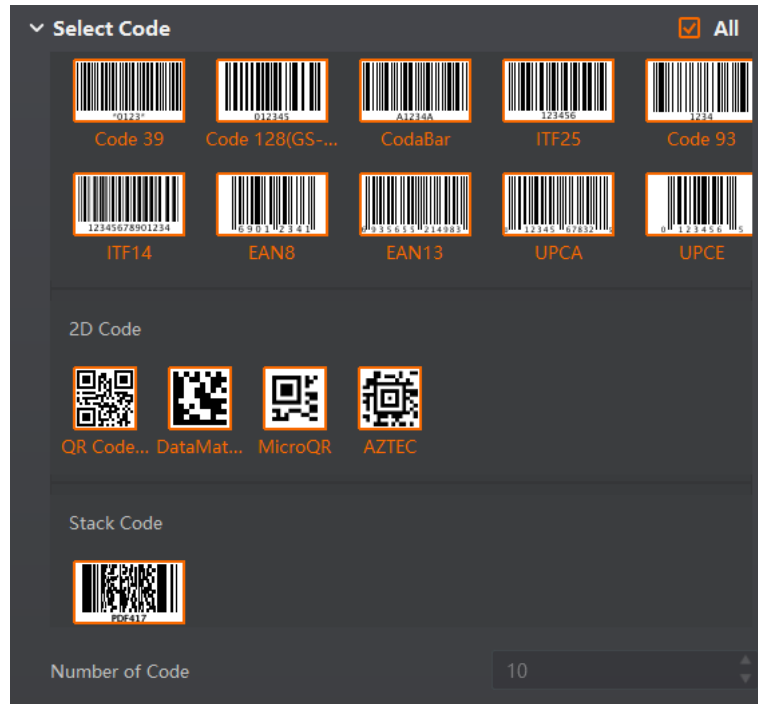


Figure 7-16 Add Code

7.7.2 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.

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**.

7.8 Signal Input Settings

In the signal input module, you can set the trigger-related parameters. In general, the device supports 5 different trigger sources, including button trigger, brightness trigger, self trigger, serial trigger, and software trigger.



Note

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

7.8.1 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.

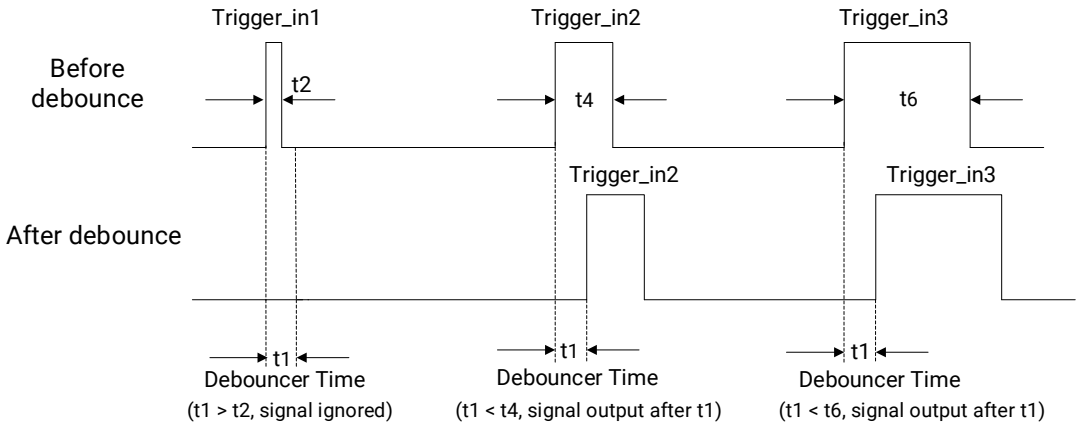


Figure 7-17 Sequence Diagram of Trigger Debounce

- **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.

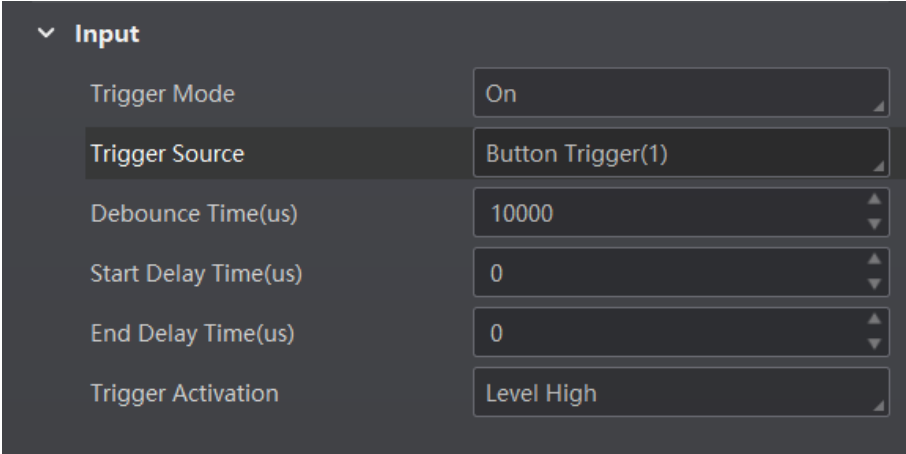


Figure 7-18 Set and Execute Button Trigger

7.8.2 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**, and **Brightness Timeout** 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.

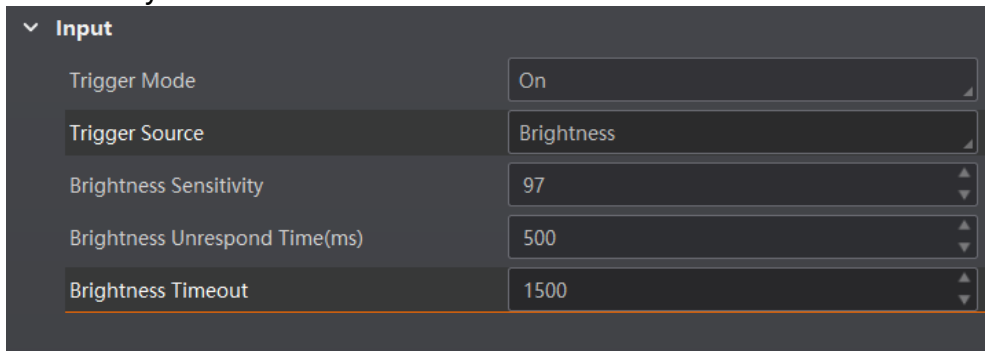


Figure 7-19 Set and Execute Response Trigger

7.8.3 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**, 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 reading mode is batch mode, the self trigger is not available.
 - You can use the device's trigger switch to start and stop self trigger.
-

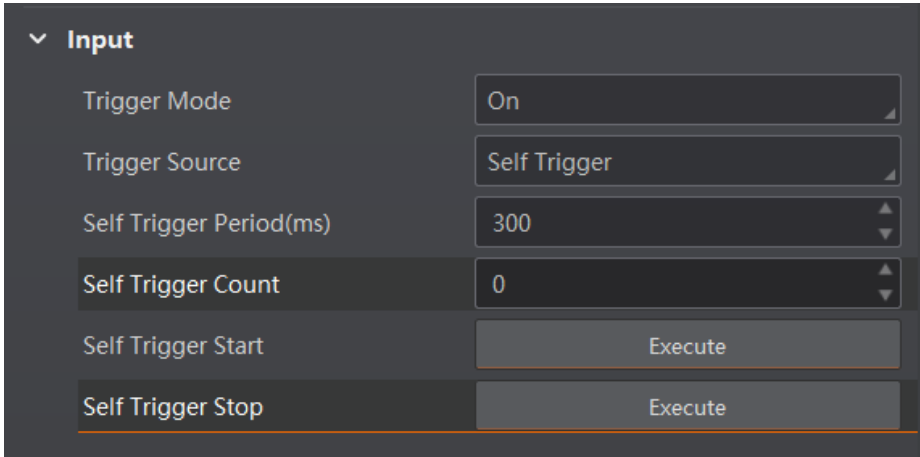


Figure 7-20 Set and Execute Self Trigger

7.8.4 Set and Execute Serial Port

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 **Trigger Delay**, **Serial Baudrate**, **Serial Data Bits**, **Serial Parity**, **Serial Stop Bits**, and **Serial Start Trigger Text** according to the actual demands.

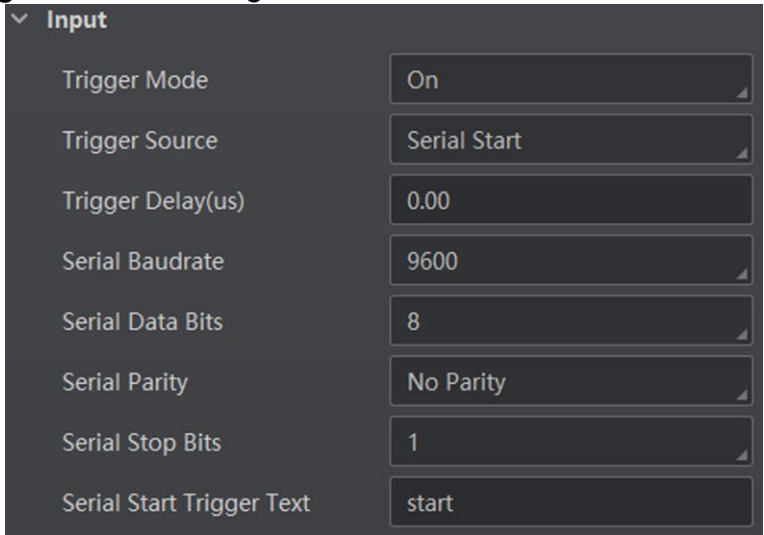


Figure 7-21 Set and Execute Serial Port Trigger

7.8.5 Set and Execute Software Trigger

In software trigger, the software sends trigger signal to the device to acquire images.

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 then enable **Enable Auto Trigger** to let the client software automatically send trigger signal to device according to the interval you set.

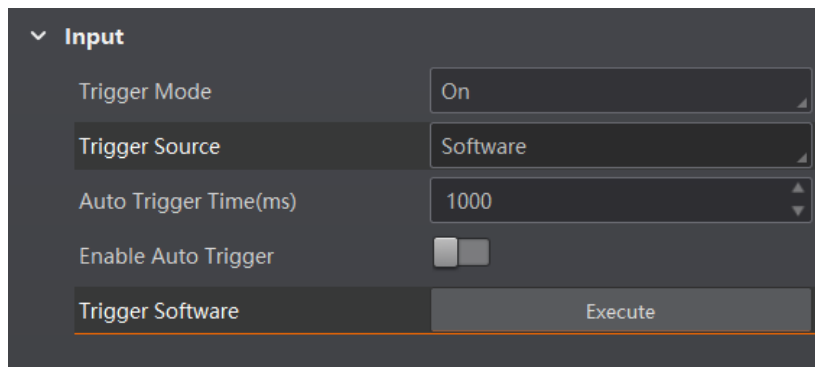


Figure 7-22 Set and Execute Software Trigger

Chapter 8 Other Operations

8.1 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.

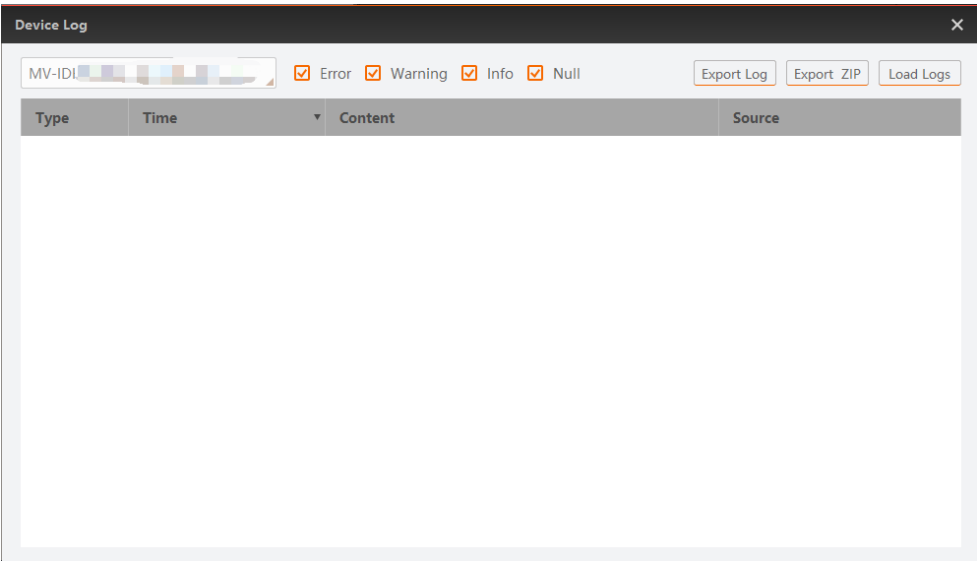


Figure 8-1 View Log

8.2 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.

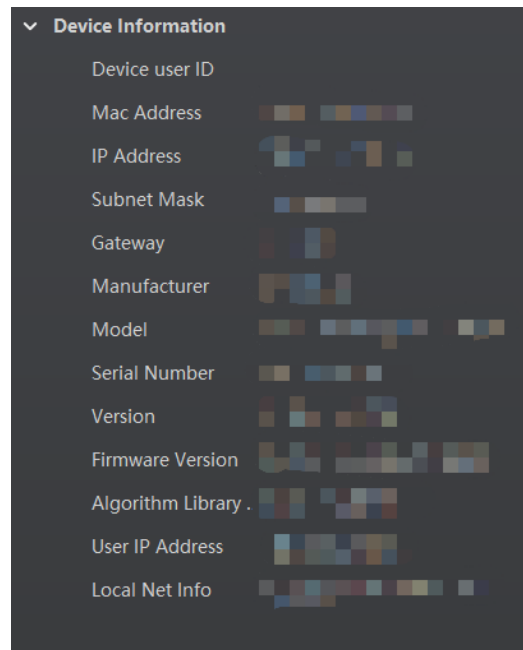


Figure 8-2 View Device Information

8.3 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.

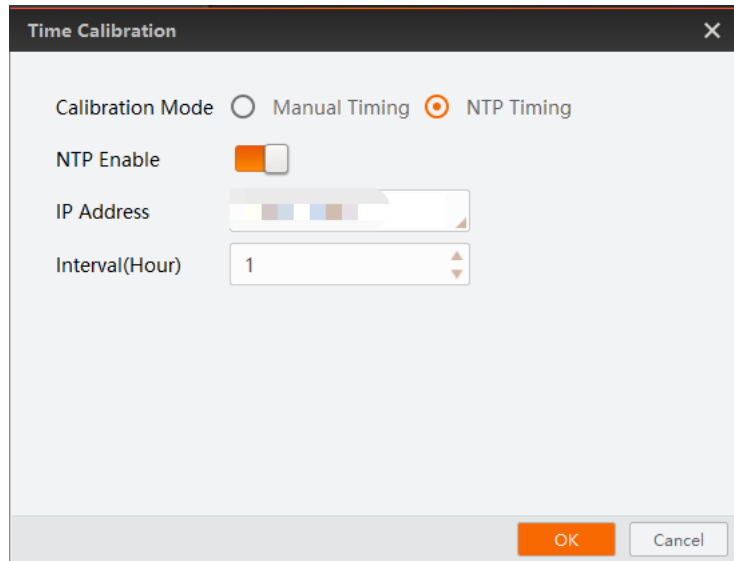


Figure 8-3 Set NTP Timing

8.4 Save Parameter

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

8.5 Update Firmware

The device supports updating firmware via the client software.

Note

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

Steps

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

Note

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

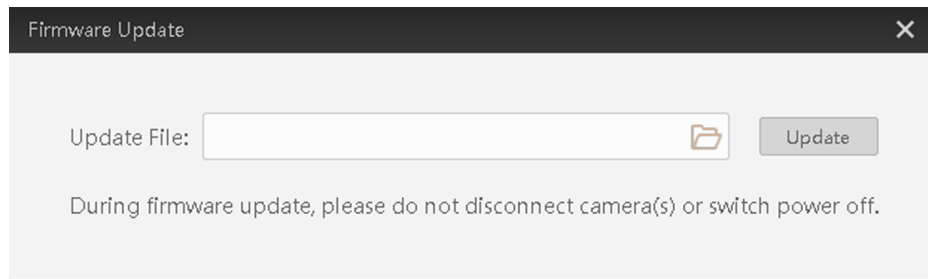


Figure 8-4 Update Firmware

8.6 Reboot Device

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

Chapter 9 Device Maintenance

9.1 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.

9.2 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 10 FAQ (Frequently Asked Question)

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

Table 10-1 Question 1

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

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

Table 10-2 Question 2

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

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

Table 10-3 Question 3

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

10.4 Why there is no buzzer sound after the device reads

codes successfully?

Table 10-4 Question 4

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

10.5 Why only a few codes read successfully on the batch code reading mode?

Table 10-5 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.

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

Table 10-6 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.

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

Table 10-7 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.

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

Table 10-8 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.

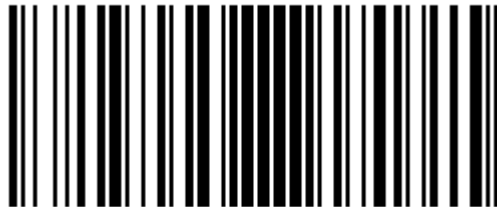


Figure 10-1 Configuration Code of Enabling

2. Scan the configuration code of simple HID mode.



Figure 10-2 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 10-3 Configuration Code of Enabling

4. Scan the configuration code of composite HID mode.



Figure 10-4 Configuration Code of Composite HID Mode

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

Table 10-9 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.

Chapter 11 Revision History

Table 11-1 Revision History

Version No.	Document No.	Date	Revision Details
V1.0.0	UD43046B	May 30, 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/XOF F	13	3	33	S	53	s	73

IDH2000 Series Wired Handheld Code Reader User Manual

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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