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1. PC Network Configuration

Before installing the host computer, select the corresponding option to disable the firewall in the Custom Settings interface and click OK.

1.1 IP Configuration

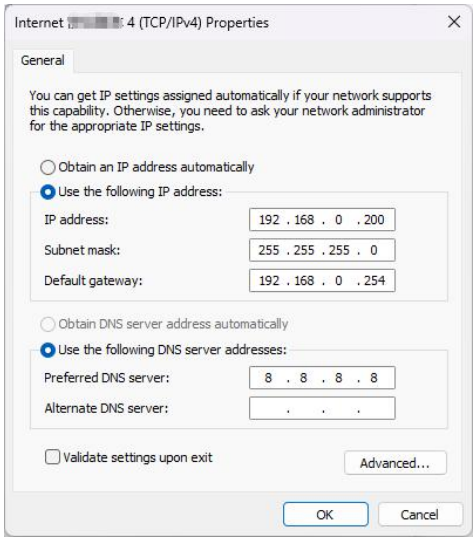
The factory default device IP is 192.168.0.100. Connecting to the host computer may display an IP conflict warning; there are two ways to modify it.

1.1.1 Automatic IP Modification

When connecting a device to the host computer, an error message will appear stating "Cannot connect due to IP conflict" if a conflict exists. Right-click the device and select "Modify IP," then choose "Auto Modify IP" in the pop-up window.

1.1.2 Manual Modification of Computer IP Address

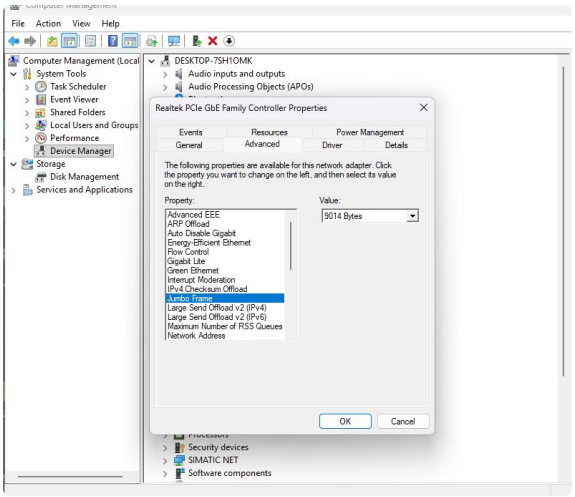
If the device's IP address conflicts with that of your connected computer, manually modify the computer's IP. First, open Control Panel> Network and Internet> Network and Sharing Center> Change Adapter Configuration, select the corresponding network port, check its connection status, then choose "View Properties" for that port to configure it to automatically obtain an IP address or use a static IP, as shown in the figure. Ensure the PC and the device are on the same local network.



1.2 Configure the Network Adapter

Follow these steps: Open Control Panel> Hardware and Sound> Device Manager> Network Adapter, select the corresponding network card, go to the Advanced menu in Properties, and set

the Giant Frame Packet size to the maximum value of 9014 bytes, as shown in the figure.



2. Installation on the host computer

The device can be debugged for images and parameter settings using the IDManager software, which is compatible with Windows 7/10/11 32-bit and 64-bit operating systems.
Note: This software includes all required hardware drivers and does not require additional downloads or installations. If the.NET Framework is not installed on your PC, install version 4.8 manually.

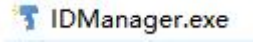
2.1 Install the ID Manager software

The installation steps are as follows:
1. During installation and execution, log in as a user with Administrator privileges.

- Before starting the installation, close all running applications. Installation may be affected by security software.

- When uninstalling ID Manager, select the folder and ensure all compressed files are deleted.

When configuring the code reader device using ID Manager software, establish a connection after installation to enable communication between the device and computers, switches, PLCs, or other devices.
2. Contact technical support to download the IDManager installation package for the smart scanner.
3. After obtaining the installation package, select a storage path and click "Start Decompression". Once decompressed, open the folder and locate the IDManager debugging tool icon as shown in the figure.



2.2 ID Manager Launch and Reader Connection

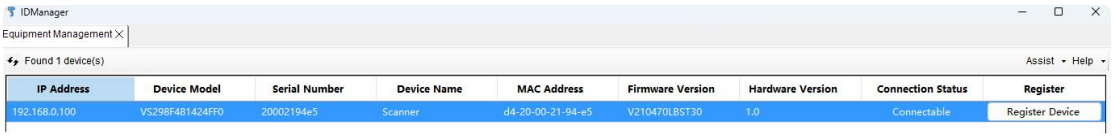
Note: Refer to the user manual for specific model requirements regarding hardware connections.
Different devices and firmware versions may vary; please refer to the actual specifications.

Double-click the decompression folder and locate "ID Manager" within it.

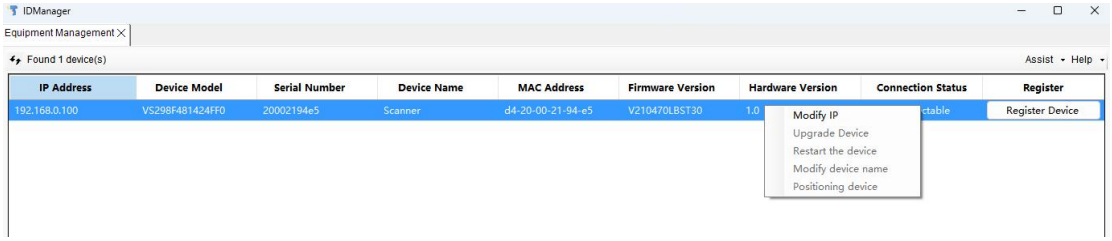


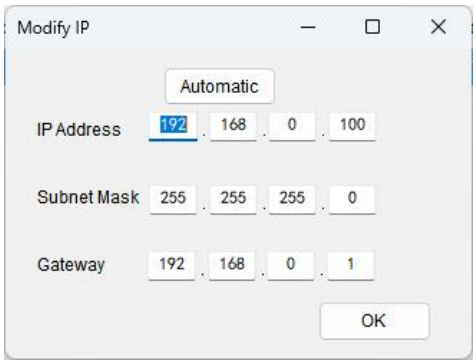
2.2.1 Connected Devices

Refresh the search devices list to display details of available devices (including IP address, device model, serial number, device name, MAC address, firmware version, hardware version, connection status, and register). Select the desired device and click Register Device (default factory IP: 192.168.0.100) to connect it.



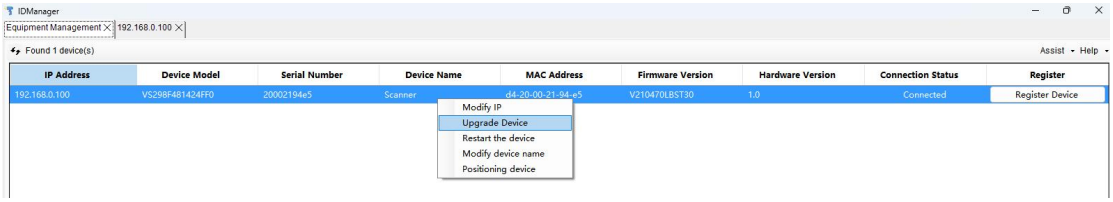
- Modify IP: The device and connected computer must be on the same network segment. The default factory IP is 192.168.0.100. If they are not on the same network segment, select the device, right-click, and choose "Modify IP" to change the IP address within the range provided in the dialog window to enable connection. Right-click also allows you to upgrade firmware, restart the device, modify the device name, or locate the device.





- Upgrade Device : Select the device to upgrade, click Register Device, return to the Device

Management page, right-click and choose Upgrade Device. In the pop-up window, select the desired firmware version (hex file; contact technical support for the latest version) and click the Update button. The firmware upgrade progress will be displayed during the process. Upon completion, a success message will appear and the device will restart automatically. It is recommended to restore default settings before using the device again after upgrading.

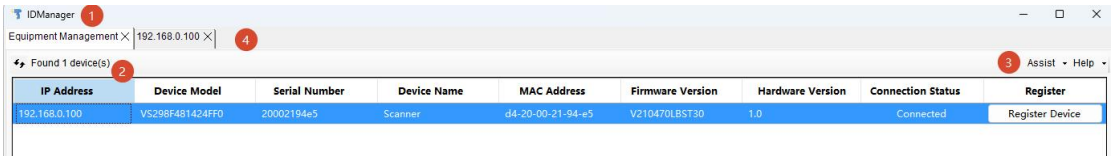


- Restart the device: Select the device, right-click to choose "Restart Device," and the device will restart without powering off.
- Modify device name: Select the device, right-click to change its name, and customize the device's name.
- Positioning device: Click the device to make the three lights at its top flash, allowing you to quickly identify the connected device.

2.2.2 Introduction to the Host Computer Page

Note: Different device models and firmware versions may vary in supported features such as light sources, focus capabilities, and code quality verification. Refer to the device's actual specifications for details.

Open the IDManager page as shown in the figure



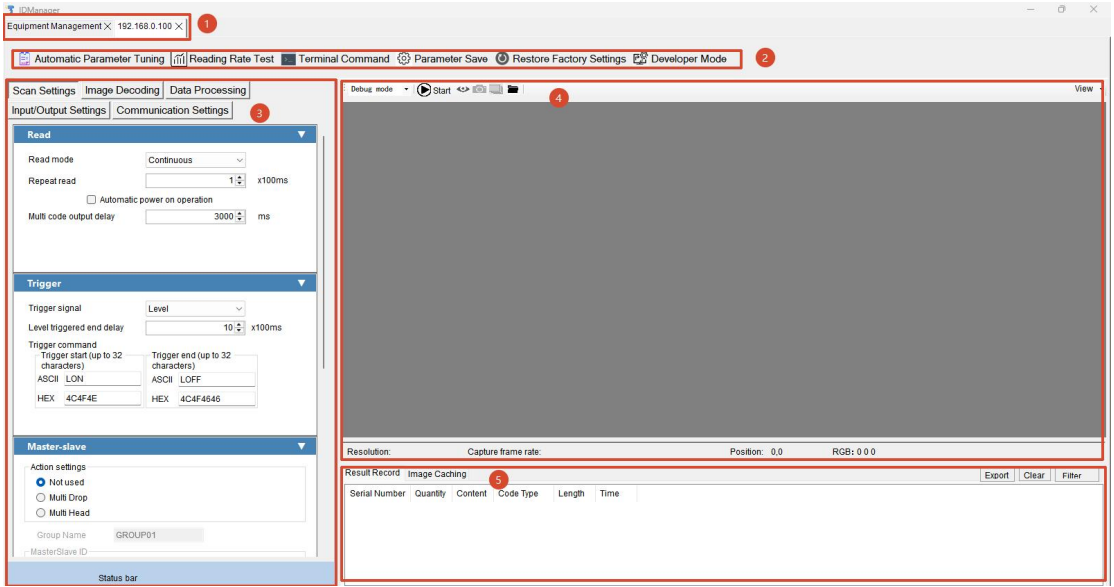
① Equipment Management Page

② Online Device List

③ Debugging Assistant and Help: The Debugging Assistant includes a NetAssistant and a SerialAssistant; Help allows you to open the user manual and view the host machine version.

④ Devices are connected. Note that only one device can be connected at a time. To connect multiple devices, open the corresponding number of host computers.

The page connected to the device and ID Manager is shown in the figure

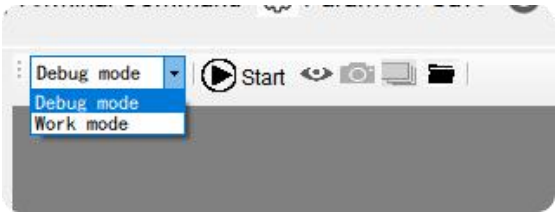


1	Page Selection Bar	Switch between the Device Management page and the Connected Devices page.
2	Convenient Tool	The sequence is: Automatic Parameter Tuning, Reading Rate Test, Terminal Command, Parameter Save, Restore Factory Settings, and Developer Mode.
3	Status bar	At the top, in order, are Scan Settings, Image Decoding, Data Processing, Input/Output Settings, and Communication Settings; below are the detailed usage parameters for each function.
4	Image Monitoring Screen	In sequence: switch between reader modes (Work mode/Debug mode). Start/Stop the image monitoring screen Preview , Save current image, Continuous saving, View save path, Adjust the real-time image page size (Magnify,Reduce,Adaptive,Full Screen,Lock), At the bottom of the image, you can view the Resolution, Capture frame rate, mouse coordinates on the screen, and RGB values at the mouse position. You can also right-click to draw ROIS on the image.
5	Result Image	In sequence, the barcode information currently read by the client is displayed in real time. Image Caching, Export barcode information Clear barcode information, Filter the content on this page that displays barcode information.

3. Decoding, Debugging, and Configuration

3.1 Adjust Image Decoding:Automatic Parameter Tuning

1. After connecting the device, switch to Debug mode; the first connection defaults to Work mode.

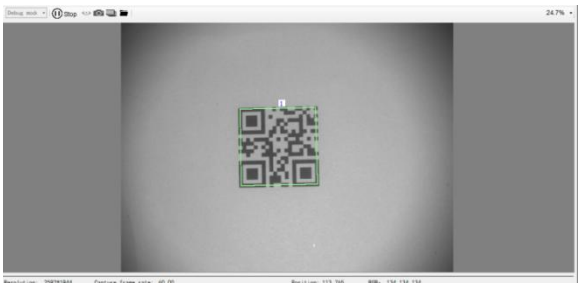


function	Debug mode	Work mode
Automatic Parameter Tuning	√	×

Scan Settings	×	√
Image Decoding	√	√
Bank polling	×	√
Data Processing	×	√
Input/Output Settings	×	√
Communication Settings	×	√
Master-Slave Configuration	×	√
Assist	×	√
Save the current image	√	√

2. Click Start to open the image monitor and view the device's real-time images; click Stop to close them.

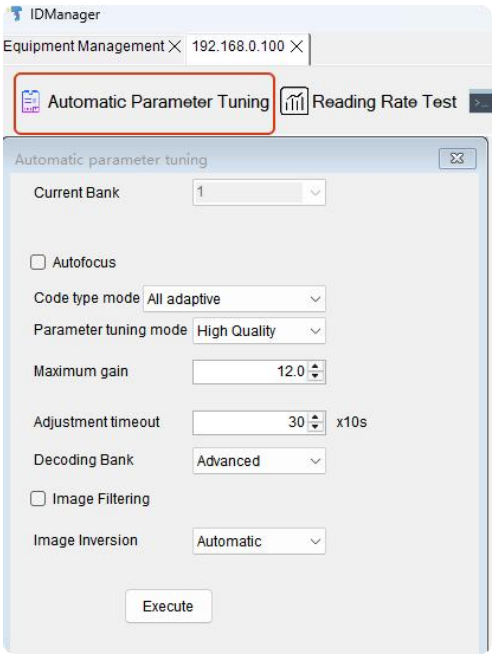




3. Decoding: We choose automatic parameter tuning

Adjust the overall image decoding parameters using the automatic parameter tuning function.

The automatic parameter tuning feature enables one-click intelligent modification of the device's focus position, exposure, and gain settings, while supporting barcode adaptive adjustment for optimal reading performance and simplified device calibration.

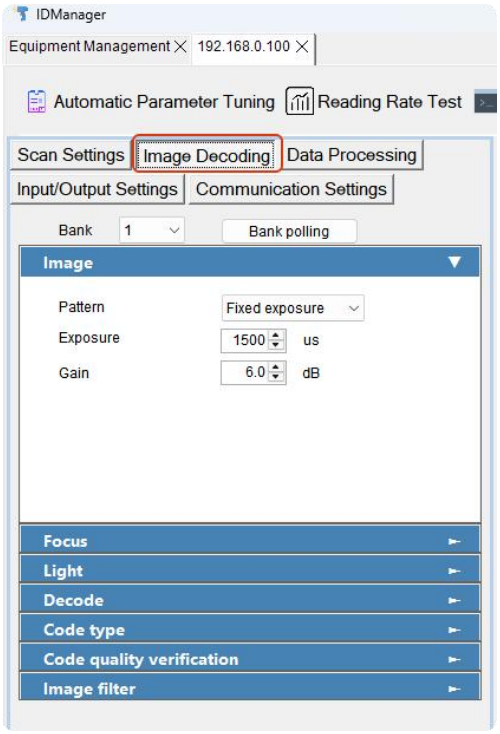


- You can enable automatic parameter adjustment for different banks.
- Auto focus is optional. It automatically adjusts focus position, exposure, gain, and other parameters during focusing; it can be unchecked if the image is clearly visible. When checked, focus is adjusted first before modifying other parameters.
- There are four code system modes: all adaptive, one dimensional/two dimensional adaptive, and current bank parameters.
- The Parameter tuning mode has two options: High Quality and High Speed. Generally, select "High Quality"; choose "High Speed" when reading a mobile barcode.
- Customize maximum gain (with range limits).
- By adjusting the timeout parameter, you can set the intelligent adjustment timeout duration. The adaptive adjustment will stop automatically after exceeding the set time and display a failure message.
- The decoding bank offers three options: Standard,Advanced,Expert.The Advanced is typically chosen.
- Image Filtering: Select whether to use image processing filters during adjustment.
  When adjusting a one-dimensional barcode, the types of image processing filters are limited.
- Image Inversion has three options: Disabled, Enabled, and Automatic; Automatic is usually selected.
- Click Execute to begin Automatic Parameter Tuning. The device will initiate the process, with a progress bar displayed below.
  You can view the progress of automatic parameter tuning.

3.2 Adjust Image Decoding :Manual Parameter Adjustment

1. After connecting the device, switch to debug mode (for parameter adjustment testing only; output data requires switching to work mode). The first connection defaults to work mode.
2. Click Start to open the image monitor and view the device's real-time images; click Stop to close them.

3. Decoding: We adjust various parameters during image decoding.



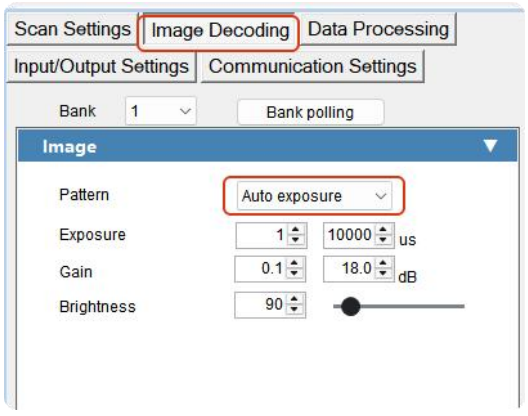
Adjust parameters such as image exposure,gain,focus,light,and code type. Prioritize adjusting exposure,gain,focus, and light source to ensure the barcode is clearly visible in the image.
Second, adjust the code system to ensure it is enabled;
Finally, adjust other parameters such as decoding method and image preprocessing.

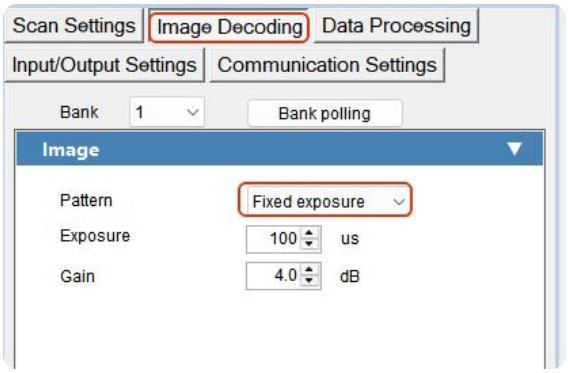
3.2.1 Image

- The mode options include fixed exposure and auto exposure.

Exposure and gain can be customized in fixed exposure mode. Automatic exposure requires no adjustment; if the automatic exposure parameters are unsuitable, you can make minor adjustments manually. We recommend using fixed exposure mode.

- Exposure time (μs): Increasing the exposure time enhances image brightness but reduces





frame acquisition rate to some extent.

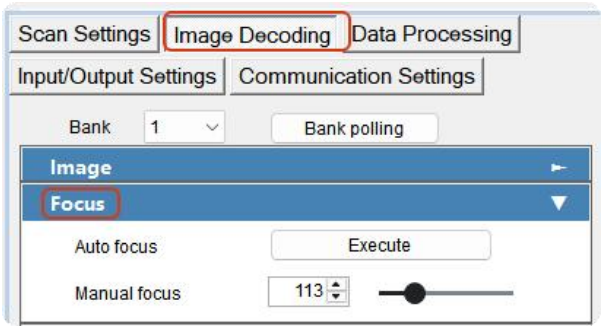
Shadows often appear when filming moving objects.

- Gain (dB): Increasing the gain enhances image brightness but may also increase noise to some extent.
- Brightness: Increasing the brightness value enhances image clarity, but may also increase noise to some extent.

3.2.2 Focus

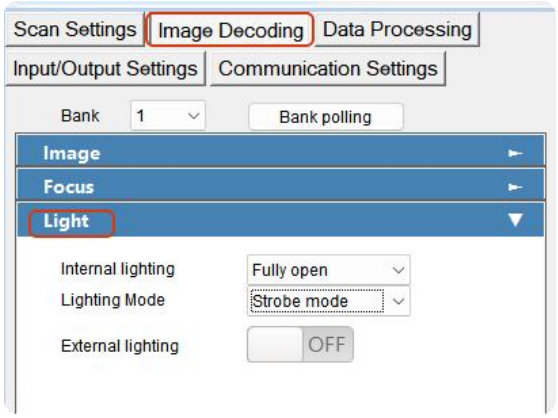
Available in automatic focus, manual value-based focus, and ROI area automatic focus. Only zoomable devices support this feature.

- ROI area auto-focus applies focus solely to the specified ROI region, adjusting the lens focus within that area by drawing it.
- Without drawing an ROI, click Auto Focus to adjust the lens focus across the entire field of view in one step.



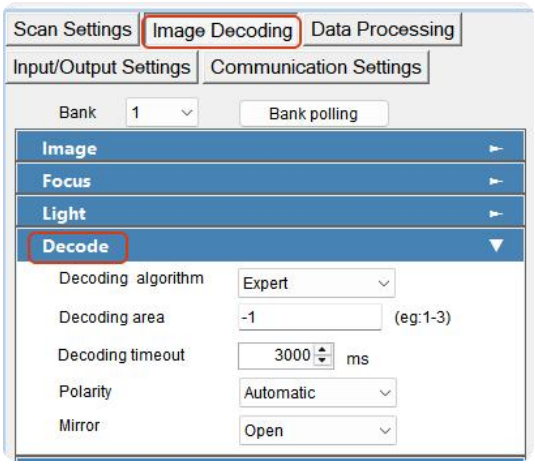
3.2.3 Light

- The internal lighting control device comes with a built-in light source switch.
- The lighting modes include always-on mode and strobe mode.
- The switching control of external lighting requires IO control.

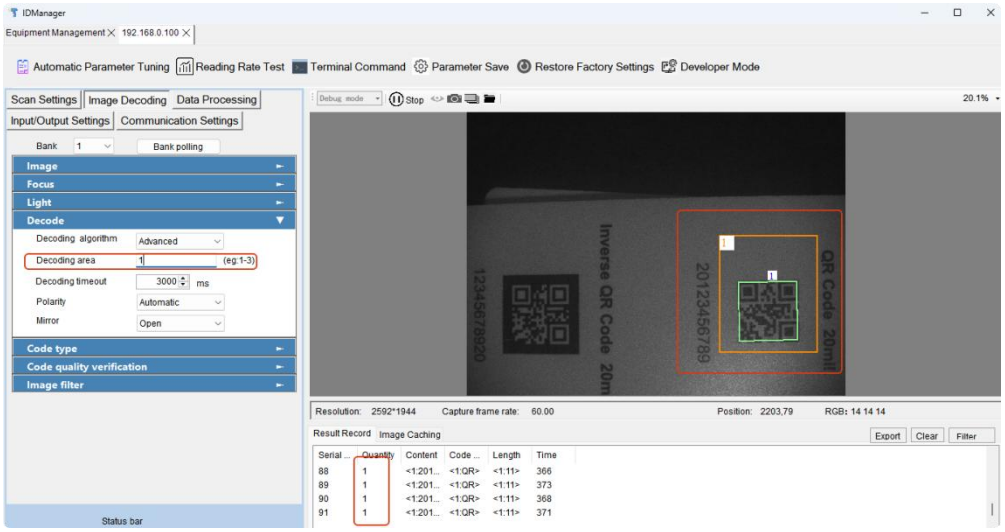


3.2.4 decode

- Here you can adjust the decoding algorithm (Standard, Advanced, Expert). The Advanced is recommended for most cases, and the code quality verification must be Expert.



- decoding area: Default is -1 for all ROIs. Set the decoding area value by specifying a ROI number; changing the ROI number limits the decoding area: 1 decodes barcodes in ROI 1 only, while 1–3 decodes barcodes in ROIs 1, 2, and 3 respectively.

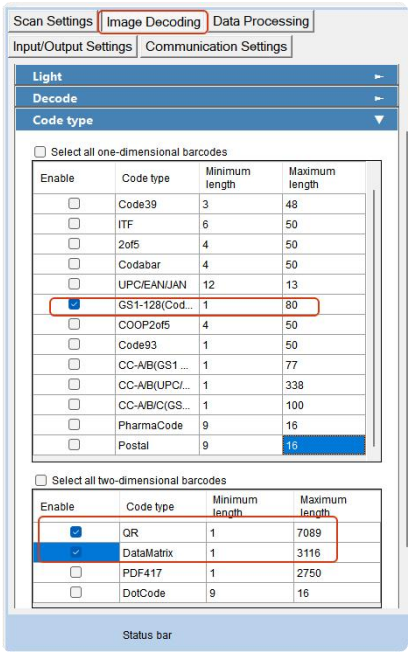


- Decode timeout: Output is generated if decoding succeeds within the specified time limit; decoding stops if exceeded.
- Polarity: Default is automatic; you can switch to white background and black code or black background and white code.
- Mirror: On enables automatic mirroring; Off does not remove the mirror code.

3.2.5 Code Type

Code type	Select the barcode type to adjust.

	Limiting barcode types reduces adjustment time.
Barcode Details Settings	Filter barcode outputs based on their maximum and minimum lengths.

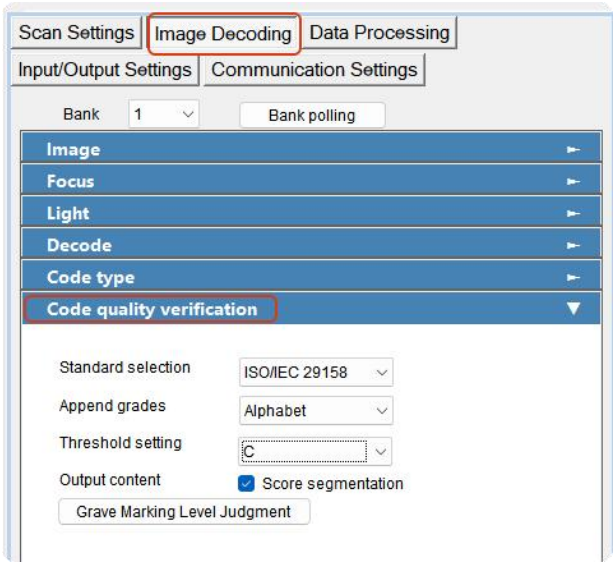


By default, the system enables GS1-128, QR codes, and DM codes upon factory shipment; other code formats require manual activation. You can also adjust the minimum and maximum barcode lengths to filter output results.

3.2.6 Code quality verification

prerequisite ：

Ensure the corresponding encoding is enabled and used for a single code.
Ensure the decoding algorithm is Expert .



- The one-dimensional code Code quality verification evaluates barcodes according to the ISO 15415 standard, for example: GS1−128.

Based on actual requirements, set the decoding algorithm to Expert and select ISO 15415 as the only standard for Code quality verification.

- Set Append grades to include Alphabet or Numeric. Alphabet criteria use threshold setting such as A, B, C, and D; numeric criteria use threshold setting such as 4, 3, 2, and 1.
- If the threshold setting is greater than the score setting, output the score result as -. Output the specific score result only when it is less than or equal to the threshold setting.

If the actual device reading setting exceeds the Grade A threshold setting, it is classified as Grade A.

The actual reading setting of the device falls between the threshold setting for Grade A and Grade B; it is therefore classified as Grade B.

The actual device reading setting falls between the threshold setting for Grade B and Grade C; therefore, it is classified as Grade C.

The actual reading setting of the device falls between the threshold setting for Grade C and Grade D; it is therefore classified as Grade D.

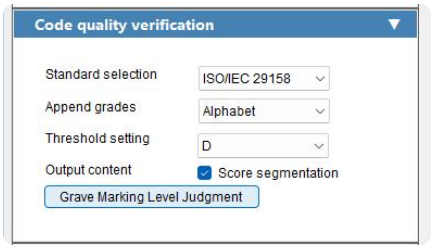
The actual device reading setting is below the Grade D evaluation threshold; the assessment result is-.

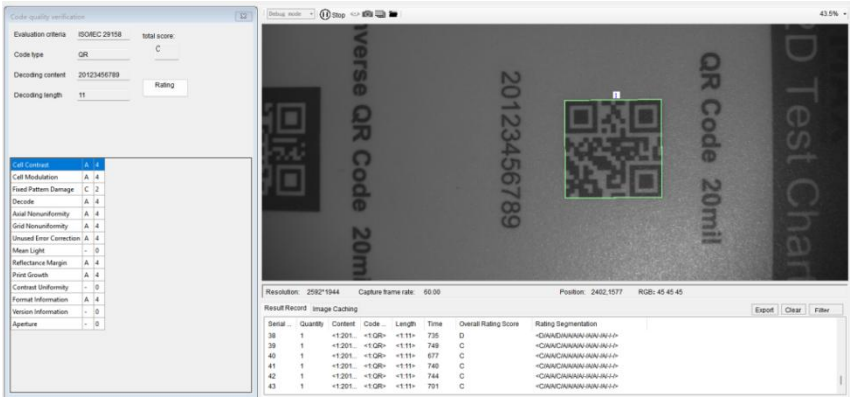
- The numerical Code quality verification are the same as those for Alphabet.

For the grade assigned to the output barcode, the worst rating among all the evaluation criteria is used as the final grade; grade A represents the best quality, while - represents the lowest grade represents the worst quality. Grade 4 corresponds to the best quality, while - represents the lowest grades correspond to the worst quality.

The QR code quality verification scoring function evaluates the code quality verification of QR codes based on ISO 29158 (supporting QR and DM) and ISO 15415 (supporting QR, DM, and PDF417). The scoring criteria apply to all one-dimensional codes.

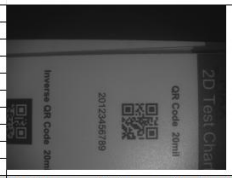
Click Grave Marking Level Judgment to view more details





To generate a rating report, export it in working mode.

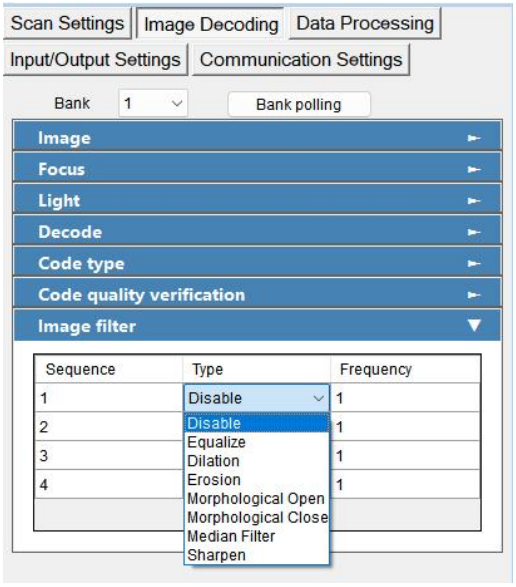
Barcode Quality Inspection Report

Test Date	2026/06/10	Test Image	
Test Time	16:32		
Firmware Version	V210470LBST30		
Device SN	20002194e5		
Code type	QR		
Decoding content	20123456789		
Overall Rating	C		
Rating Criteria	ISO/IEC 29158		
Test sub items	**Rating**	**Value**	**Possible reasons for low scores (less than B or 2)**
Cell Contrast	A	4	
Cell Modulation	A	4	
Fixed Pattern Damage	C	2	Fixed pattern damage: missing or damaged positioning patterns; Incomplete and discontinuous engraving
Decode	A	4	
Axial Nonuniformity	A	4	
Grid Nonuniformity	A	4	
Unused Error Correction	A	4	
Reflectance Margin	A	4	

Note: The QR code code quality verification parameters vary by device model and firmware version; refer to the actual specifications.
Factors such as image brightness, clarity, and the precise alignment of the barcode with the reader may also affect the scoring results for code quality verification.

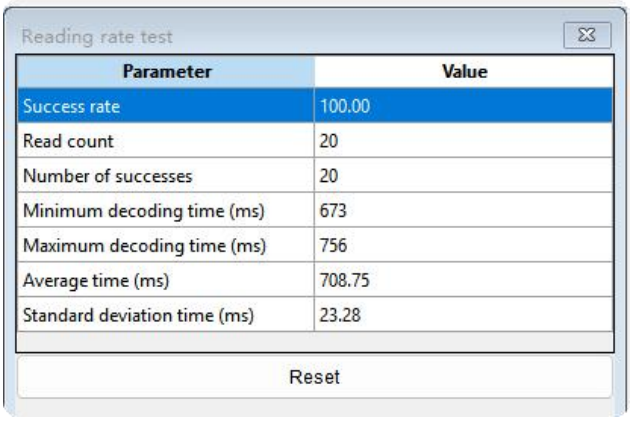
3.2.7 Image filter

For barcodes with difficult-to-decode issues such as contamination, damage, or low print contrast, image filter can assist in decoding.



3.3 Reading Rate Test

The adjusted barcode can undergo a reading rate test, which measures the probability of correct reading for the captured barcode.



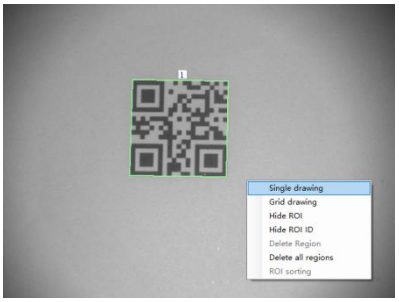
output format

Parameter	Value
Success rate	0-100.00
Read count	Number of reads
Success count	Number of successful reads
Minimum decoding time (ms)	Minimum reading time
Maximum decoding time (ms)	Maximum read time
Average time (ms)	Average reading time
Standard deviation time (ms)	The stability of read rate fluctuations over test duration: lower values indicate greater reader stability.

3.4 Add ROI

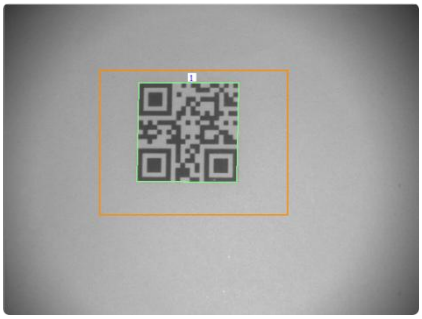
The steps to add ROI are as follows:

- Select the connected device and open Image Monitor to ensure the preview window displays image information.
- Right-click the target area to select an ROI and draw it; dragging will display an orange box. Adjust the size and position of the orange window as needed. The selected area becomes the ROI, allowing you to add multiple ROIs consecutively or create grid-based ROIs. The preview window displays full-resolution images but performs barcode analysis only on the algorithm-defined ROI region.

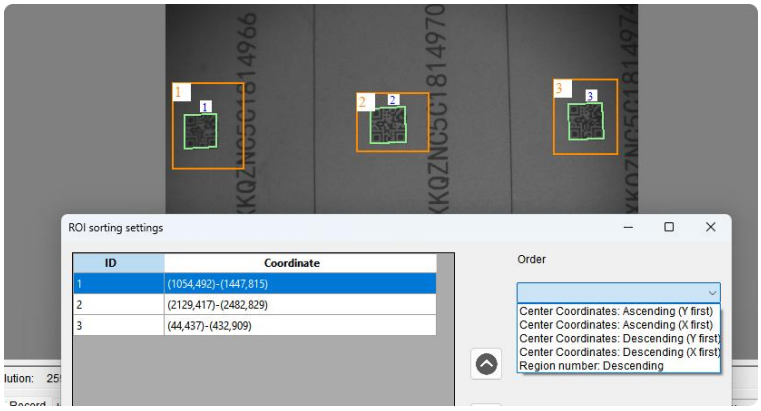




- Hide ROI: When viewing the entire image or details, you can hide the ROI, but the analysis area remains within its boundaries.
- Hide ROI ID: Number the ROIs in the order they are drawn. You can hide the numbers as needed.



- Delete Region: Remove the ROI at the current mouse cursor location.
- Delete all regions: Remove all drawn ROIs.
- ROI Sorting: When drawing multiple ROIs, you can modify their numbers using up/down arrows, sort them in ascending or descending order by center coordinates (X, Y), or arrange them by region number.

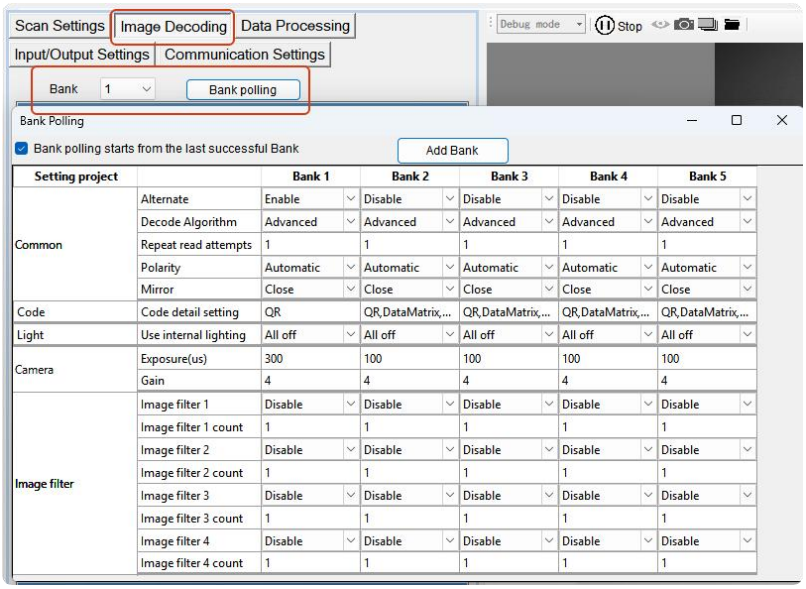


- Note: ROI applies globally and is not affected by the bank polling.

3.5 Bank Polling

When using Custom Mode on the device, set read parameters such as exposure time or whether to use image filters. The storage location for these parameters is called a Parameter Bank. The device has 16 parameter banks.

The parameter bank primarily stores the following items.



- Types of Barcodes
- lighting condition
- exposure time
- Use image filters?

project name

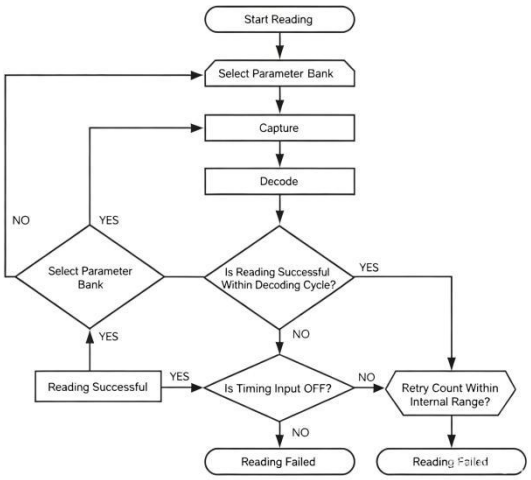
common	
alternate	Set whether to alternate reading. If "disabled", this parameter set will not be used for reading.
decoding algorithm	Three options: Standard,Advanced, Expert
Repeat read attempts	In a specific parameter set, specify the number of captures and decodings before alternating.
polarity	Set whether to read the black-and-white reversed barcode.
mirror	Set whether to read the barcode after left-right reversal.
code	
barcode details settings	Set detailed information for each barcode type.
light	
internal lighting	Use the built-in illumination LED in the reader.
camera	
Exposure(us)	Set the exposure time for shooting.
gain	Set the gain for shooting.
image filter	
Image filter 1	Set image processing filters.

Image filter 1 Time	
Image filter 2	Set image processing filters.
Image filter 2 Times	
Image filter 3	Set image processing filters.
Image filter: 3 Times	
Image filter 4	Set image processing filters.
Image filter: 4 Times	

When using "Work Mode" in the device, you can automatically switch between enabled bank polling while reading. This function is called bank polling. With bank polling, barcodes can be read reliably even if printing conditions vary.

main points ！	• The alternating process requires the optimal processing time for accessing the parameter bank (processing time depends on decoding timeout). • In factory settings, the bank polling function is initially enabled only for one bank. To use "Working Mode" across multiple banks, manually add additional banks and enable them alternately. • The alternating function is disabled when making the following settings. When using debug mode Disable alternation for all parameter banks

3.5.1 Bank Polling Operation Process



3.5.2 Bank Polling Sequence

Bank Number Sequence

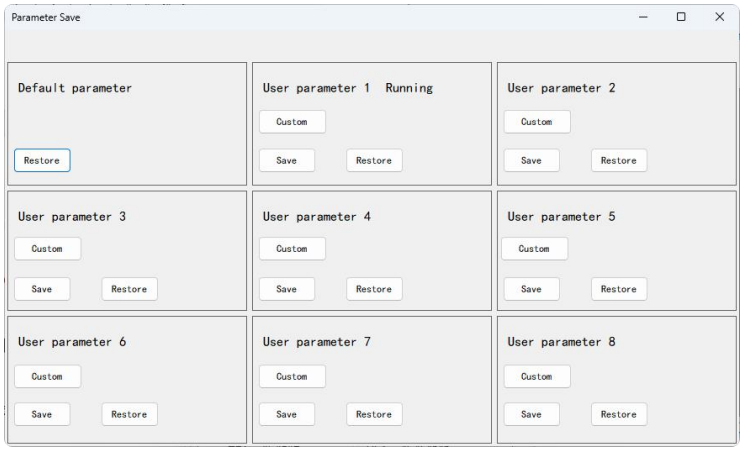
Switch and read the parameter bank sequentially starting from number 1.

- Prioritize reading successful banks

After successful reading, the next read will start from the last successful database.

3.6 Parameter Save

The current reader operation parameters can be saved on the parameter save page.

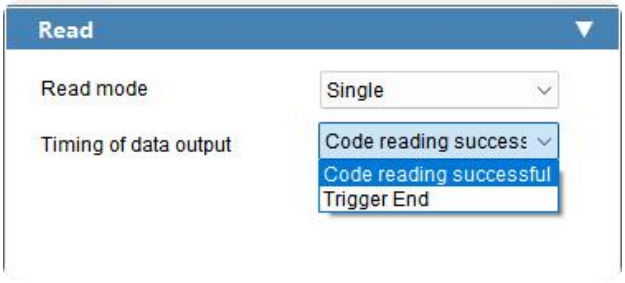


- The default parameters are the currently active set of user parameters loaded as factory settings; the other eight sets remain unaffected.
- There are eight sets of user parameters that users can customize to address complex application scenarios. Load the appropriate parameter set as needed, and active parameters will be displayed during running.

4.Scan Settings

4.1 Reading Mode:Single

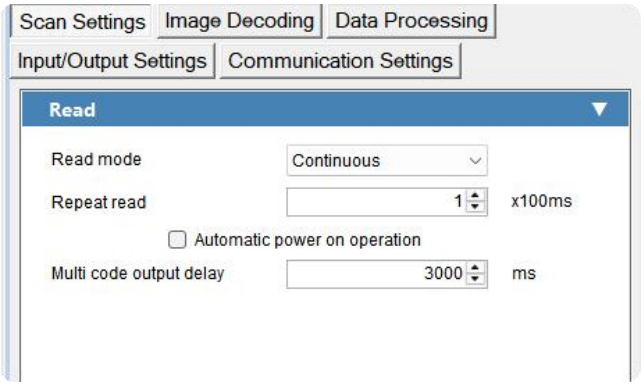




read	
Single	Read the barcode only once during the trigger period
Timing of data output	Read successful: Output the data immediately upon successful reading Trigger End: Does not occur upon successful reading, but when the

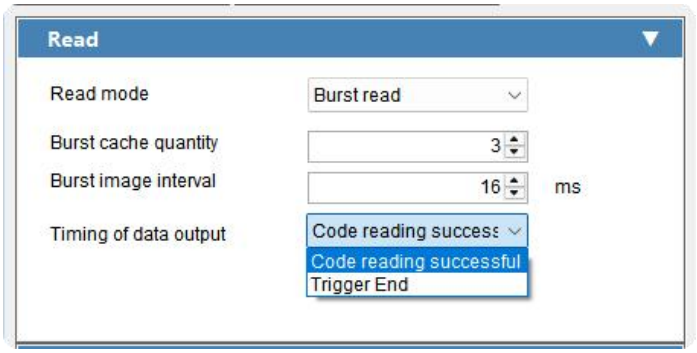
	trigger end command is entered; outputs the read data.

4.2 Reading Mode:Continuous



Read	
Continuous	Continuous barcode reading mode during the trigger period
Automatic power on operation	After checking the box, it will trigger automatically when the reader is powered on without requiring an additional signal.
Repeat read	After successful decoding, the barcode will not be decoded repeatedly within the specified time frame. If the barcode leaves the field of view for longer than the specified duration, it will be decoded again. *0 ms represents infinite time
Multi code output delay	After successfully reading the first barcode, do not output the data immediately. Instead, accumulate the delay time and combine all successfully read barcodes during this period into a single result for output, in accordance with the multi code output rule.

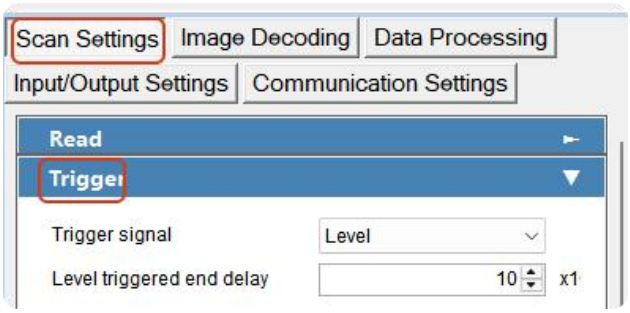
4.3 Read Mode: Burst Mode



read	
burst mode	During the trigger period, multiple shots are taken first, followed by reading a barcode once. * Suitable for scenarios with long decoding times that require mobile decoding
Burst cache quantity	Maximum number of photos taken: 50
Burst image interval	Time interval between two adjacent images when taking photos
Timing of data output	Read successful: Output the data immediately upon successful reading Trigger End: Does not occur upon successful reading, but when the trigger end command is entered; outputs the read data.

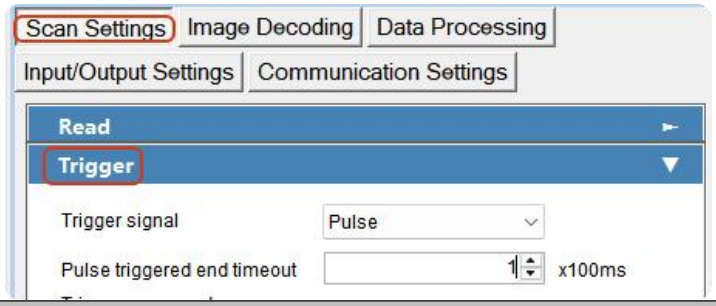
4.4 Trigger

4.4.1 Trigger Signal:Level



trigger	
level	During the trigger retention period, the reader performs reading. If the read is successful, the reader stops reading and outputs the data; if the barcode cannot be read before the trigger expires, the reader stops reading and sends a read error signal.
Level triggered end delay	After receiving the shutdown trigger signal, the reader completes this code reading after a specified delay.

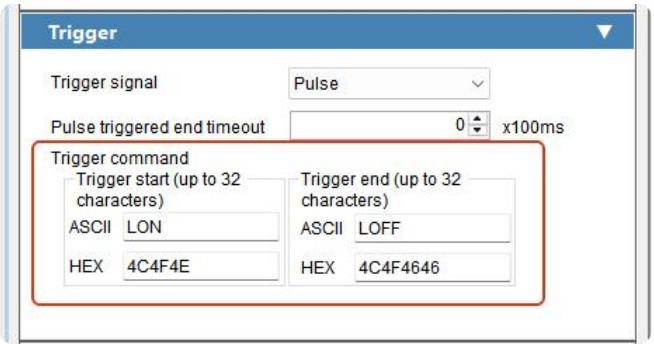
4.4.2 Trigger Signal:Pulse



trigger	
pulse	Upon receiving the trigger signal, the reader performs barcode reading within the pulse triggered end timeout period. If reading succeeds, the reader stops reading and outputs the data; if barcode reading fails within this period, the reader stops reading and sends a reading error signal.
Pulse trigger end timeout	The time required for the reader to perform reading after receiving the trigger signal.

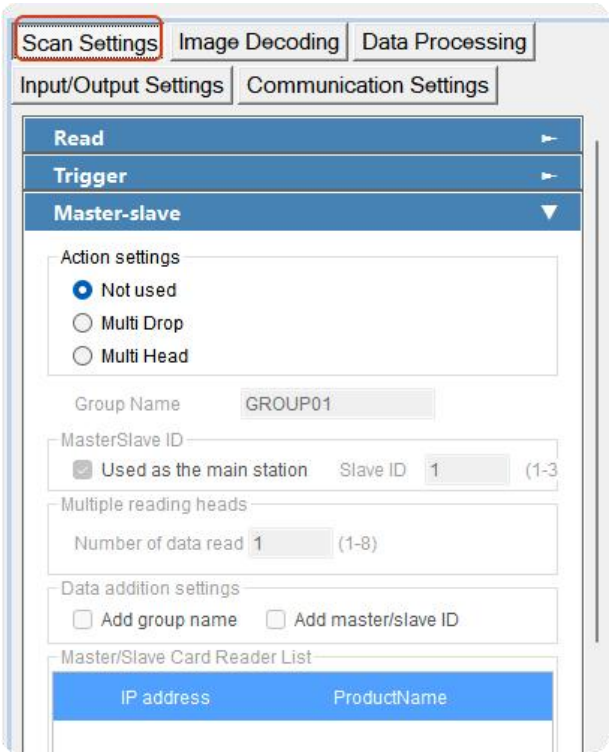
4.4.3 Trigger Command

The start trigger command defaults to LON, and the end trigger signal defaults to LOFF; these can be customized.



4.5 Master-slave

Master: gather all the reading data and output to the host
Slave: output the reading data to the Master



Action Settings

Do not use	Do not configure settings for multiple devices simultaneously
Multi Drop	Use this when installing multiple code readers on various production lines and consolidating data output to a single reader.
Multi Head	Use this for reading a single object with multiple readers and outputting the data uniformly to one reader.

Group Name

It usually does not need to be changed.
Use this when setting up multiple groups of primary or secondary sites within the same network.

stand ID

Use as the main station	Select this checkbox to make it the main station. Uncheck this box to set it as a slave station.
From Station ID	An ID can be specified to identify the slave (1−31)

Data Addition Settings

Add Group Name	Add Group Name to Read Data
Add	Add Station ID to read data

Master/Slave Station ID	Main Station: 0 From Station: 1–31

List of Master and Slave Readers

Here you can view the device's IP address, ProductName, Group Name, and Actions.



4.5.1 Available Reading Modes and Communication Protocols

Reading Mode

Reading Mode	Multi-station Communication Network	Multiple Read Heads
single	√	√
continuation	-	-
burst	√	- | √

protocol

By default, only TCP clients and servers are supported

4.5.2 Multi-Station Communication Network Model

This configuration requires only communication between the host unit and the reader serving as the master station, eliminating the need for multiple communication controls on the host and simplifying the program without increasing system overhead. For PLC systems, merely one communication module suffices for multi-unit control, resulting in a simplified device architecture.

Configuration Steps



4.5.2.1 Setting Up the Master Station

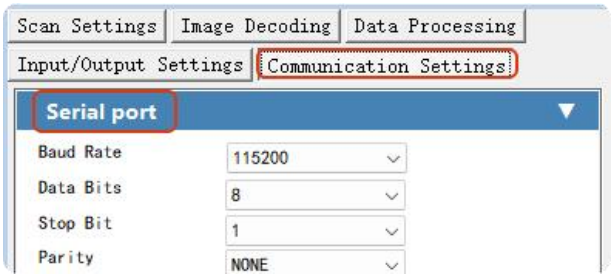
Set the data output interface and protocol

The network port only supports TCP

The master station allows RS232 output

RS232 is enabled by default

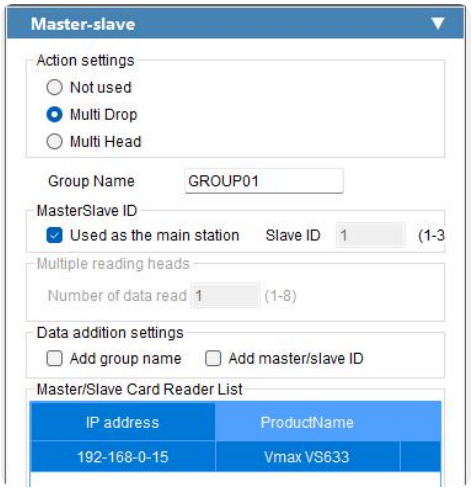
Configure parameters such as baud rate



Set Master/Slave Function

Open the Settings tab-Master/Slave

Set as shown below

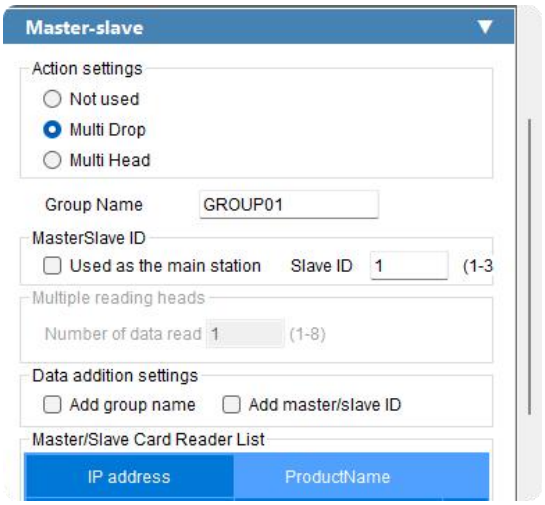


4.5.2.2 Setting Up the Master Station

Set Master/Slave Function

Open the Settings tab-Master/Slave

Set as shown below. Do not repeat the slave ID configuration



main points !	Must be in working mode. Data sent from the station to the master station is only read data. Cannot output debugging mode results or other data.

4.5.3 Multiple Reading Heads Mode

This mode is used when the location of the barcode on a workpiece within the reading field is unknown, or when the workpiece exceeds the reading field size and cannot be fully captured by a single reader.

Multiple code readers (up to 8) can be treated as a single device, eliminating the need for host-side control management and simplifying the program.

Configuration Steps



4.5.3.1 Setting Up the Master Station

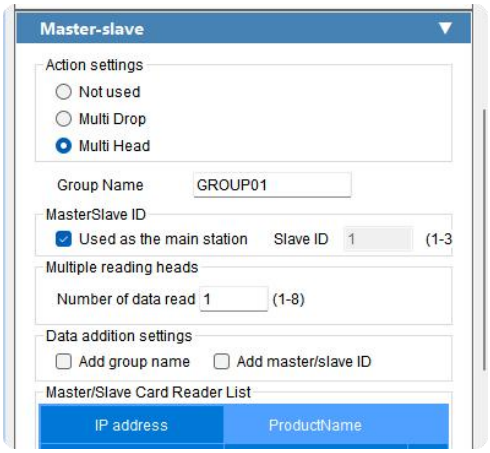
Set Network and Protocol

Supports only TCP

Data can be output via RS232.

Open the Settings tab-Master/Slave

Set as shown below

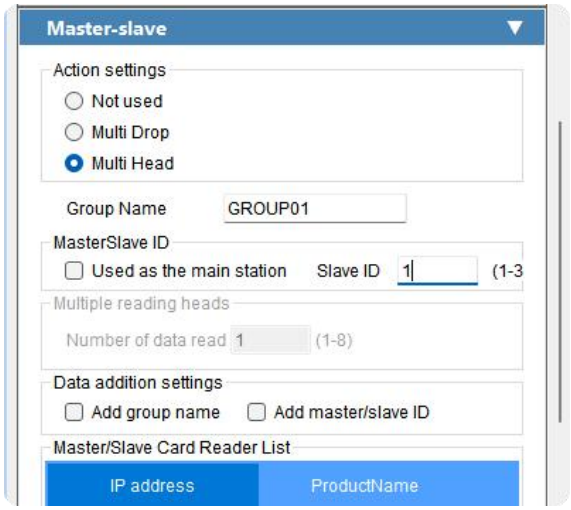


4.5.3.2 Configuring the Slave Station

Set Master/Slave Function

Open the Settings tab-Master/Slave

Set as shown below. Do not repeat the slave ID configuration



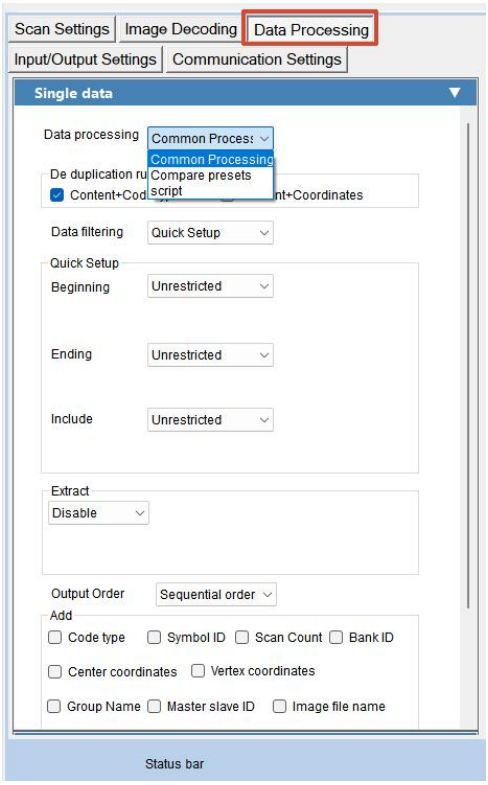
5. Data Processing and Input/Output

5.1 Data Processing

The device can configure filtering rules and output data processing for individual data points and multiple data combinations using the "Data Processing" module.

5.1.1 Single Data

They are categorized into three modes: Common Processing, Compare Presets, and Scripts.



- **Common Processing**

Common deduplication processing rules are divided into two modes: Content+Code type, and Content + Coordinates pair data for rapid configuration or regular expression filtering.
Content+Code system: When barcodes have identical content and code types, only one decoding result is returned.
Content + Coordinates: When barcodes have identical content and position, only one decoding result is returned. Use this feature with caution; results may be generated if the barcode is moved.
In Quick Setup mode, you can filter barcode outputs by restricting data for the start, end, or included content.



If a barcode contains the content 123456789,

When the start, end, and inclusion criteria are unlimited, all data is output upon successful decoding.

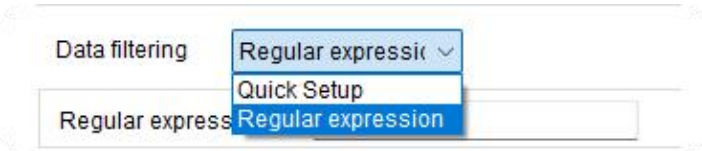
If the start matches 123, barcodes containing 123 at the beginning are not output; otherwise, the opposite applies.

If the ending matches 789, barcodes containing 789 will not be output; otherwise, the opposite applies.

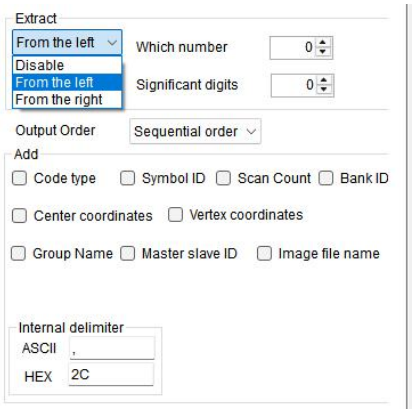
If it contains 456, the barcode with 456 is not output; otherwise, the barcode without 456 is output.

You can customize all three filtering conditions simultaneously.

Regular Expression



Extract: Extract data by setting the start direction, specifying which digit to begin extracting from, selecting the number of significant digits to output, and determining the output sequence.



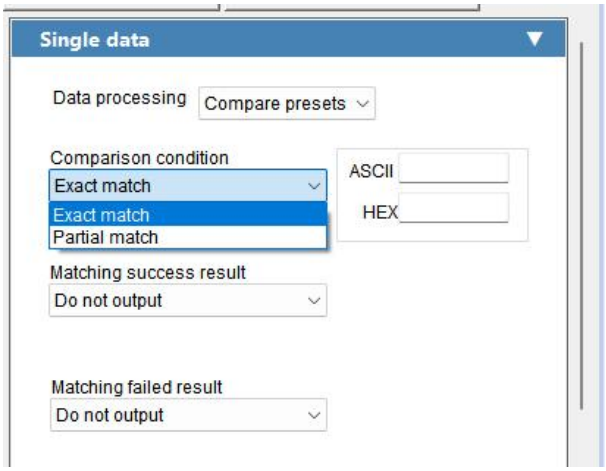
Additionally, the data output can be customized to include parameters such as code type, symbol ID, scan count, bank id and some additional information, and internal delimiter.

- **Compare Presets**

It refers to setting predefined barcode data content and comparing the read data with the preset data to obtain results.

Compare results.

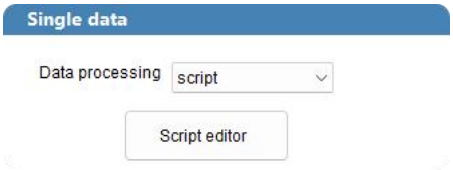
Set comparison condition: exact match and partial match to filter data
When the result matches successfully, you can choose from three output modes: Do not output, output original content, or output customized information .



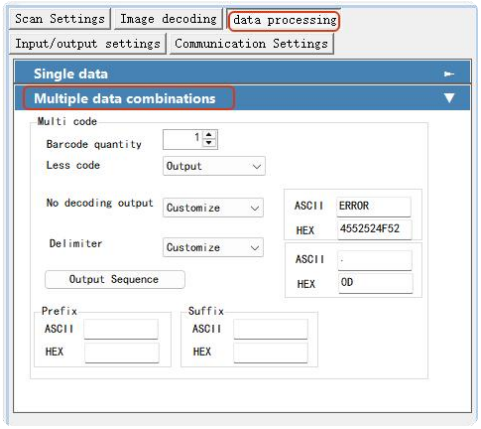
If the result does not match, you can choose one of three output modes: Do not output, output original content, or output customized information.

- **script**

If certain functions are not met, custom scripts can be developed to achieve specific functionalities.



5.1.2 Multiple Data Combinations

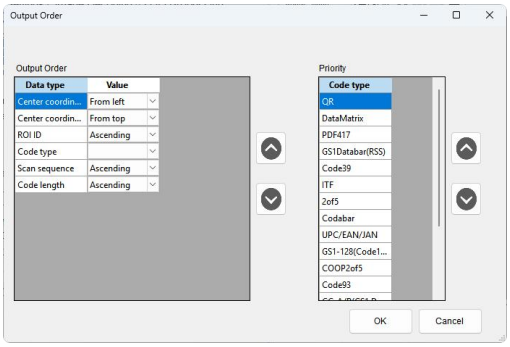


- Multiple data combinations mode sets the number of barcodes to be printed based on actual requirements. If the number of decoded codes falls below the set threshold, you can configure three output modes: do not output if fewer than required, output, complete output.

- If no decoding output, the output content can be customized. By default, it displays "error"; alternatively, you can set it to "none" so that nothing is output when no code is decoded.
- Delimiter: A separation symbol between multiple barcodes that can be customized or set to Consistent with suffix.
- Prefix and Suffix: Custom Settings



Output Order



When multiple barcodes need to be printed in a specific order—such as from left to right based on the center coordinates X—click [Center Coordinates X], then click the upward arrow to select the first barcodes, set the value to output from left, and click OK to output the data in left-to-right order based on the center coordinates X.
Barcodes with different systems can also be sorted by code type. Set the desired barcode priority place the first preferred code type at the top, click [Corresponding code type], then click the upward arrow on the right to position it first; sort remaining code system sequentially, and click OK to output them by priority.

5.2 Input / Output Settings

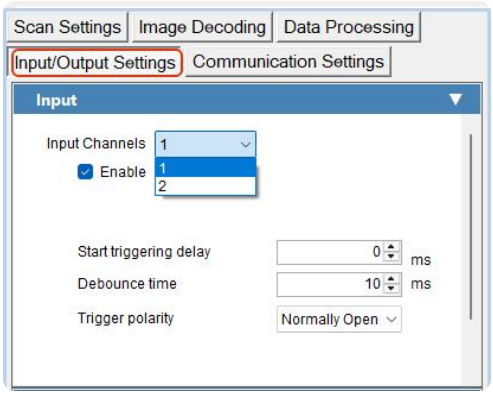
The input/output module allows configuration of both input and output signals for the device.

5.2.1 Input (IN Terminal)

In the input section, you can configure whether the device uses IO trigger mode, select channels, and set relevant parameters.

- How to set: Select the corresponding channel and check it to enable the settings. Set the start triggering delay time and debounce time, and set the trigger polarity to normally open.

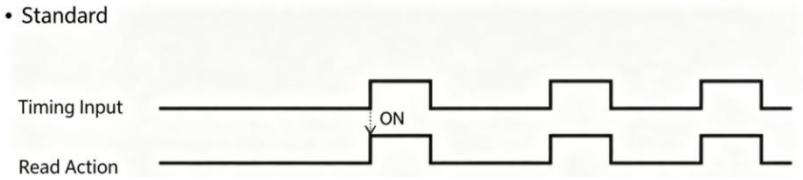
- Trigger polarity:



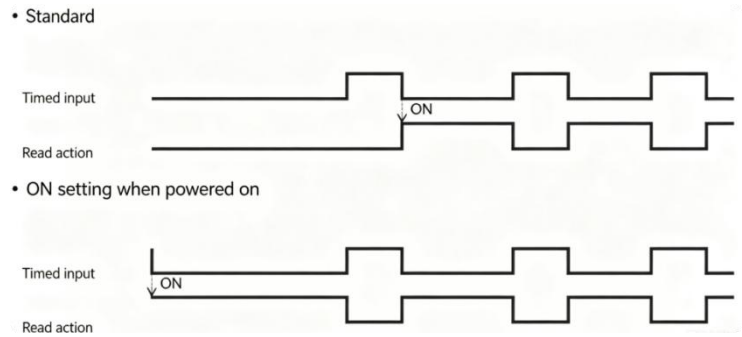
Normally open: Typically closed when no signal is present; opens when a signal arrives.
Normally closed: Typically remains closed; opens when a signal is received.
When powering on the device, only activate the signal at Input Channels.

Open/Close action

normally open

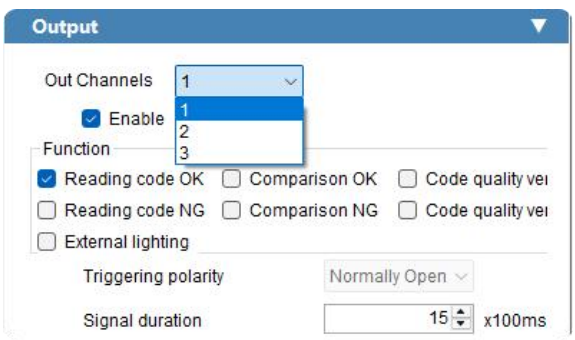


normal closed



5.2.2 Output (OUT terminal)

- It features three Out channels, including Reading code OK/NG,Comparison OK/NG, Code Quality Verification OK/NG, and External lighting functionality.
- Select the corresponding Out channel, check 'Reading Code OK', trigger manually; if decoding succeeds, a response with signal duration will be received.
  No response was received due to decoding failure.



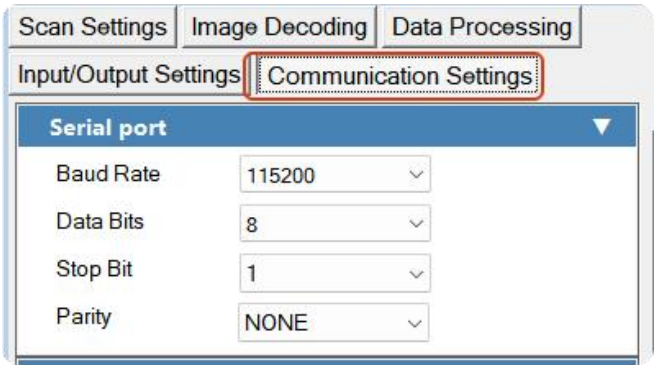
- The trigger polarity is set to normally open and applies specifically to the external lighting parameter.
- Signal Duration: Sets the output duration of the OUT terminal.
- Default value: 1500 ms, customizable.

5.3 Communication Settings

5.3.1 Serial Port

The following parameters can be set:

- Baud Rate: Sets the serial port baud rate for the receiving PC; defaults to 115200.



- Data Bits: Sets the serial port data bits for receiving data from the PC. Default is 8; optional values are 7 or 8.
- Stop Bit: Sets the stop bit for receiving data on the serial port; defaults to 1.
- Parity: Sets the serial port parity bit for the receiving device; defaults to none.

5.3.2 Ethernet Port:TCP Server

When selecting TCP Server as the communication protocol, you can configure the following parameters:

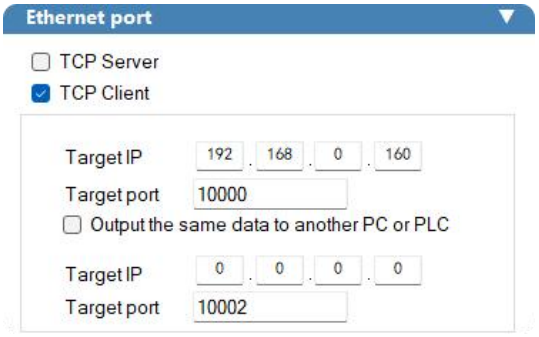


TCP Server Enablement: Check the box next to "TCP Server" to activate this feature, allowing the device to transmit data via a TCP server.
TCP server port: Enter the port number of the TCP server for data transmission; the default value is 55256.

5.3.3 Enternet Port:TCP Client

When selecting TCP Client as the communication protocol, the following parameters can be

configured:



TCP Client Protocol: Check the box next to "TCP Client" to enable this feature; the device will transmit data via TCP/IP.
Target IP: The IP address of the server where data will be received.
Target port: The port number of the receiving PC; defaults to 10000 and can be customized.
How to output the same data to another PC or PLC:
Check the box above to enable this feature
Set target IP: The IP address of the PC receiving data.
Target Port: The port number of the receiving PC for data input, default 10002, which can be customized.

5.3.4 Enternet Port:Profinet

PROFINET is an open communication standard defined by PI (PROFIBUS & PROFINET International).
When selecting the Profinet communication protocol, the following parameters can be configured:
Profinet Enablement: Check the box next to "Profinet" to activate this feature, allowing devices to transmit data via Profinet.

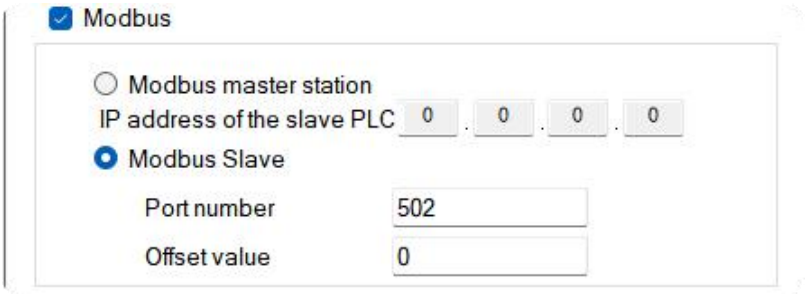


Profinet Devicename: Assign a unique device name that matches the configured name based on the actual device in use.

5.3.5 Enternet Port:ModBus

Modbus is a widely adopted serial communication protocol in industrial control applications. Recognized for its openness, high reliability, efficiency, simplicity, and free availability, it has become the industry standard for communication protocols in manufacturing environments and serves as the primary connection method between field electronic devices.
When selecting ModBus as the communication protocol, the following parameters can be configured:

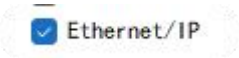
ModBus Protocol enabled: Check the box above to activate this feature, allowing the device to



transmit data via ModBus.
Modbus Type:have a choice Master or Slave; defaults to Slave.
ModBus Master IP: Set the IP address of the slave PLC.
ModBus slave: Target port number. Must be 502 only.
Modbus offset value: The offset value is defaulted to 0.

5.3.6 EnterNet Port:Ethernet/IP

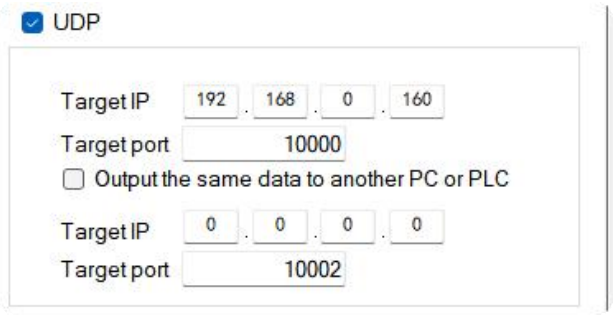
EtherNet/IP is an industrial communication network developed by ODVA (Open Device Network Association).
IP communication can share the network with standard Ethernet communication.
In EtherNet/IP, there is cyclic communication (implicit messages) for the periodic sending and receiving of data.
Process information communication involving arbitrary sending and receiving of commands/responses (Explicit message).

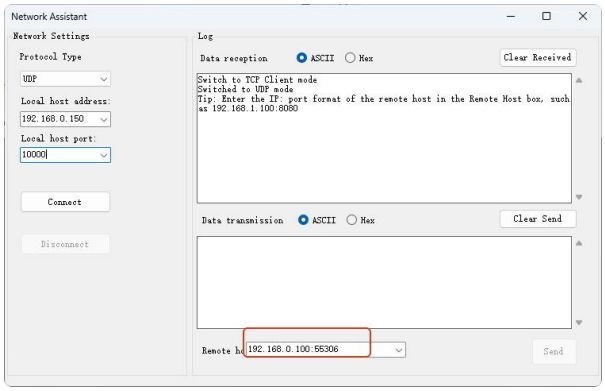


When selecting the EtherNet/IP communication protocol, the following parameters can be configured:
EtherNet/IP enabled: Check the box above to activate this feature, allowing the device to transmit data via EtherNet/IP.

5.3.7 EnterNet Port:UDP

When selecting UDP as the communication protocol, the following parameters can be configured:
UDP Protocol Enablement: Check the box above to activate this feature, allowing the device to transmit data via UDP.
UDP Target IP: Sets the IP address of the receiving PC; default value is 10000.
Target Port: Set the port number of the PC receiving input data.
You can also output the same data to another PC or PLC by setting the target IP and target port number, with the default being 10002.
Note: The device port number is 55306. Be careful when setting the remote host port number in the debugging tool!
If the connection fails, save the parameters and restart the device.

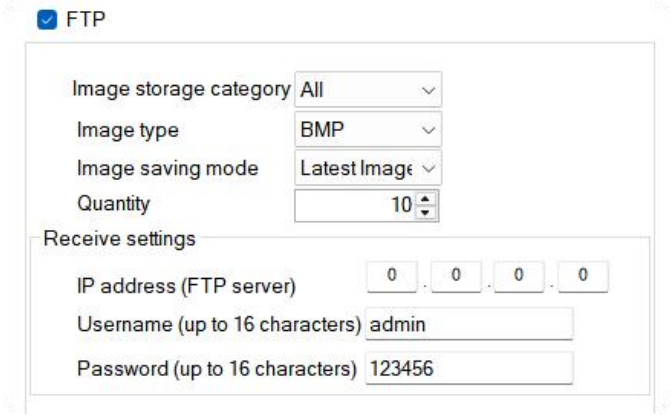




5.3.8 Enternet Port:FTP

When selecting FTP as the communication protocol, you can configure the following parameters:
FTP Protocol: Check the box above to enable this feature; the device will transmit data via FTP.

- Image storage category: Save all, Save only successful reads, or Save only failed reads.
- Image types: BMP and JPG.
- Image Save Mode: Select from three options to save the latest image, or images taken between the start and end of the trigger period.
- Reception Settings:



FTP IP address: Enter the host IP address of the FTP server where you want to receive data. Press Enter to save the settings.
FTP Username: If FTP requires a username and password to log in, enter the FTP username (default: admin).
FTP Password: If FTP requires a username and password to log in, enter the FTP password (default: 123456; can be customized).

6. Using the Debug Assistant

Prerequisite: Set the barcode to a decodable state in debug mode; after adjustment, switch to work

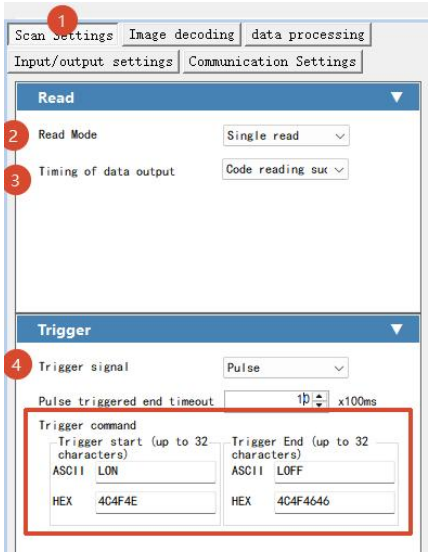
mode.

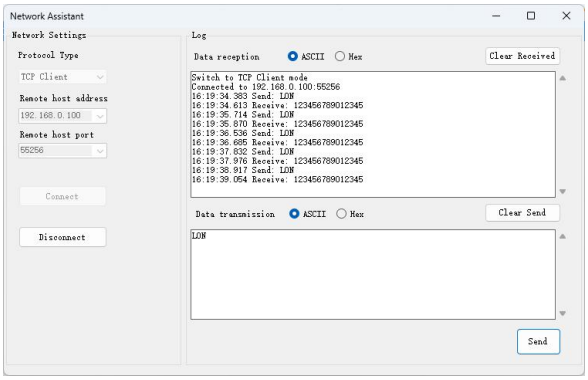
6.1 NetAssistant

First, go to Communication Settings> Enternet Port. For TCPServer, check the switch before TCPServer; the default service port number is 55256 and can be customized.



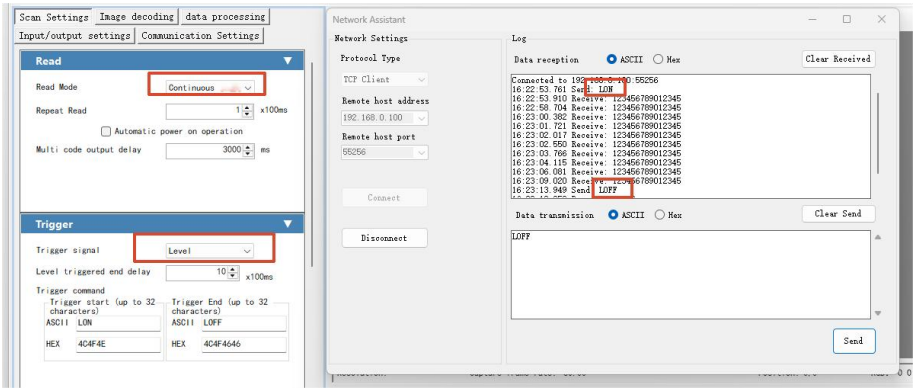
Open Equipment Management> Assistant> NetAssistant
Select the protocol type and set it as TCP Client. The remote host address must match the device's IP address, and the remote port number must match the device's port number. After completing the settings, click Connect.
Output trigger commands: defaults to starting when LON is active and ending when LOFF is active; can be customized in the Trigger-Trigger command bar.
To determine whether data should be output individually or continuously, you need to configure the read mode and trigger signal.
Using a single read mode scenario as an example, the data output is triggered when code reading succeeds, with the trigger signal being a pulse.
With the above settings, simply send an LON trigger command and the decoded data will be output immediately.





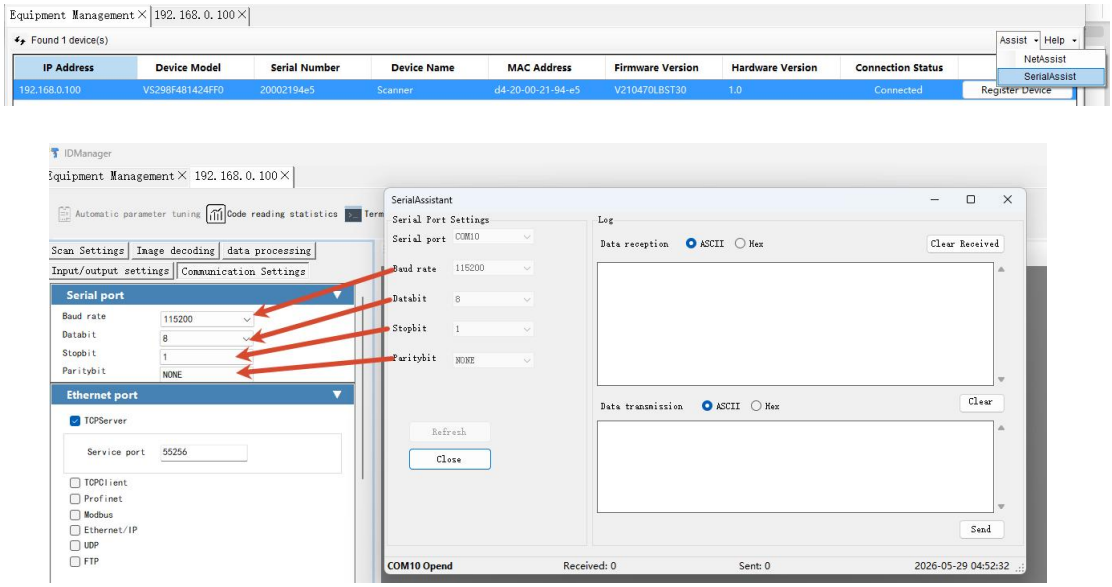
For continuous data output, set the read mode to Continuous Read and customize the repeat

interval; a higher value increases the interval between repeated reads. The multi-code output delay can be customized (default: 3000 ms), and the trigger signal should be set to Level Mode.
With this setting, when the Send Start trigger command LON is issued, data will be output sequentially at 3000 ms intervals based on the multi-code output delay time until the Send End trigger command is triggered.



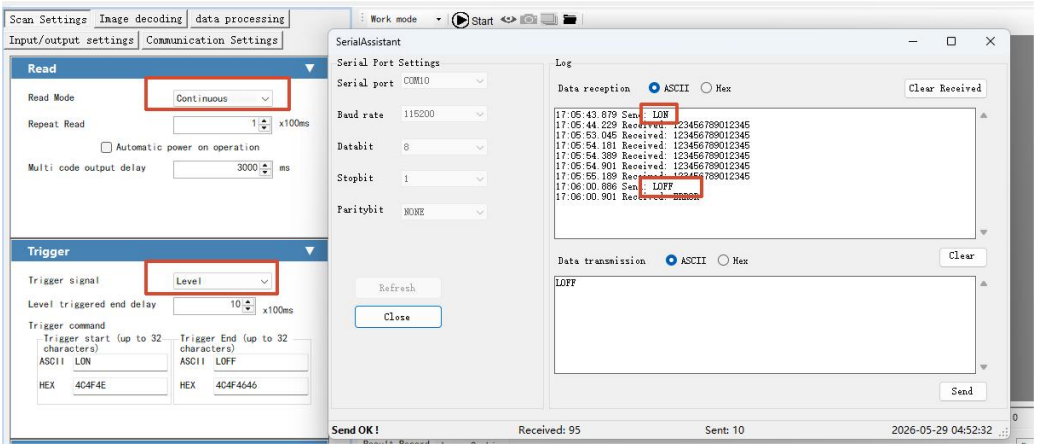
6.2 SerialAssist

Open Equipment Management> Assistant> SerialAssist, and configure the following parameters: Select the serial port number based on your application needs and verify its pluggability. Set the baud rate, data bits, stop bit, and parity bit to match.



In continuous read mode, the repeat read interval is customizable; a higher value means longer intervals between repeated reads. The multi-code output delay can be customized, defaulting to 3000 ms, and the trigger signal switches to level-mode triggering for output.

With this setting, when the Send Start trigger command LON is issued, data will be output sequentially at 3000 ms intervals based on the multi-code output delay time until the Send End trigger command is triggered.



7. Common Code Type

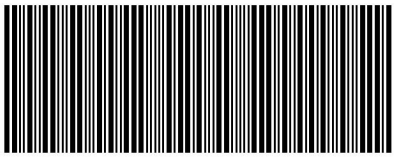
7.1 1D Code



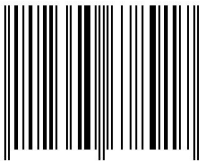
Code 128



Code 39



Industrial 2 of 5



EAN-13

7.2 2D Code



QR



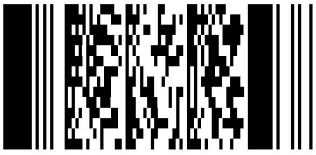
QR



DM



DM



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