WmaxVision

Fixed Mount Smart Code Reader

User Manual

VS95 Series



Please read this manual before using the code reader to achieve the best operating performance.

Please keep this manual properly for easy reference at any time.

Introduction:This manual describes the connection, wiring, configuration methods, precautions, etc. of the VS95 code reader.

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General Precautions

Danger	•Do not use this product to protect the human body. •This product is not an explosion-proof product. Do not use it in hazardous locations or environments where there is a risk of explosion.
Caution	• Before starting and operating the VS95, it must be verified that the VS95 functions properly in terms of functionality and performance. • It is recommended to take effective safety measures to prevent damage in the event of a malfunction.
Note	• For operations performed in a manner different from that described in this user manual, or unauthorized modification of the VS95, VMAX cannot guarantee the function or performance of the VS95. • When the VS95 is used together with other devices, its function and performance may degrade, depending on specific operating conditions and the surrounding environment.

Safety Operation Precautions

Precautions Related to LED Products

Caution	• Failure to use the control or adjustment devices in accordance with these regulations or to perform each step of the operation may result in harmful radiation exposure. • Please follow the instructions in this manual. Failure to do so may result in personal injury (to eyes and skin). • Do not stare at the light beam. • Do not disassemble this product. The LED emission of this product will not automatically stop when disassembled. • Do not look directly through optical instruments. Looking directly at the LED output at close range through certain optical instruments (such as eye patches, magnifying glasses and microscopes) may cause eye damage.

1 Check the Package Contents Before Use

1.1 Check the package contents

Standard Packing List

Model	Name	Package Contents	Number	Picture
VS95	1D/2D code reader(fixed type)	Code reader	1	
		24V power supply	1	
		Cable	1	

Optional Accessories

Model	Name	Package Contents	Number	Picture
V1	Mounting bracket V1	Sheet metal bracket	1	
		Screw	2	

1.2 Introduction to Each Component of the Code Reader



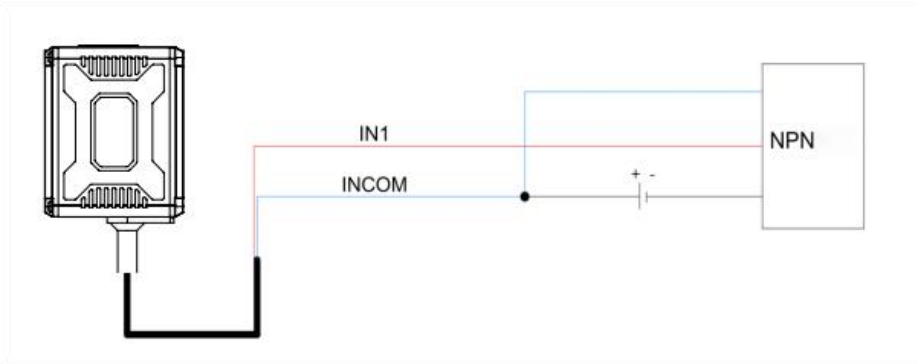
Number	Name	Description content
1	Trigger Button	Press this button will trigger the device once
2	Decoding Indicator	Yellow-green light for successful decoding / red light for failed decoding
3	Power Indicator	Emits green light when powered on
4	Screw Hole	Used for fixing and installing the code reader
5	Laser Aimer	Red cross laser, used for positioning barcodes
6	Internal Illumination led	Provide internal lighting sources

2 Connection and Wiring

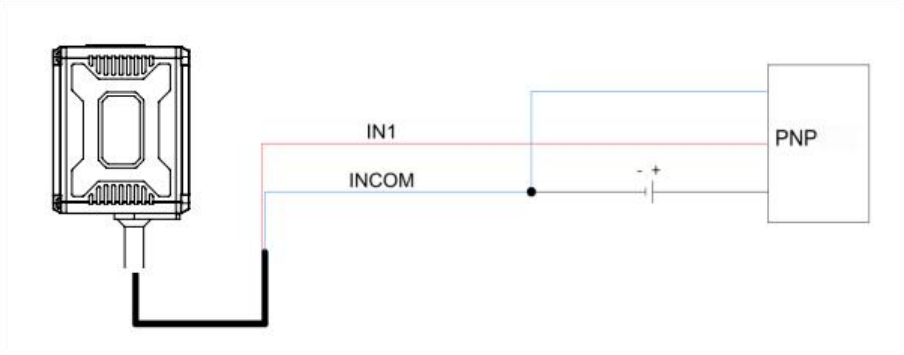
2.1 External device wiring

Input Signal

- NPN Wiring

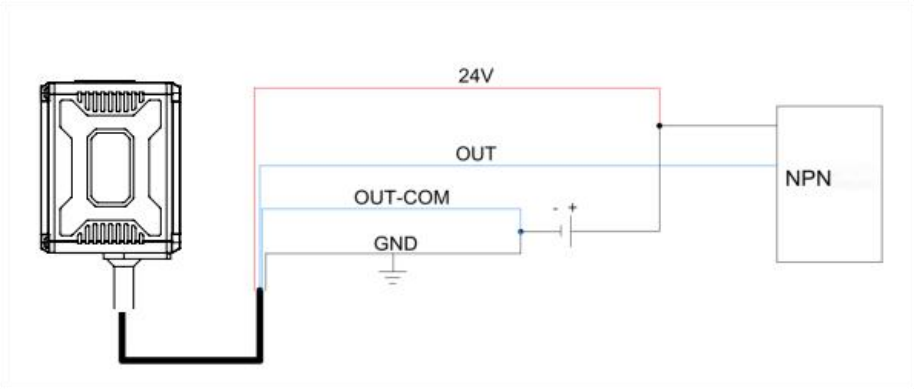


- PNP Wiring

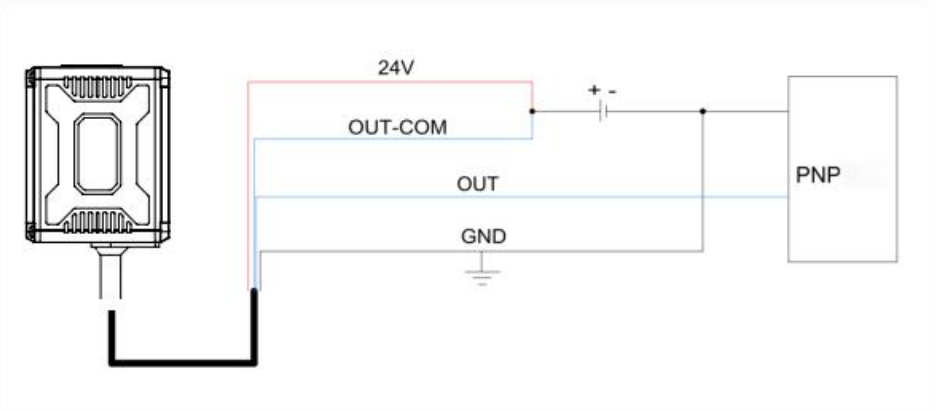


Output Signal

- NPN Wiring



- PNP Wiring



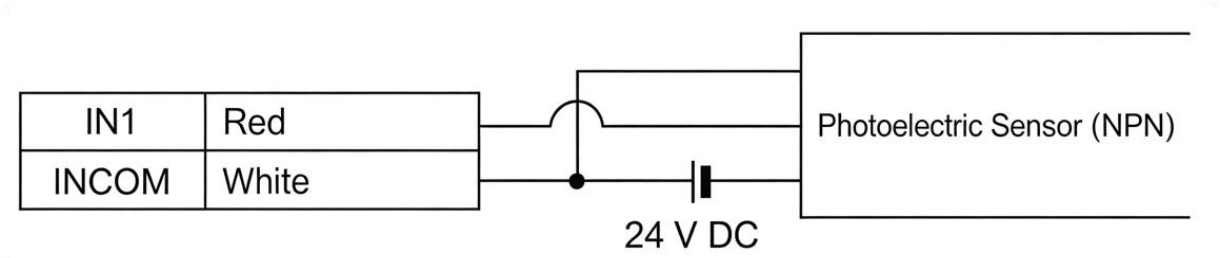
Cable Wire Sequence Table

DB15 Male		DB9 Female	RJ45 Male	I/O	Power
TP	1		1		
24V_TREM	2			6(Brown)	VCC
IN1	3			1 (Red)	
IN_COM	4			2 (White)	
OUT1	5			3 (Green)	
NC	6				
OUT2	7			4 (Black)	
NC	8				
OUT_COM	9			5 (Yellow)	
GND	10	5		7(Blue)	GND
TN	11		2		
TXD	12	2			
RP	13		3		
RXD	14	3			
RN	15		6		

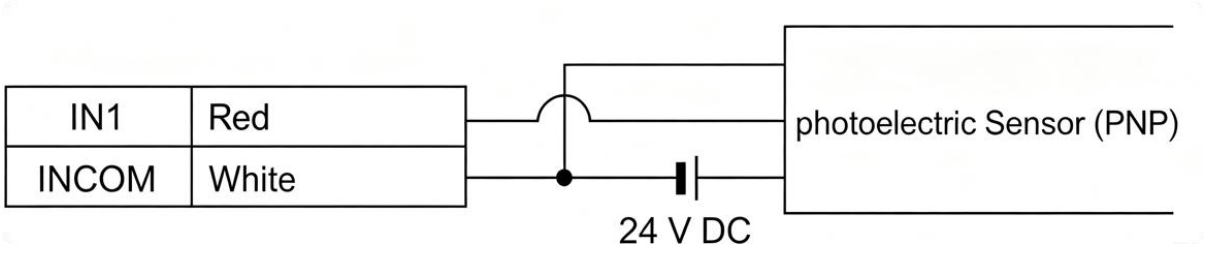
2.2 Sensor and Switch Wiring

Optoelectronic sensor wiring example diagram

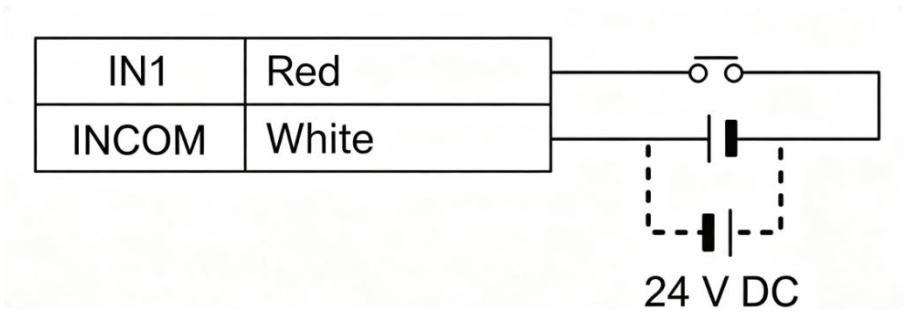
- NPN Wiring



- PNP Wiring



Example Diagram of Switch Wiring



2.3 Installation Notes

During equipment installation and use, be sure to take precautions against electromagnetic interference. Otherwise, decoding anomalies, false triggering, and other problems may occur, and in severe cases the equipment may fail to work properly.

- When installing the product, if you cannot ensure that the product itself and all devices connected to the product are properly grounded, mount the product using insulating brackets for isolation.
- To prevent static electricity accumulation, make sure other on-site products and metal brackets are properly grounded. Be sure to route the product power cables separately from data cables, signal cables, etc. If separate wiring ducts are used and the ducts are metal, they must be properly grounded.
- During product installation and use, high-voltage leakage and similar hazards must be avoided.
- When the product is connected to metal accessories, ensure reliable connection and maintain good electrical conductivity.
- Do not route the product together with other products (especially servo motors, high-power equipment, etc.), and keep a wiring spacing of at least 10 cm. If this cannot be avoided, be sure to apply shielding measures to the cables.
- The product control cables and industrial light source power cables must be routed separately, and bundling them together must be avoided.
- During wiring, properly evaluate the wiring space. Do not pull or drag the cables with excessive force, as this may damage the electrical performance of the cables.
- Unused product cables must be insulated. If the product cables are too long, coil them in a figure-eight pattern.
- Use shielded Ethernet cables to connect the product, and ensure the Ethernet cable has metallic shielding.
- Use a power adapter that complies with CCC certification requirements to supply power to the product separately. If centralized power supply must be used, ensure it meets the power consumption requirements of the product, and use a DC filter to filter the product power supply separately before use.
- Be sure to turn off the power before connecting or disconnecting control cables.
- The device does not support PoE power supply. Connecting it to a PoE switch may damage the device.

3 Device Connection

The device is required to connect to a client software(IDManager) for device's configuration. This section introduces the steps for client software installation, PC and device network configuration, and device connection to the client software.

3.1 Install IDManager

IDManager is a client software developed and owned by Wmaxvision for device configuration.

Steps

Note:

- The graphic user interface may differ by different versions of client software you use or different device models you get.
- If the client software you have is installation-free version, then you can ignore this installation section and directly go to the PC and device network configuration.

1. Double click the installation exe file to start installing the client software
2. Follow the installation instructions according to the interface prompts till completion.

3.1.1 Turn off Firewall

To ensure stable client running and image transmission, you are recommended turning off Windows firewall before using the client software. For detailed steps to turn off firewall, please refer to related Microsoft Windows system's instruction.

3.1.2 Set PC Network

To ensure stable image transmission and normal communication between the PC and the device through client software, you need to set the PC network before using the client software. You can manually set the PC IP address or let PC obtain the IP address automatically.

3.1.3 Set Device Network

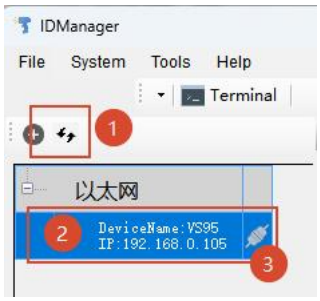
The device can be configured by the client software only when the device is in the same network segment with the PC where the client software is installed.The default IP address of the code reader is 192.168.0.105.

Steps

1. Locate the corresponding folder and find the application,Double click the client software to run it.

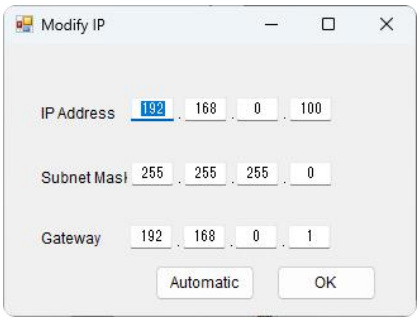


2. Refresh the device list to display connectable devices.

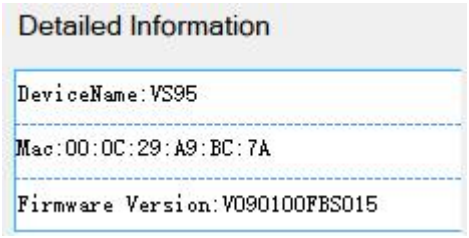


3. Select the device, check if the device IP is in the same network segment with PC IP . If not, right click within the blue area. Change IP window will allow you to modify the IP. When the IP is modified, the device will restart automatically. Then you will wait for some time and repeat .



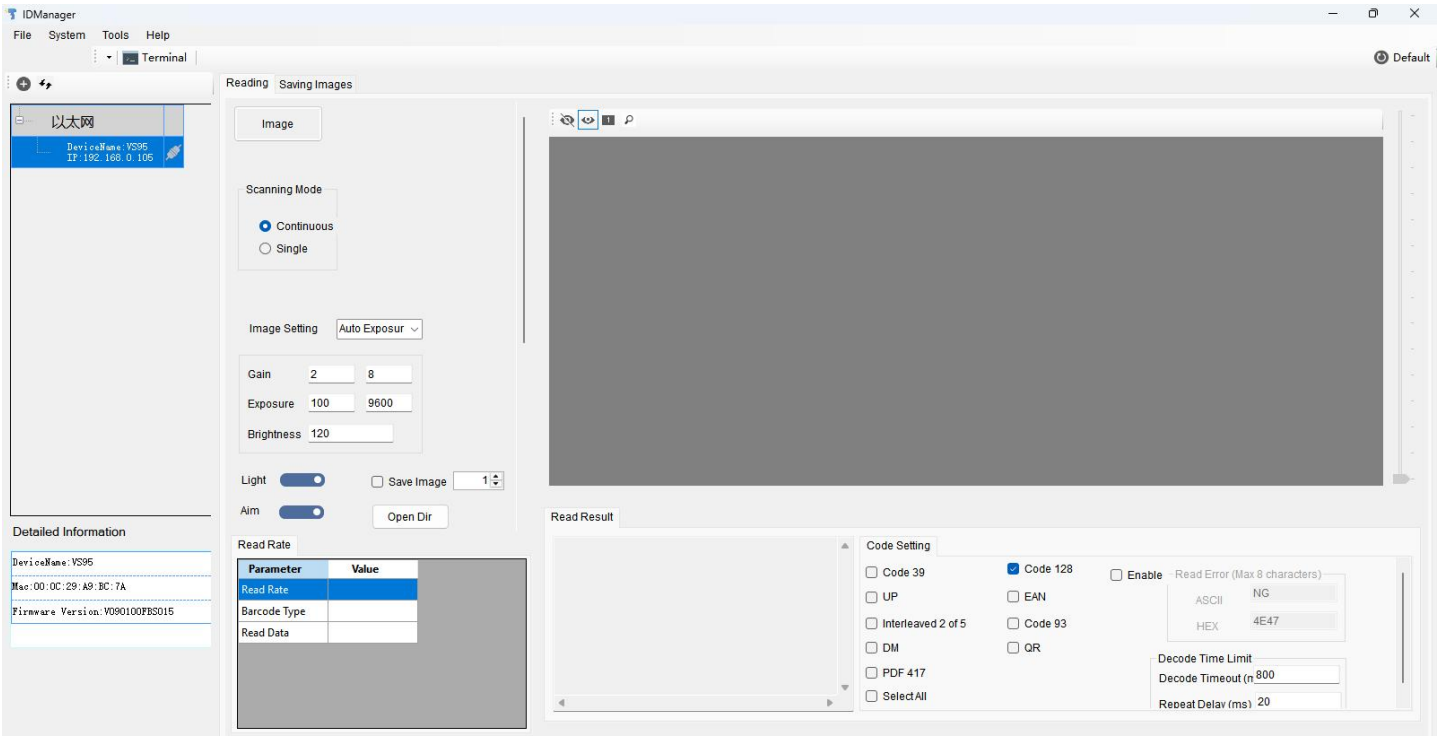


4. At the bottom of the device list, the device name, MAC address, and current firmware of the device will be displayed.



3.2 Connect Device to IDManager

Click the device then it will show the interactive user interface as below. The user interface may differ from different device models.

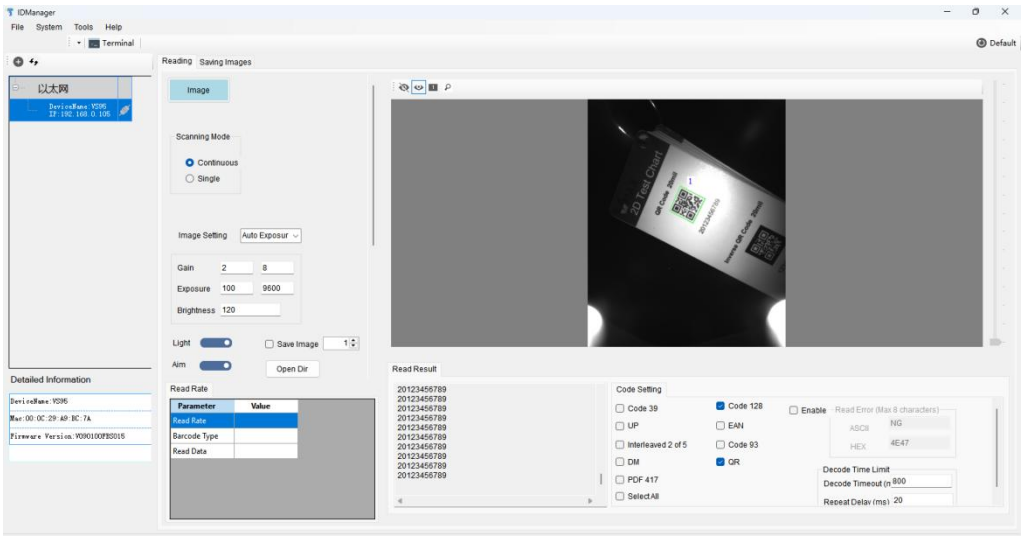


3.3 Read Settings

3.3.1 Display image

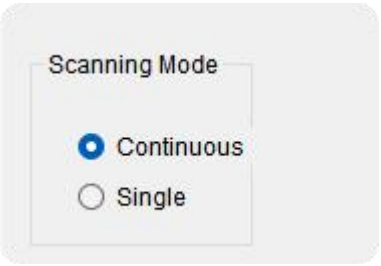
Click the 【Image】 button.

The captured image of the VS95 will be displayed in real time. Please observe the image while confirming the position of the barcode.



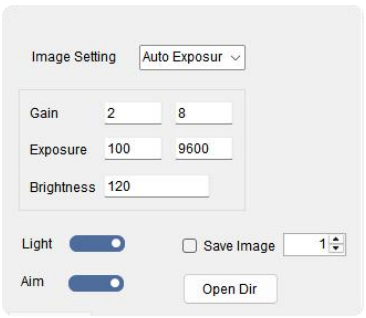
3.3.2 Scanning mode

- Continuous: Select the continuous mode, the image area on the right will display images continuously. A green box appears around the code, which proves normal decoding. The decoded data is displayed in the reading result area.
- Single: Select the trigger mode, the image area on the right will display images continuously until the decoding is successful, and the image will pause at the last successfully decoded image. The decoded data is displayed in the reading result area.



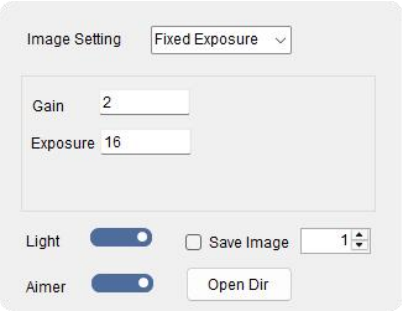
3.3.3 Image settings

- Auto Exposure: Exposure parameters and gain parameters can be set within an interval. The exposure setting range is 0-9600; the gain setting



range is 0-16.

- Fixed Exposure: Exposure parameters and gain parameters are set to fixed values.



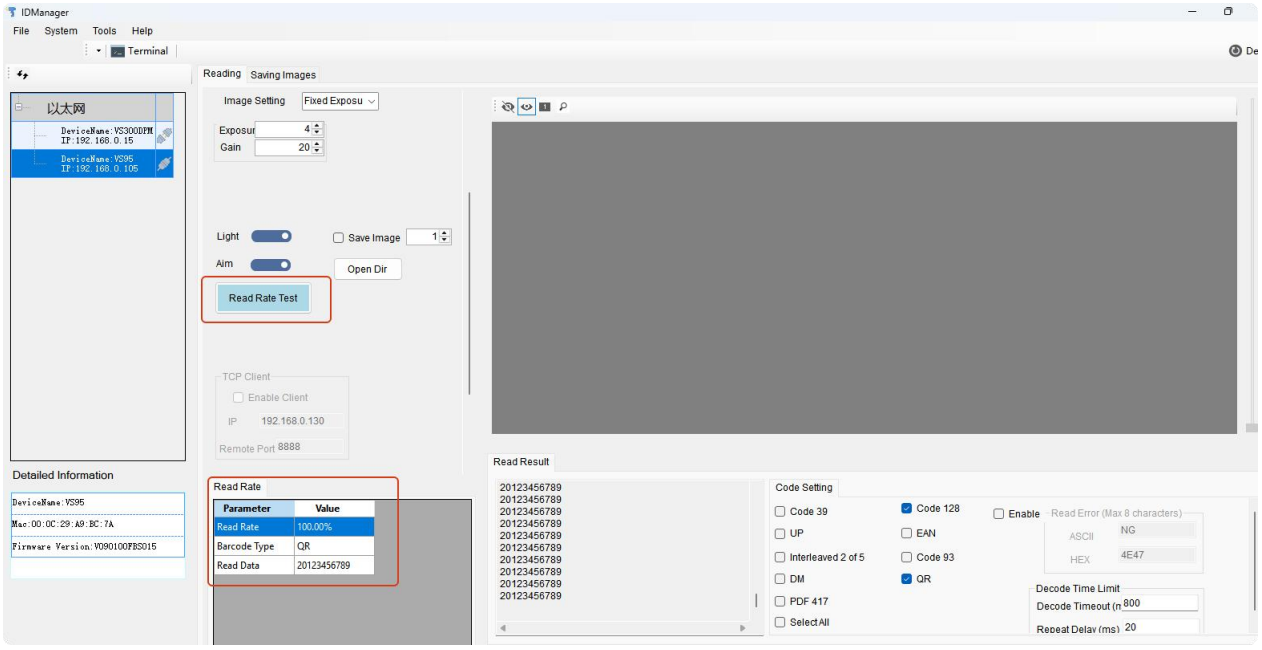
- Brightness Value: The larger the value, the brighter the image background. The setting range is 0-255.
- Light: Turn the built-in illumination of the code reader on or off.
- Aimer: Turn the built-in aiming function of the code reader on or off.

3.3.4 Read Rate Test

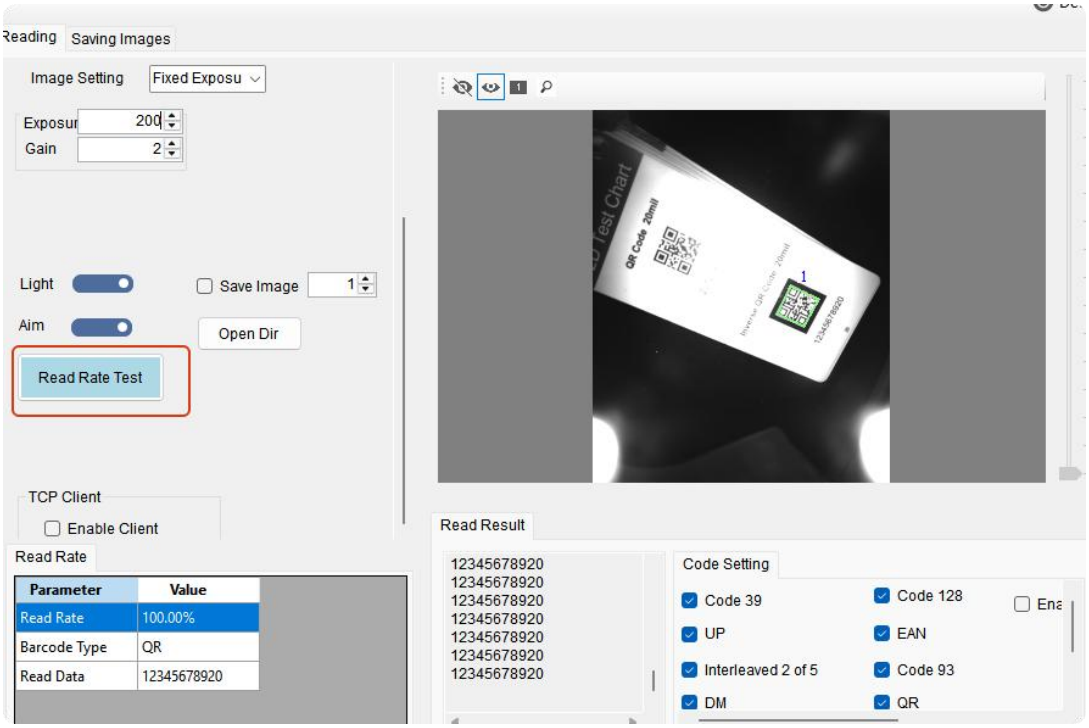
Output format

Parameter	Value
Read Rate	Value range: 0-100
Barcode Type	Display barcode type
Read Data	Read data display

Without clicking the image button, click the read rate test button, and the code reader will use the current image setting parameters for decoding and count the code reading success rate of the test.

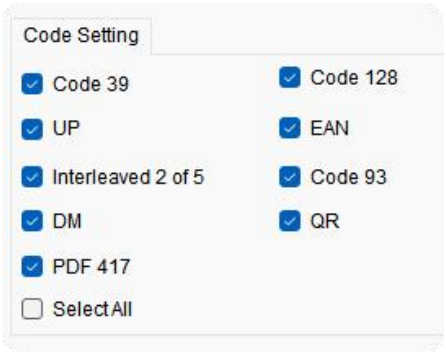


If you want to enable image monitoring and read rate test at the same time, you need to go to System - Common Settings- Read Rate Test Image - Open. After clicking the Reading Rate Test button, the decoded image will be displayed in real time on the right, and the reading rate and decoded data will be displayed in the corresponding areas below.



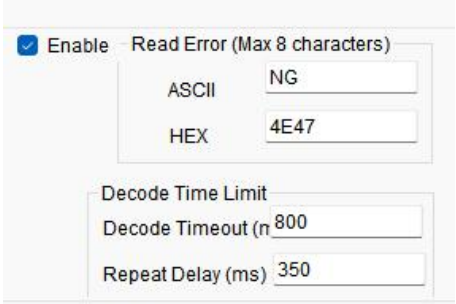
3.3.5 Code Setting

List of common code symbologies: After checking, the recognition of the checked code symbology types will be enabled; if a code symbology does not need to be decoded, there is no need to select it. Common 2D code types: QR, DM



3.3.6 Read error and decoding time limit

- Check "Enable" in the figure below to configure the read error information. The default is code reading failure, which will output NG information, and users can customize it.
- Decoding timeout: The maximum time for decoding a single captured image, default is 800ms. If decoding is not successful within 800ms, the code reader will discard this image, take the next image, and continue decoding.
- Repead delay: The same barcode will not be read within the specified time period. Default is 350ms.



3.4 Communication Settings

3.4.1 I/O communication

By assigning functions to I/O terminals, the following operations can be performed.

IN terminal	Input signals via external sensors or switches, and start reading.
OUT terminal	When the read succeeds or fails, turn on the external buzzer or LED after the signal is turned on.

Refer to Chapter 2 Connection and Wiring.

Reserved wire sequence of data cable:

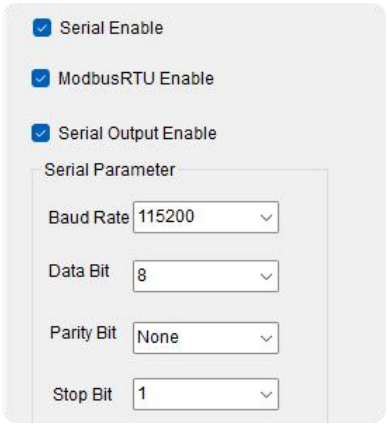
The IO trigger uses red and white wires, the white wire is connected to 24V, and the red wire is connected to the trigger input.

The decoding success indicator uses green and yellow wires, the yellow wire is connected to 0V, and the green wire is connected to the corresponding terminal of the PLC. (for reference)

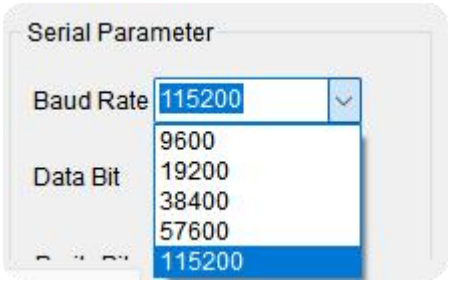
3.4.2 RS-232

It can communicate with devices equipped with an RS-232 communication interface.

Factory default communication settings for RS-232.



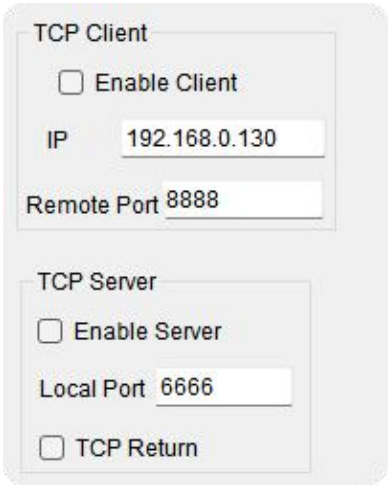
Baud Rate	115200 bps
Date Bit	8 bit
Parity	None
Stop Bit	1bit



Note: The baud rate can be custom configured according to customer needs.

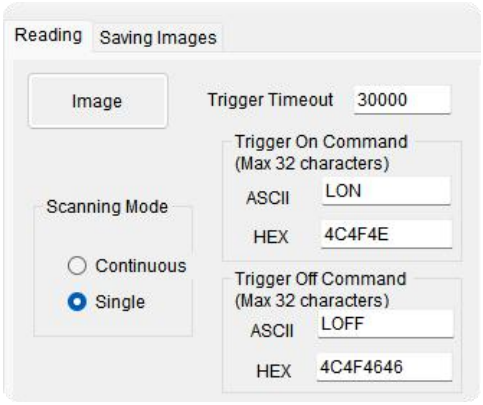
3.4.3 Ethernet setting

The VS95 supports the TCP communication protocol. Customers can choose to set the code reader as a client or a server according to actual needs. In most usage scenarios, the code reader acts as a TCP server. Port number. It can be customized according to actual conditions.



3.4.4 Set trigger command

Select single trigger mode as the scanning mode, and trigger commands can be set. The parameters in the figure below are all default factory parameters. Customers can customize the settings according to actual projects.



3.5 Saving Images

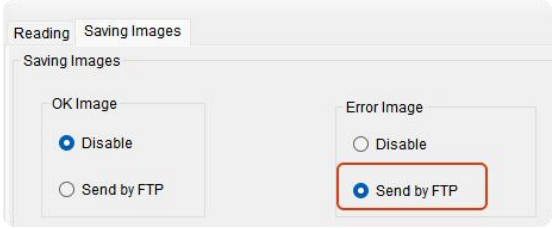
3.5.1 Save images in real time

Send by FTP

Send the images captured by VS95 to the FTP server in real time.

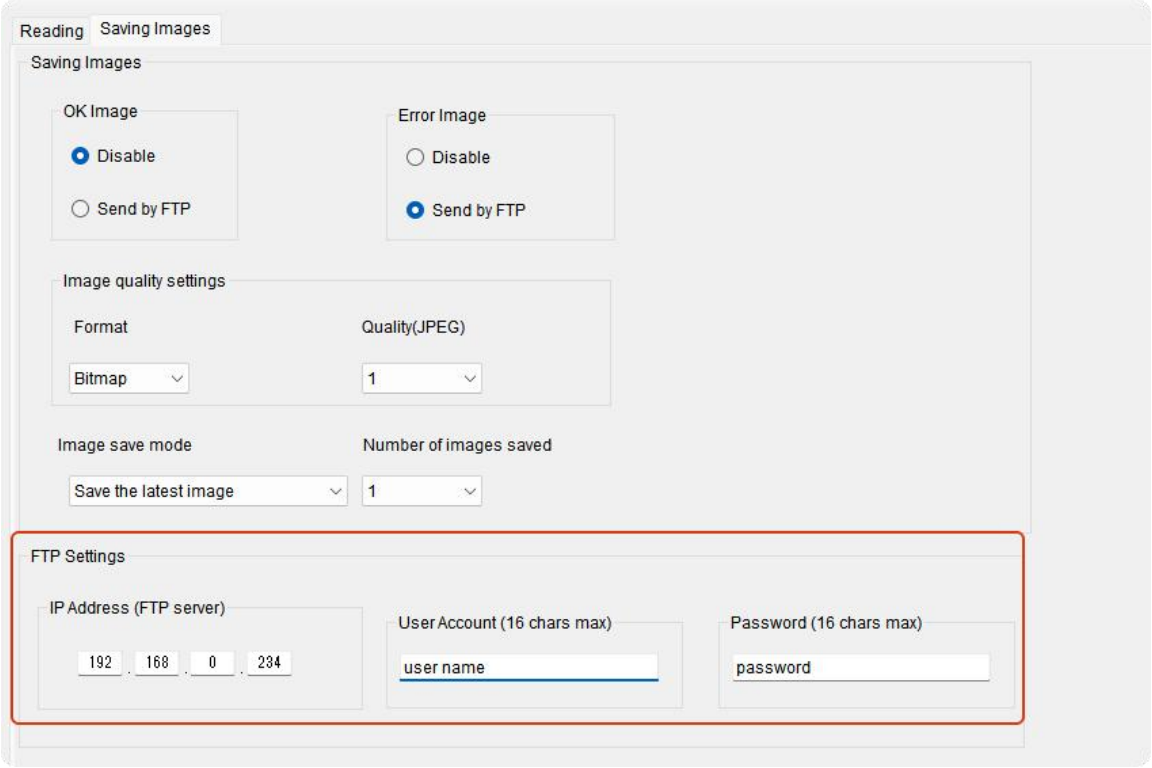
Eg:When saving an image of a reading error via the "FTP Send" function

1. select "Send by FTP " for the reading "Error Image".



2.Specify the IP address of the sending location (FTP server).

Specify the user name and password according to the FTP Settings.



3.5.2 Change the image quality for saving

Specified format:

Either Bitmap or JPEG is optional.

JPEG Quality :Select the quality of JPEG. "10" is the highest quality. "1" is the lowest quality

3.5.3 Change the image saving mode

Image Save Mode

Save the latest image	Only the last captured image before device is deactivated. This option is usually used.
Save images after Trigger input on	Start counting from the trigger time point, and only save the specified number of images.
Save images before Trigger input off	Start counting from the time point when the trigger ends, only track the specified number of frames and save the images.

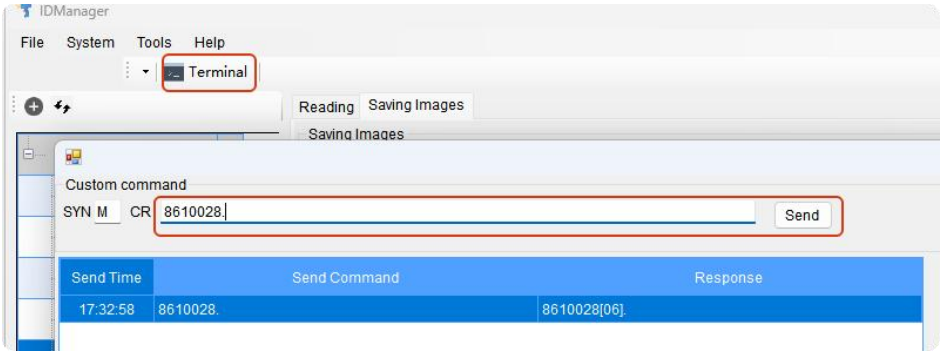
3.6 Terminal Usage

You can configure the required functions by entering the configuration code in the custom command box on the terminal.

For example: If you want to configure the continuous scanning function , enter the command 8610028.

Make sure to include the final dot. Then click Send.

After configuring the continuous mode and closing the debugging software, it is best to power on the code reader again to prevent the configuration function bits from taking effect.

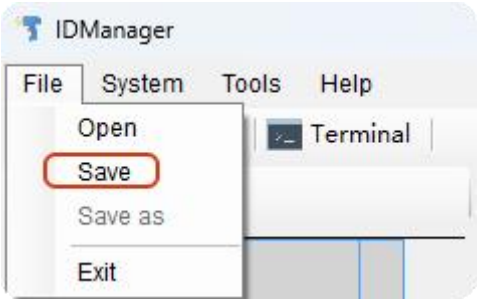


Commonly used configurations

8610028.	Continuous
8610020.	Single;（IO trigger configures this mode）
8120091.	inverse color code configuration
8510061000.	The decoding time interval for the same barcode is 1 second; the final 1000 represents 1000 milliseconds. If you configure it to another time, the first 6 digits remain unchanged, and only the final value needs to be modified.
930002	Minimum Barcode Length of DM Code
930003	The maximum barcode length of DM code, for example: to decode only DM codes with 18-bit data, the configuration is as follows: 93000218;93000318.
928003	Minimum Barcode Length for QR Code.
928002	The maximum barcode length of QR codes, for example: For decoding QR codes with less than 20 bits of data, the configuration is as follows: 9280031; 92800220.

3.7 Export Configuration

Select the File - Save button; if importing a configuration, select the File - Open button, then select the configuration file to be imported.



4 Others

4.1 ASCII Code

		High-order 4 bits							
	Hex	0	1	2	3	4	5	6	7
	Binary	0000	0001	0010	0011	0100	0101	0110	0111
Low -order 4 bits	0	0000		DLE	(SP)	0	@	P	‘	p
	1	0001	SOH	DC1	!	1	A	Q	a	q
	2	0010	STX	DC2	“	2	B	R	b	r
	3	0011	ETX	DC3	#	3	C	S	c	s
	4	0100	EOT	DC4	$	4	D	T	d	t
	5	0101	ENQ	NAK	%	5	E	U	e	u
	6	0110	ACK	SYN	&	6	F	V	f	v
	7	0111	BEL	ETB	‘	7	G	W	g	w
	8	1000	BS	CAN	(	8	H	X	h	x
	9	1001	HT	EM	)	9	I	Y	i	y
	A	1010	LF	SUB	*	:	J	Z	j	z
	B	1011	VT	ESC	+	;	K	[	k	{
	C	1100	CL	FS	,	<	L	\	l	|
	D	1101	CR	GS	-	=	M	]	m	}
	E	1110	SO	RS	.	>	N	^	n	~
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4.2 Software License

When using the VS95 series and the configuration software "ID Manager" (hereinafter referred to as "the Software"), users must agree to the following Software License Agreement (hereinafter referred to as "this Agreement"). Using or copying any part of the Software indicates that you accept all terms and conditions of this Agreement and that this Agreement is concluded.

License

1 As long as you comply with this Agreement, Vmax agrees to grant you a non-exclusive license for the Software.

2 As long as the Software is used solely for one company, you may install the Software to use the purchased Vmax products regardless of the number of licenses.

Limited Copying: You may only copy the Software once to keep a backup copy for yourself.

Prohibitions

You shall not perform the following operations on the Software:

a. Alterations, such as modifying or adding to the functions of the Software in part or in whole, except for operations explicitly permitted by Vmax, which include installing updates or additional functions provided by Vmax.

b. Any reverse engineering for the purpose of analyzing the Software, including decompilation and disassembly.

c. Selling, transferring, redistributing, licensing, renting or leasing the Software to a third party, unless with the prior consent of Vmax.

Article 4 Copyright

The Company reserves the copyright of the Software, its operating instructions and other related documents.

Disclaimer

Vmax shall not be liable for any loss or damage caused to you or any third party arising from the operation of the Software.

Technical Support

Under this Agreement, Vmax provides technical support, such as answering questions about the Software. However, there is no guarantee that the technical support provided will necessarily achieve your objectives.

Termination of Agreement

1 This Agreement will automatically terminate when you cease to use the Software by discarding the Software and its copies.

2 If you violate any part of the terms of this Agreement, Vmax will unilaterally cancel your agreement. In this case, you shall immediately return the Software and its copies to Vmax or discard them.

3 If Vmax suffers loss or damage due to your violation of this Agreement, you shall pay compensation for the loss or damage caused.

Governing Law

This Agreement shall be enforced within the scope permitted by the laws and regulations of Mainland China.

4.3 Copyright Notice

Product Warranty

Wmaxvision's products have undergone strict factory inspections. In case of malfunction, please contact the nearest Vmax office and provide detailed information about the malfunction.

1. Warranty Period

The warranty period is one year, calculated from the date when the product is delivered to the location designated by the purchaser.

2. Warranty Coverage

(1) If a malfunction caused by Wmaxvision occurs within the aforementioned warranty period, we will repair the product free of charge. However, the following circumstances are not covered by the warranty:

• Malfunctions caused by improper operation under conditions or environments not specified in the operation manual, user manual, or the technical requirements specially agreed between the purchaser and Wmaxvision, or caused by improper use.

• Malfunctions caused not by product defects, but by the purchaser's equipment or the purchaser's software design.

• Malfunctions caused by modifications or repairs performed by personnel not from Wmaxvision.

• Malfunctions that can be completely avoided by following the provisions of the operation manual or user manual such as proper maintenance or replacement of wearing parts.

• Malfunctions caused by factors such as unforeseeable changes in scientific and technological levels after the product is shipped from Wmaxvision

• Malfunctions caused by natural disasters such as fire, earthquake and flood, or external factors such as abnormal voltage, our company is not responsible for warranty.

(2) The warranty coverage is limited to the circumstances specified in Article (1). Wmaxvision shall not be liable for any indirect losses (equipment damage, loss of opportunity, loss of profits, etc.) or other losses of the purchaser caused by its equipment.

3. Product Applicability

Wmaxvision's products are designed and manufactured as general-purpose products for general industries. Therefore, our company's products shall not be used for the following applications and are not suitable for such use. However, if the purchaser, in a self-responsible manner, consults us in advance regarding the use of the product, understands the technical specifications, grades and performance of the product, and takes necessary safety measures, the product can be used. In this case, the product warranty coverage is the same as the above.

• Facilities that have a serious impact on life and property, such as nuclear power plants, airports, railways, ships, motorized devices and medical equipment

• Public utilities such as electricity, gas and water supply services

• Outdoor use under similar conditions or environments.

user support webpage

scan.wmaxvision.com

Technical materials that help with the import and application of various products of Suzhou Wmaxvision Technology Co., Ltd. can be downloaded. For the latest manuals, please download them from this webpage.



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