微光互联
二维码扫描专家

MX86

User manual

Please read it carefully and keep it properly

- ☑ Fast recognition
- ☑ Scan code and swipe card in one
- ☑ Various output interface

Beijing Vguang Internet Technology Co., Ltd.

Disclaimer

Before using the product, please carefully read all the content in this "MX Product Manual" to ensure the safe and effective use of the product. Do not disassemble the product or tear off the label on the device by yourself; otherwise, Beijing Vguang Internet Technology Co., Ltd. will not assume the responsibility for repair or replacement of the product.

The images in this manual are for reference only. If some images do not match the actual product, please refer to the actual product. For the upgrade and update of this product, Beijing Vguang Internet Technology Co., Ltd. reserves the right to modify the document at any time without further notice.

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Edit history

Change date	Version	Description	Responsible
2018.1.2	V1.0	Initial version	
2018.6.8	V1.1	Update function	
2020.3.6	V2.0	Update related content	Guohua Liu

Catalog

1. Preface

Thanks for using the MX86 code reader. Reading this manual carefully can help you understand the function and features of this device, and quickly master the use and installation of the device.

The company does not assume the responsibility for property loss or personal injury caused by the user's abnormal operation. Please develop the product according to the technical specifications and reference design in the manual. At the same time, pay attention to the general safety matters that should be concerned about when using mobile products. Before the announcement, the company has the right to modify the content of this manual according to the needs of technological development.

1.1. Product introduction

MX86 is a versatile, multi-interface, multi-scenario comprehensive device. The device supports various output methods such as USB, RS232, RS485, Wiegand, WiFi, and wired Ethernet. It can be applied in various scenarios such as access control, elevator control, and barrier gates, supporting multiple functions like scanning and card swiping.

1.2. Product features

1. Strong Reading Capability

Capable of recognizing both 2D and 1D barcodes on smartphone screens, supporting enhanced engine mode for scanning in low-light conditions.

2. Paper Code Reading Capability

Capable of reading mainstream 2D and various 1D barcodes printed on paper.

3. High-Speed Reading

Efficiently reads barcodes on different smartphone LCD screens, adapting to variations in contrast, color, and reflectivity.

4. User-Friendly

Easily configured using the setup tool to achieve optimal operating conditions.

1.3. Attention

1. Disassembly and Modification: Do not disassemble or modify the device hardware without authorization. Any damage caused by unauthorized disassembly will not be covered by the warranty.

2. Abnormal Situations: Keep away from heat sources. In the event of unusual odors, overheating, or smoke, immediately turn off the power switch, unplug the device from the power outlet, and contact your product dealer or our customer service center.

3. Drop Damage: If the device is damaged due to being dropped, turn off the power immediately and contact your product dealer or our customer service center.

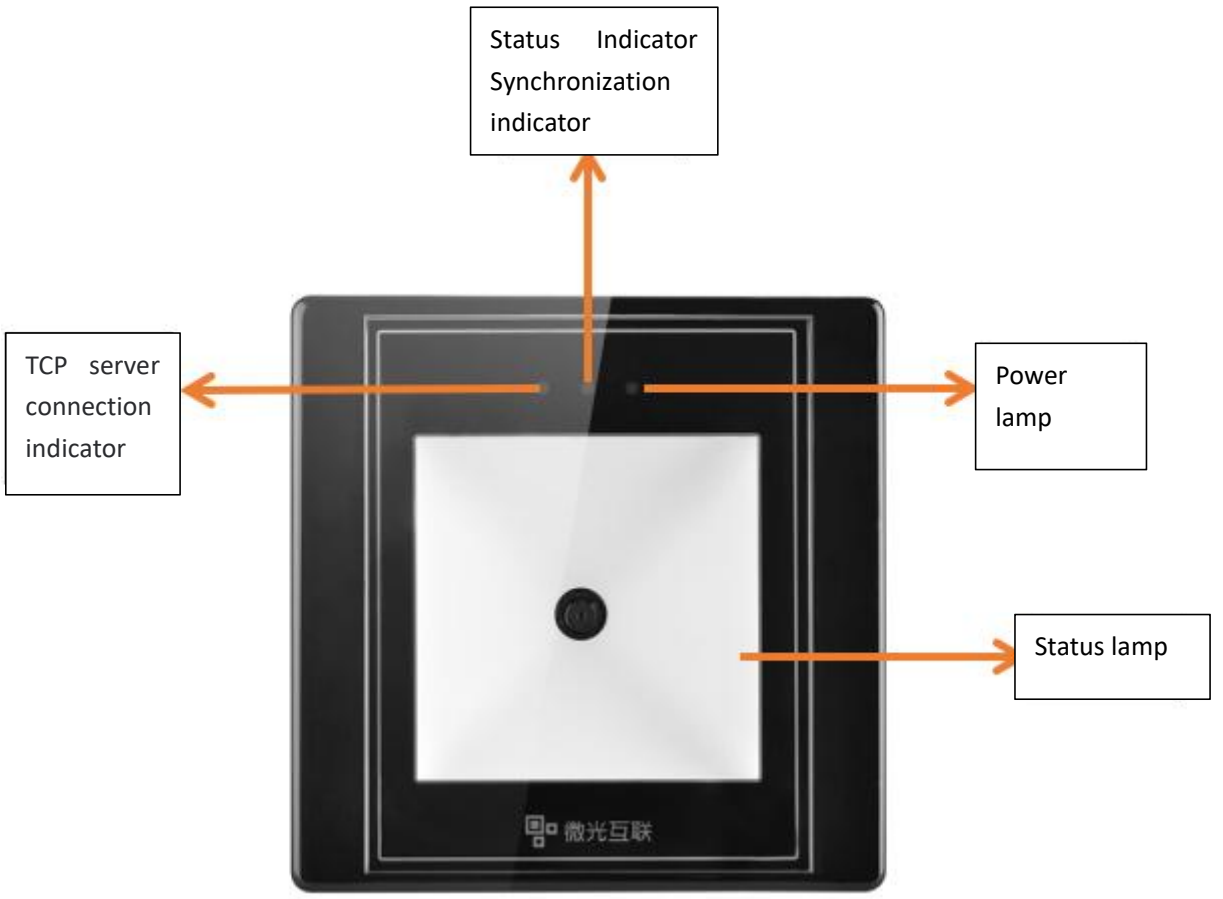
4. Placement: Avoid placing the device on unstable or uneven surfaces to prevent damage from falls. Do not place the device in areas with excessive moisture or dust to prevent electric leakage or fire.

5. Keep the illumination window glass clean. When wiping, use a soft cloth or lens paper. Do not use cleaning agents or liquids that can dissolve to clean the window glass.

6. Avoid contact between abrasive materials and the window glass to prevent wear and tear, which may affect code reading performance.

2. Product appearance

2.1. Introduction



2.1.1 Product introduction

2.2. Product size chart

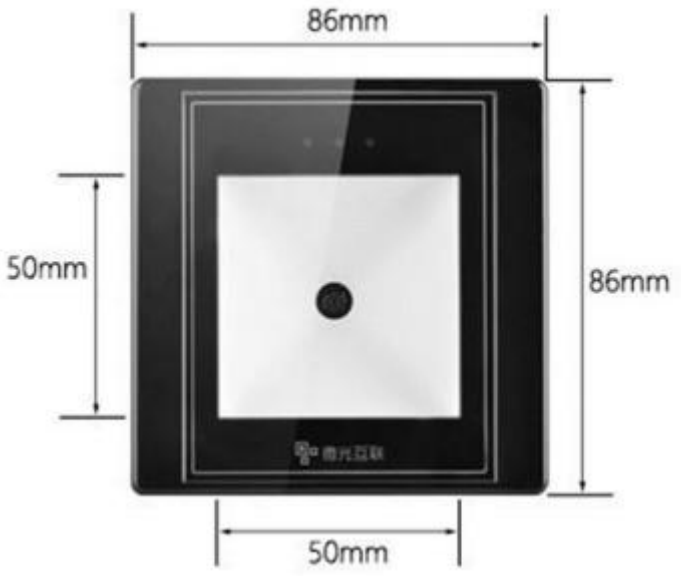


Figure 2.2.1 front view

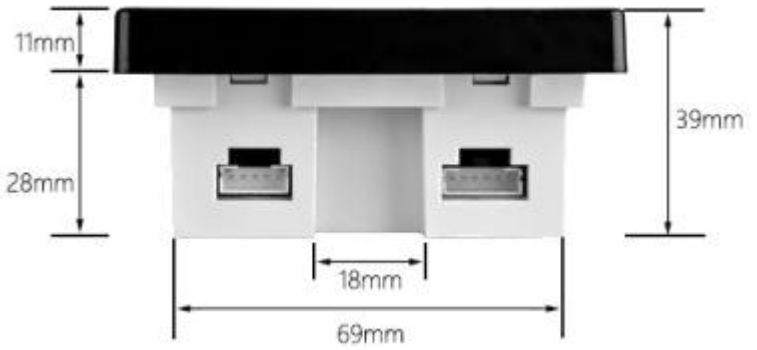


Figure 2.2.2 **side view**

3. Product parameters

3.1. General parameters

General parameters	
Output interface	USB、RS232\RS485、TTL、Wiegand, wifi, Ethernet
Indicating method	White, red, and green indicators Buzzer cue
Imaging sensor	300,000 pixel CMOS sensor
Max resolution	640*480
Operating system	Windows（xp.7.8.10）, Linux, Android, Mac, etc.
Mounting method	Embedded Installation
Product size	86mm*86mm*39mm
Recognition window size	50mm*50mm
Product material	Imported PC+ tempered glass
Photosource	LED diffuse lighting: white light fill
Data cable	6pin cable \ USB cable \ DB9 serial cable

3.2. Recognition parameters

Recognition parameters	
Symbologies	QR Code、EAN-8、EAN-13、ISBN-10、ISBN-13、CODE39、CODE93、CODE128、UPC、ITF、Code Bar,etc.
Supported decoding	Mobile QR code and paper code
DOF	0mm-100mm
Reading accuracy	≥7mil
Reading speed	30msms per time(average), support reading continuously
Reading direction	360°
FOV	Horizontal angle：70° Vertical angle：60°
Identification card type	Mifare_UltraLight、Mifare_One(S50)、 Mifare_One(S70)、Mifare_Pro(X)、Mifare_DESFire
RF operating frequency	13.56Mhz
Effective operating distance	<5cm

3.3. Electric parameters

Power input is not allowed until the device is connected. If you plug or remove the device (with an electric plug or switch) when the cable is live, the electronic components of the device will be damaged. Ensure that the power supply is cut off before inserting or removing the cable. The device cannot work stably due to poor power connections, short intervals of power off and on operations, or large voltage drop pulses. Therefore, keep the power input stable. After the power input is turned off, the power input can be turned on again at an interval of more than 2 seconds.

Electric parameters	
Working voltage	VCC=4.7V~15V OR VUSB=4.8V~5.5V
Working current	150mA（Typical value 12V power supply）
Power consumption	1800mW（Typical value 12V power supply）
Level control signal	3.3V\4.3V

3.4. Working environment parameters

Working environment parameters	
ESD protection	Contact discharge 4KV（Interface section）
Working temp	-20° C-70° C
Storage temp	-40° C-80° C
Relative humidity	5%-95%（No condensation）（environment temperature 30℃）
Ambient light	0-80000Lux(Non direct sunlight)

4. Interface definition

The MX86 has two terminals, as shown in the figure, a 5pin port and a 6pin port.

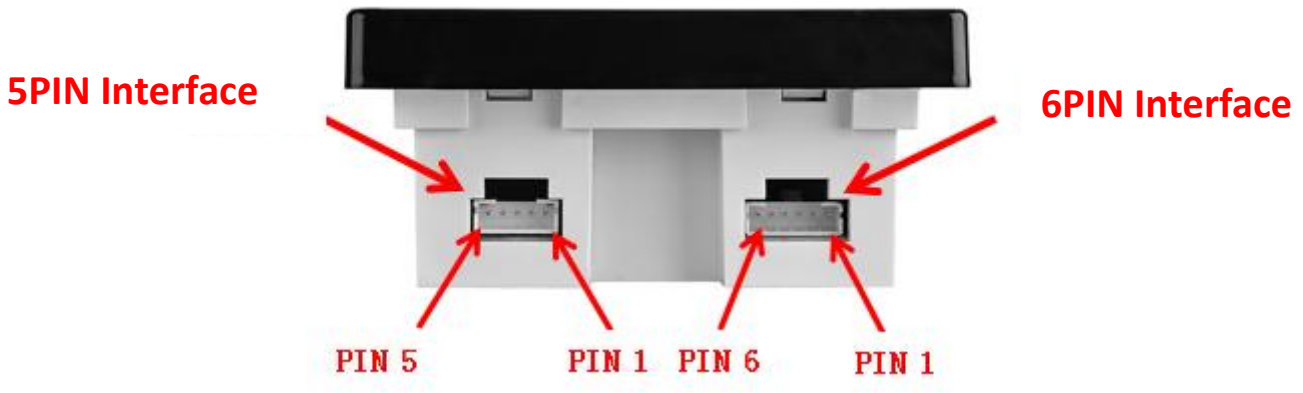


Figure 4 MX86 Interface definition indicator graph

MX86 5pin output interface definition:

PIN#	Signal Name	I/O	Description
1	GND_EARTH	-	Shield ground, connect to USB shield
2	GND	-	Power ground
3	DATA+	-	Data+
4	DATA-	-	Data-
5	VUSB	Output	USB power supply

MX86 6pin Output interface definition:

Pin	Signal name	I/O	Description
1	RX	INPUT	Serial logic level input
	DATA0	OUTPUT	Wiegand data 0
	OPEN	OUTPUT	Access control output
2	TX	OUTPUT	Serial logic level output
	DATA1	OUTPUT	Serial data 1
3	GND	-	Power ground
4	VCC	-	Power input
5	RS485-A	IO	RS485Level Driver IO
6	RS485-B	IO	RS485Level Driver IO

5. Operating instructions

5.1. Wiring Diagram

5.1.1. Data cable included in each version

5.1.1.1. USB & WIFI Output mode

Figure 5.1 USB cable

5.1.1.2. RS232 Output mode

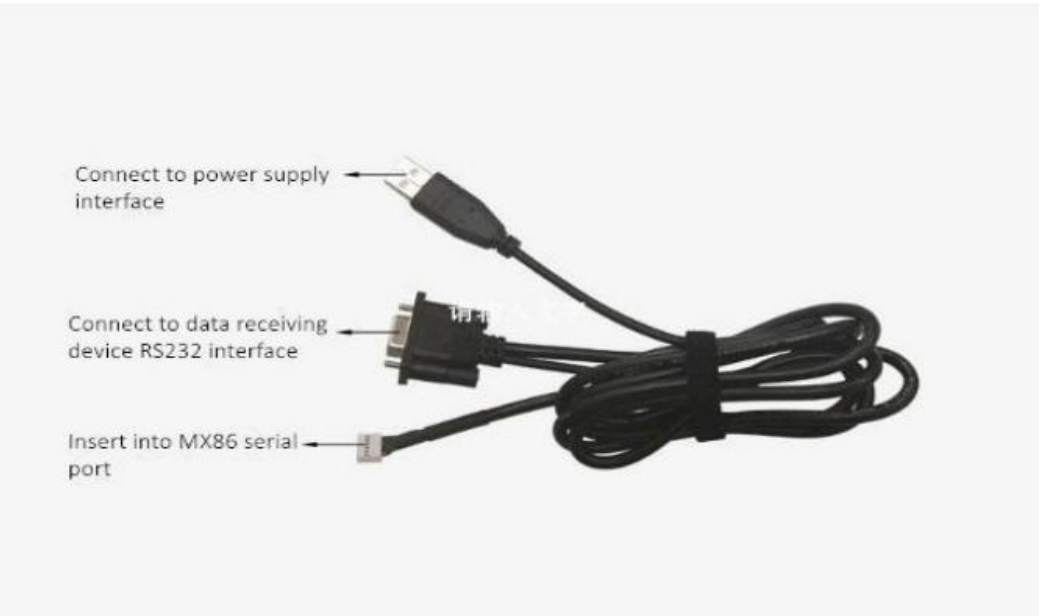


Figure 5.2 RS232 cable

5.1.1.3. RS485/TTL/Wiegand Output mode

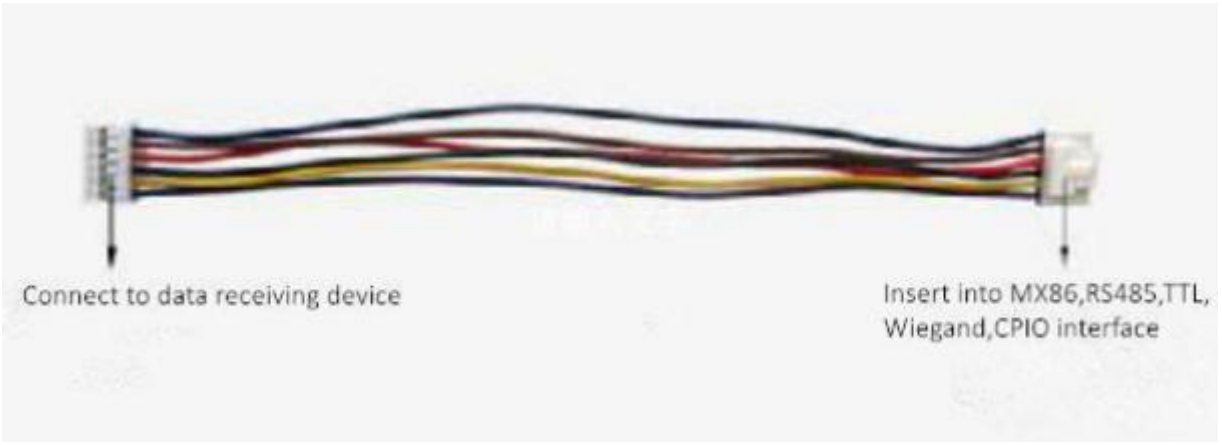


Figure 5.3 RS485/TTL/wiegand cable

5.1.1.4. Ethernet output mode

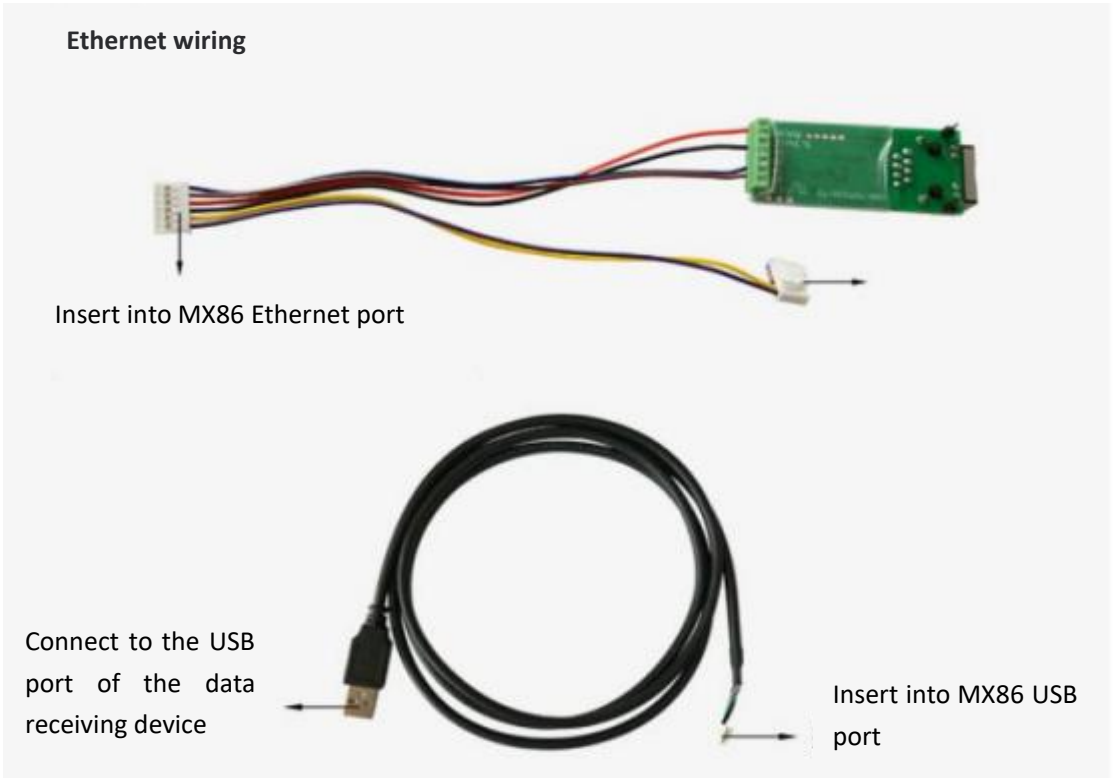


Figure 5.4 Ethernet cable（Two cables: USB cable + 6-PIN cable Connect to the network module）

5.1.2. Connection schematic diagram

5.1.2.1. USB output mode connection diagram

Connect one end of the USB cable to the scanner and the other end to the USB port on the computer.

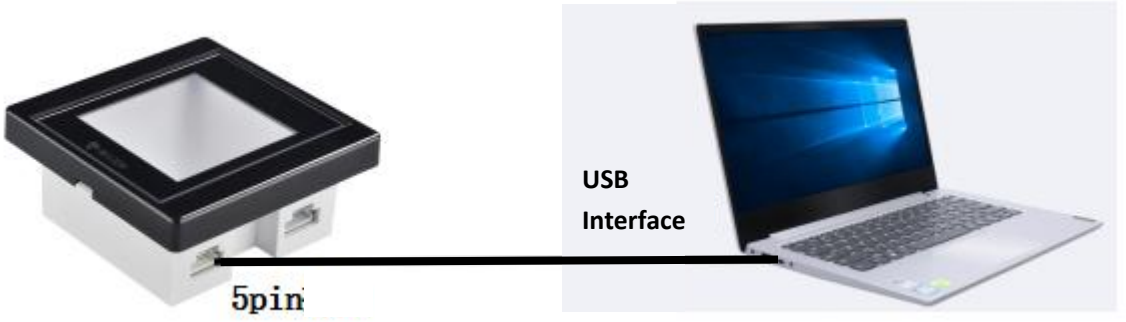


Figure 5.5 USB output mode connection diagram

5.1.2.2. RS232 output mode connection diagram

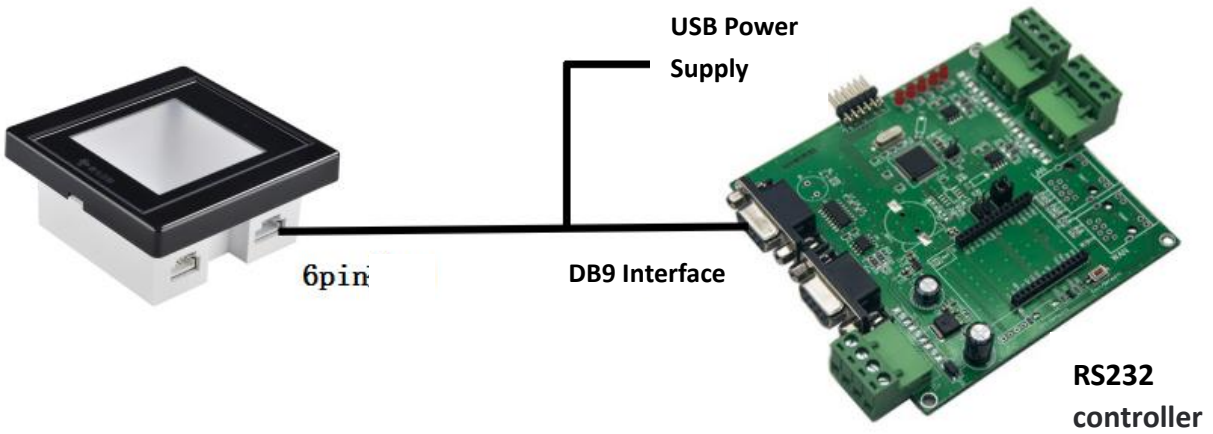


Figure 5.6 RS232 output mode connection diagram

5.1.2.3. RS485 output mode connection diagram

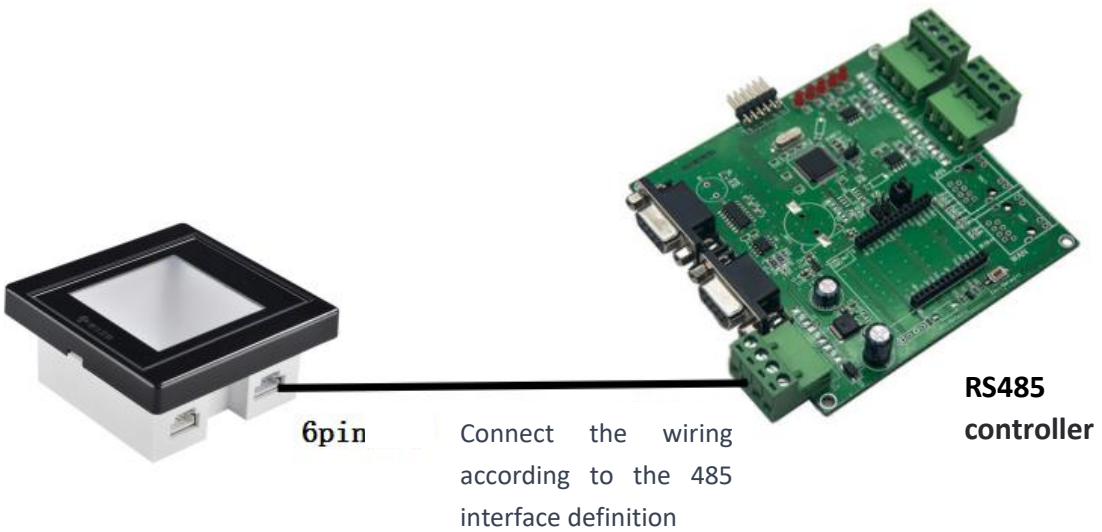


Figure 5.7 RS485 output mode connection diagram

5.1.2.4. TTL output mode connection diagram

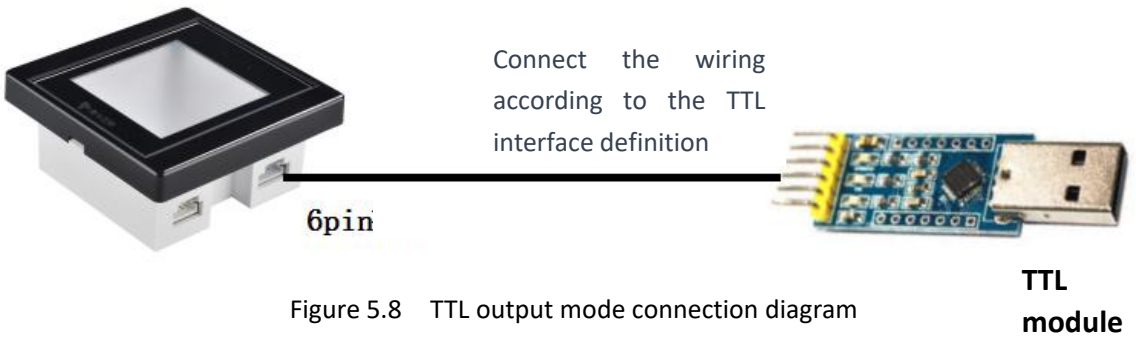


Figure 5.8 TTL output mode connection diagram

5.1.2.5. Wiegand output mode connection diagram

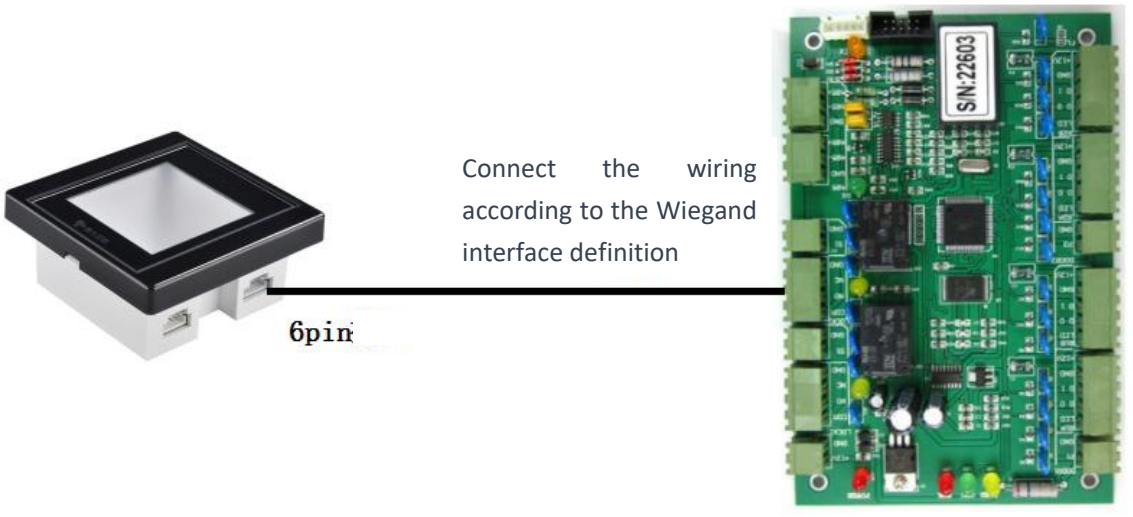


Figure 5.9 Wiegand output mode connection diagram

5.1.2.6. WIFI output mode connection diagram

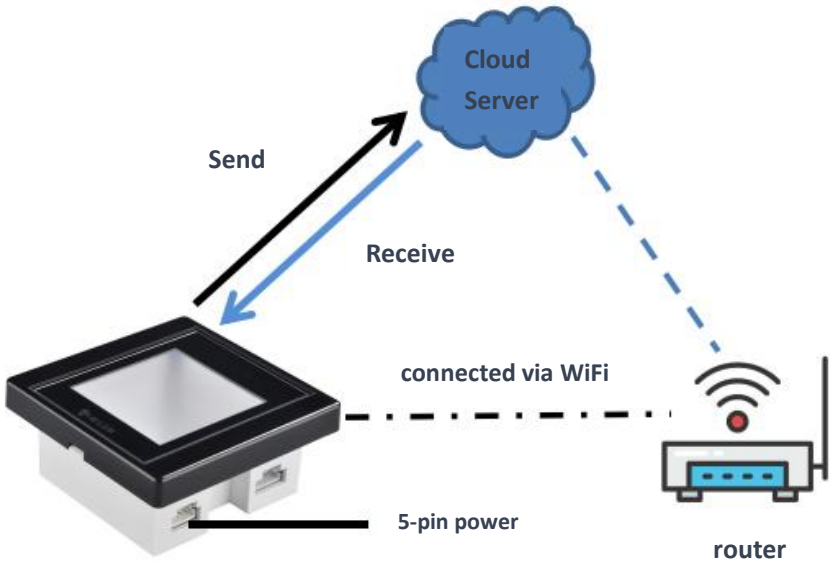


图 5.10 wifi output mode connection diagram

5.1.2.7. Ethernet output mode connection diagram

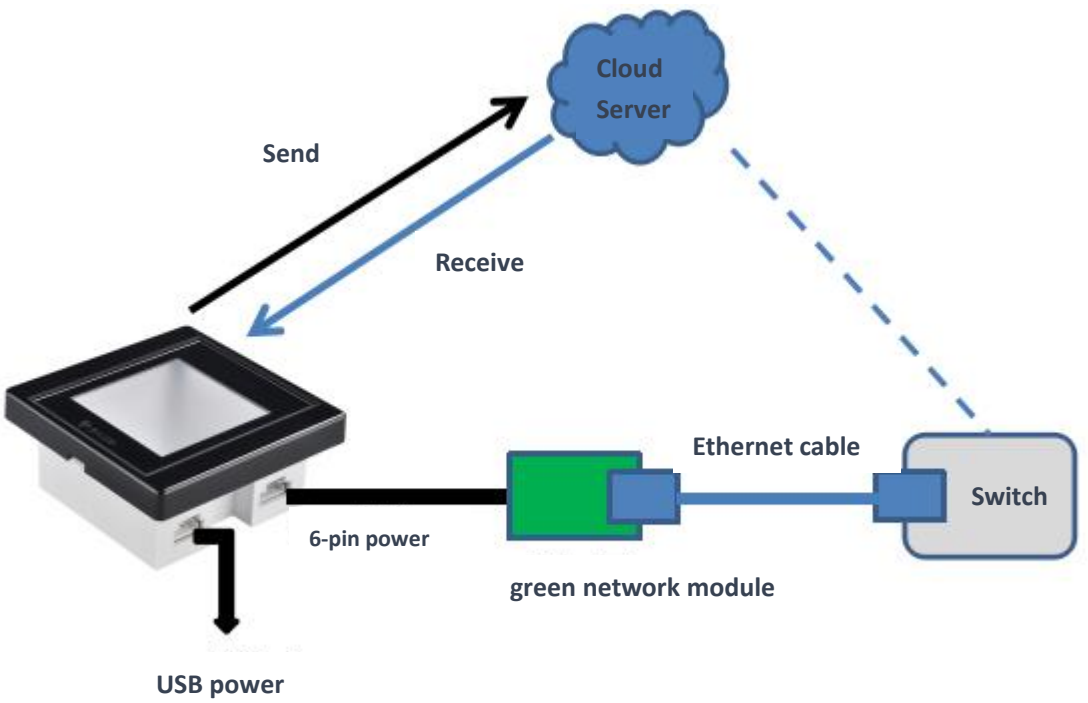


Figure 5.11 output mode connection diagram

5.2. Product configuration

Use the Vguang config tool to configure the device. Open the following configuration tool (available from the download center on the official website).

Figure 5.12 configuration tool

For details about how to use the configuration tool, see the user manual of the configuration tool VguangConfig.

6. Network access control scenario

6.1. Scenario diagram

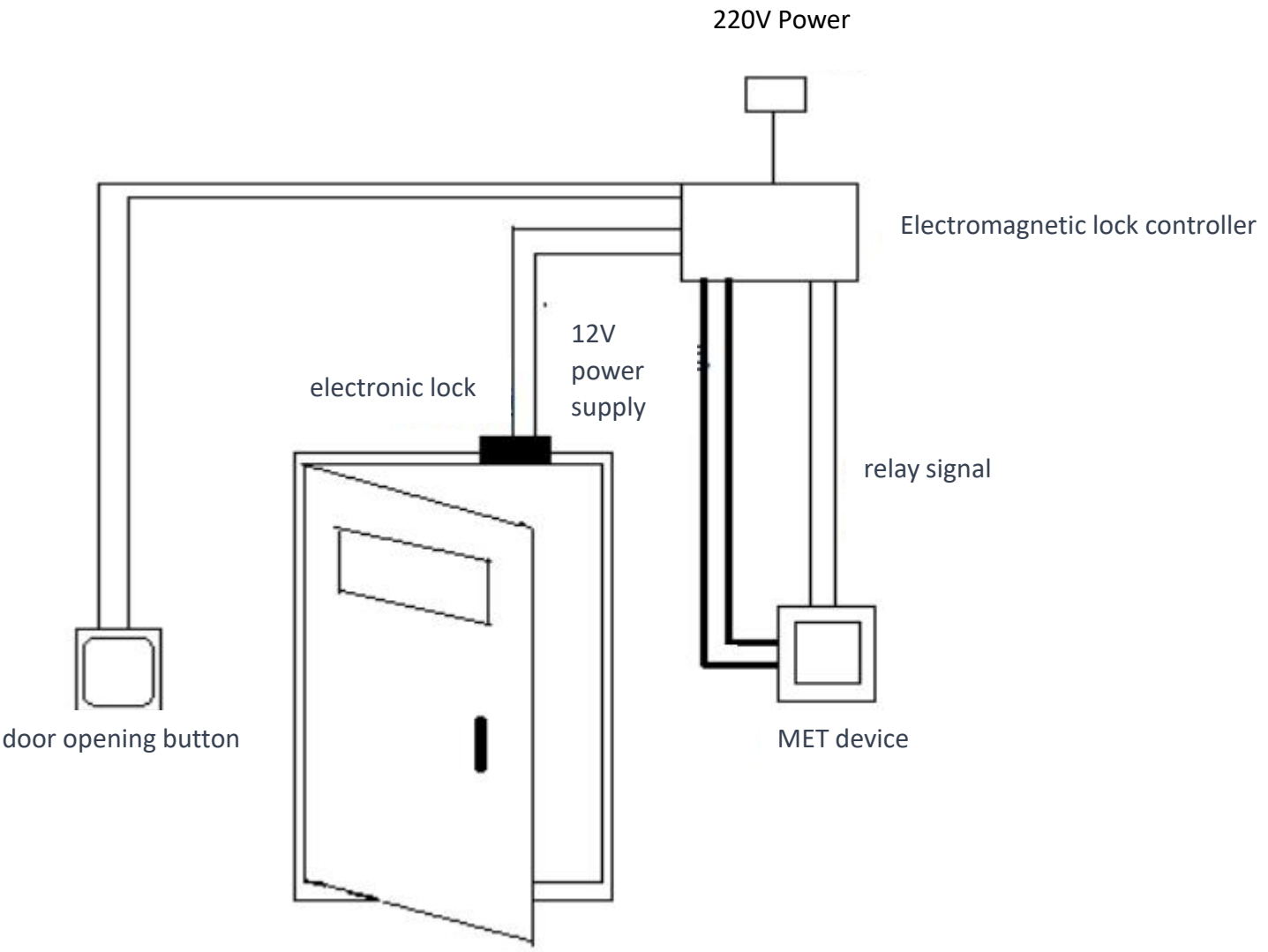


Figure 6.1 Scenario diagram

6.2. Access control system wiring diagram

6.2.1. Wifi version electrical connection diagram with electronic lock

Wifi version electrical connection diagram with electronic lock:

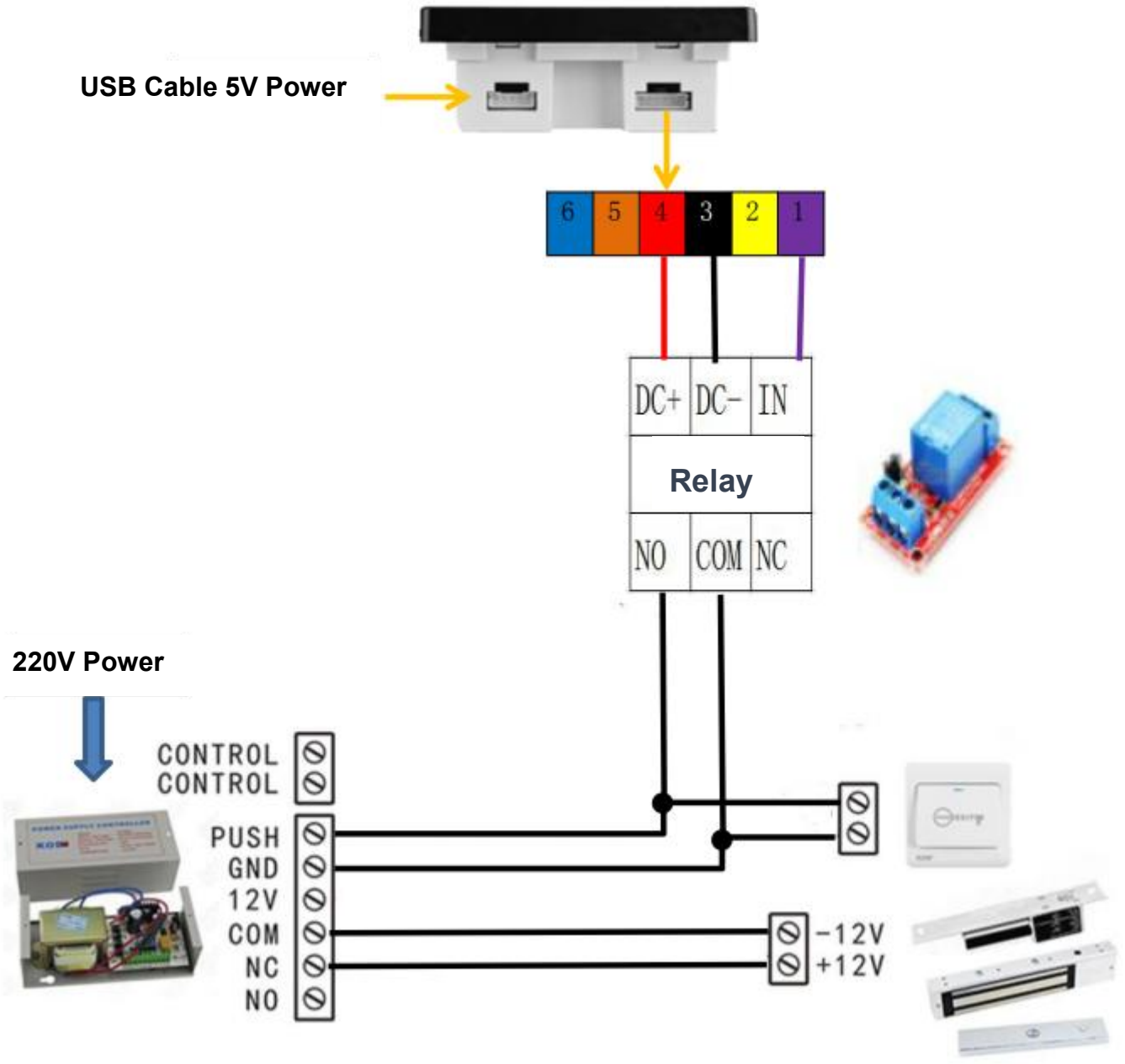


Figure 6.2 Wifi version electrical connection diagram with electronic lock

6.2.2. Electrical connection diagram of Ethernet version and electronic lock

Electrical connection diagram of Ethernet version and electronic lock:

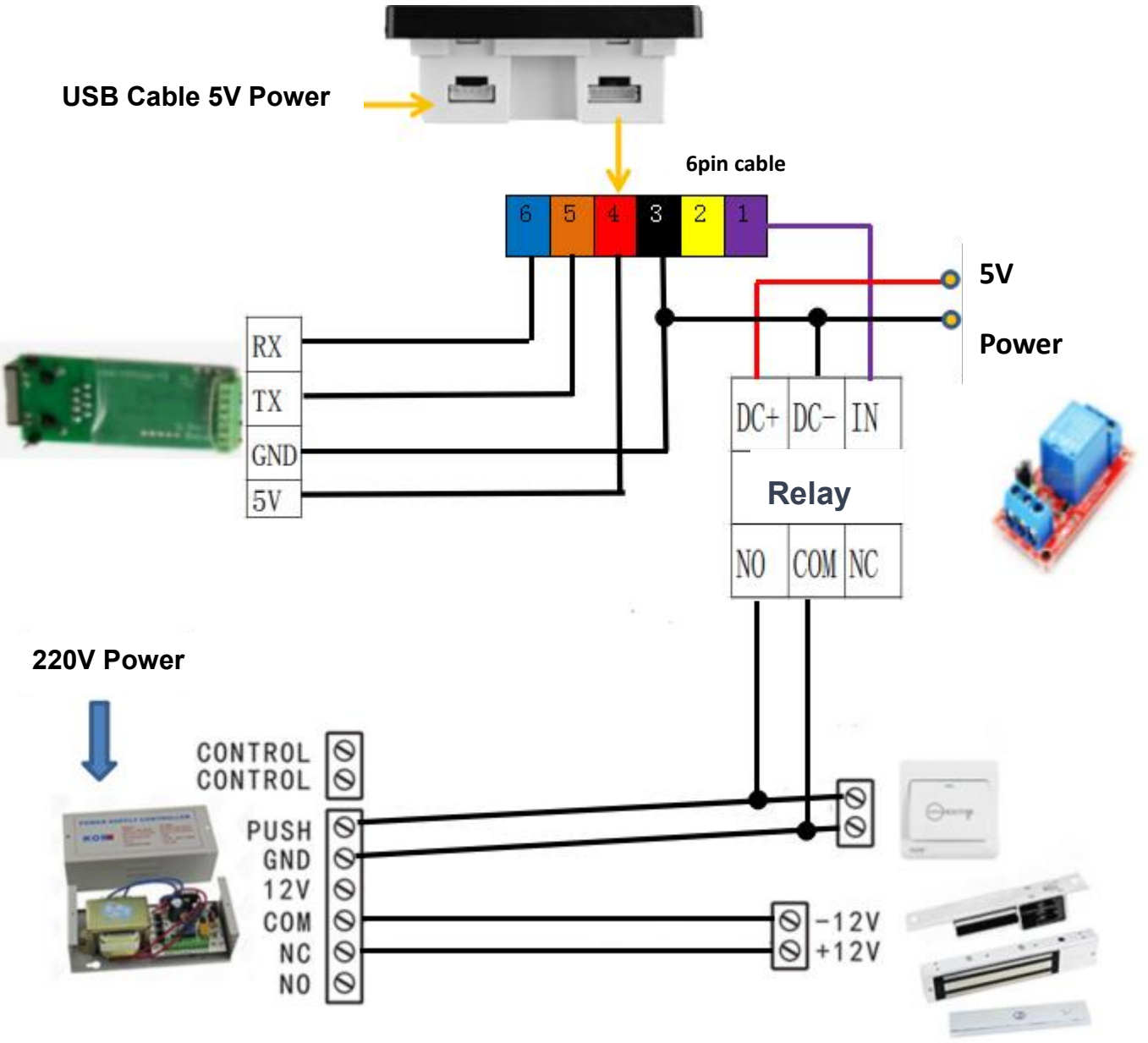


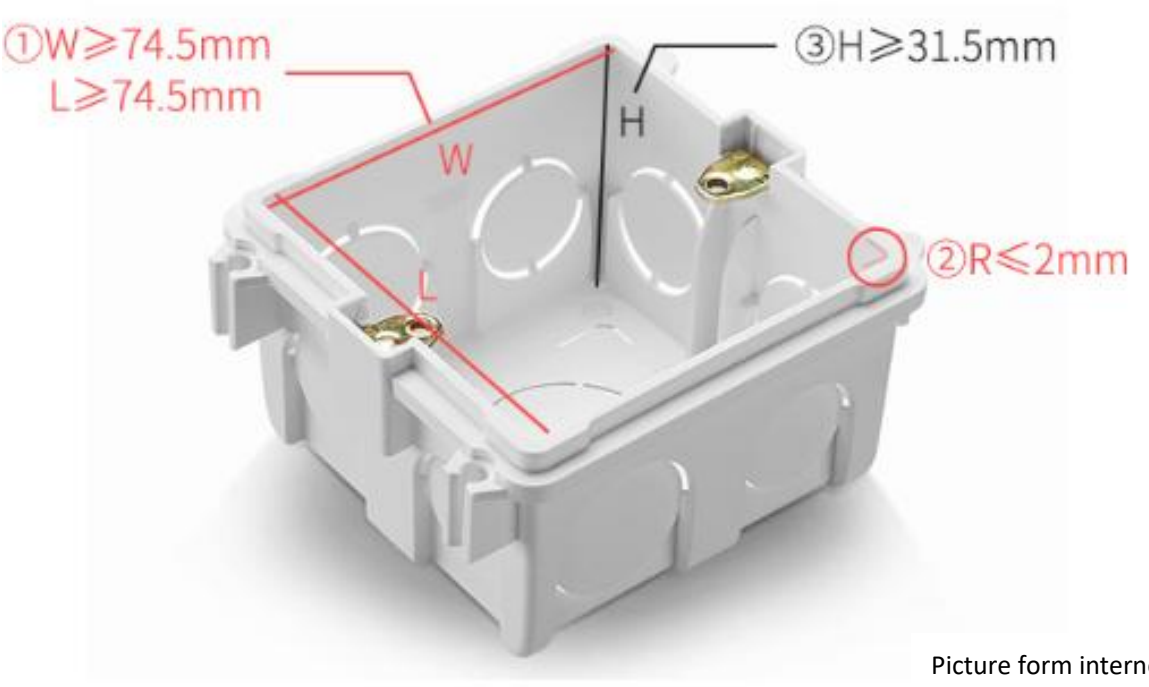
Figure 6.3 Electrical connection diagram of Ethernet version and electronic lock

7. Installation and Disassembly

Notice:

1, The use of metal material for the 86 box is not recommended (it may affect the NFC performance of the product).

2, For the 86 concealed box, please refer to the following dimensions. All dimensions are inner diameters.

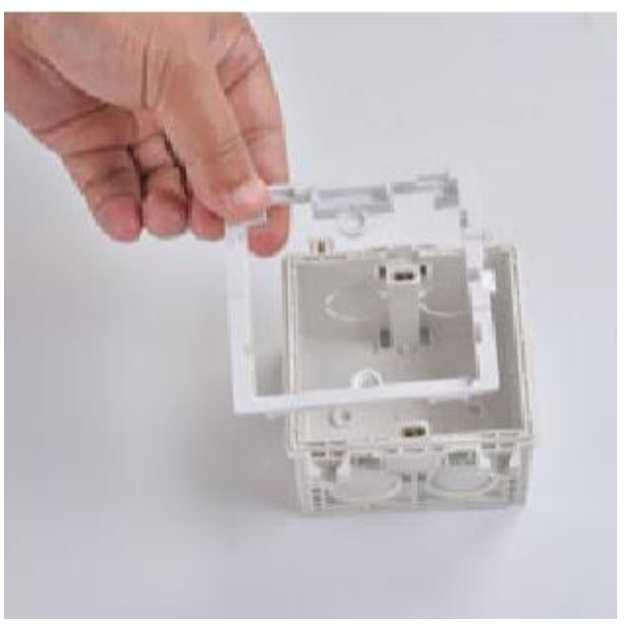


Picture form internet

7.1. Install

① Installation Preparations: Prepare the 86 box or corresponding opening, screwdriver, screws, and disassemble the MX86.

② Place the MX86 installation frame on the 86 box, aligning the screw holes with those on the 86 box.



③ Screw in the screws at the screw holes to secure the installation frame and the 86 box together.

④ After securing the screws, it should look like the image below.

⑤ Insert the main part of MX86 into the installation frame from the bottom, paying attention to the orientation.

⑥ Press down to embed the main part of MX86 into the installation frame, ensuring that it locks into place.

⑦ Install the outer frame of the MX86 faceplate, and press lightly to lock it in place.

⑧ Installation is complete, as shown in the picture.

7.2. Disassembly

① Prepare a screwdriver before disassembling.

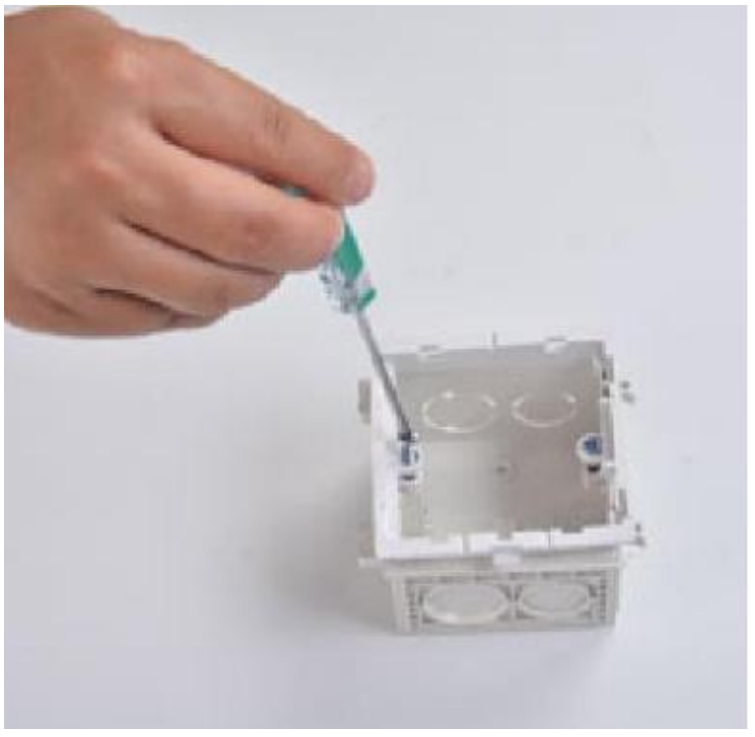
② Prepare a screwdriver before disassembling.

③ Remove the bottom cover frame.

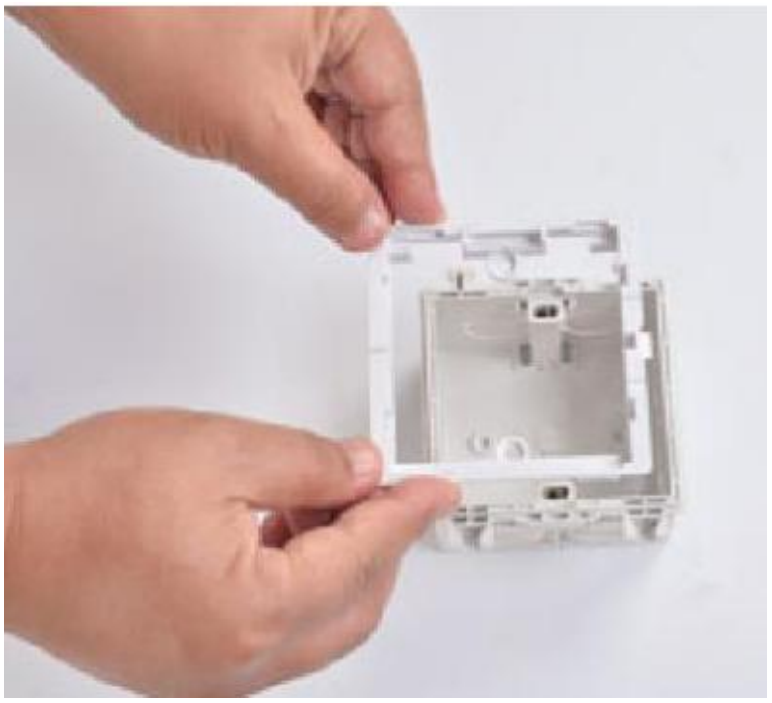
④ Insert a screwdriver into the latch position, move the latch, and separate the main part from the mounting frame.

⑤ After opening all the latches, remove the main part of MX86.

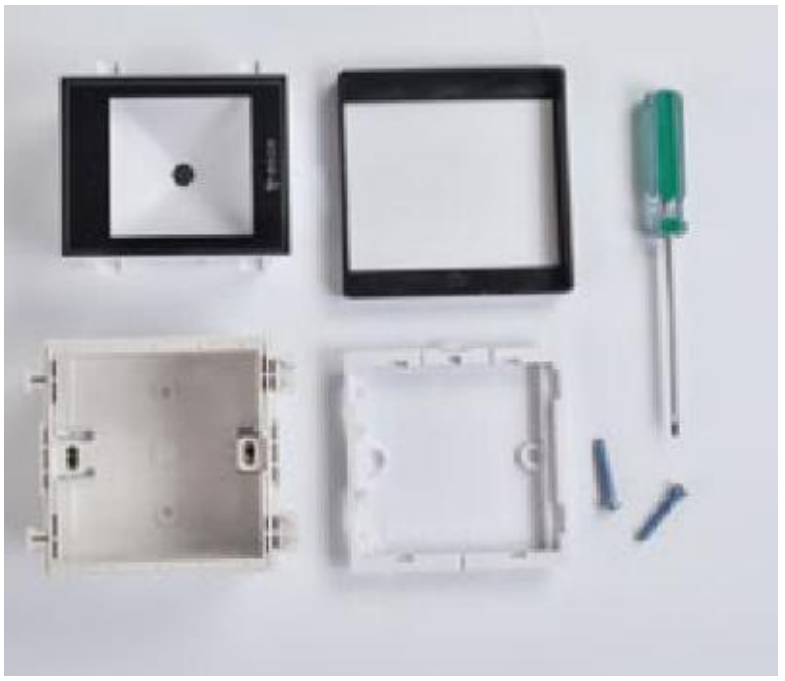
⑥ Use a screwdriver to remove the screws.



⑦ Remove the MX86 installation frame.



⑧ Disassembly is complete, as shown in the picture.



8. Common problem

1. Device Cannot Connect to Configuration Tool.

When configuring the barcode scanner, it is necessary to use the barcode configuration method. This involves generating a configuration code using the configuration tool and then configuring the scanner by scanning the configuration code.

2. After Successful Configuration, the Scanner Does Not Send Requests to the Server.

A. Check whether the device is successfully connected to the network. Configure the scanner with a static IP and perform a Ping test to check network connectivity. If Ping is unsuccessful, inspect the network cable connection.

B. If there is still no request sent even with a normal network, refer to the MicroLight Interconnect Network Device Interface Specification 1.2 and debug the server interface.

3. The Server Receives Requests but Cannot Parse the Data.The scanner uploads pure text format data, not JSON. If attempting to parse in JSON format, it will not be successful.

4. After the Server Returns code=0000, the Scanner Does Not Output the Door-Opening Signal.

A. Ensure that "Control Relay" is selected in the "Successful Transmission Behavior."

B. Confirm that the output mode is set to "TCP Protocol" or "HTTP Protocol" as only these two modes can return code=0000.

C. The returned "code=0000" is also in text format, not JSON.

5. Power-On Start is Normal, but the Scanner Does Not Respond to Configuration Codes, i.e., No Beeping Sound.

If the device has problems despite a normal power-on start, it may need to be sent back for repairs.

Please follow the device and server documentation for configuration and check for potential hardware issues. If the issue persists, it is advisable to contact the device supplier or technical support team for detailed assistance.

Contact info

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