# Embedded QR Code Reader Module

## (QM100 manual)



## 1、Product Introduction

QM100 is a new generation of intelligent device with high integration and excellent performance, which integrates embedded QR code scanning and card swiping. It adopts advanced CMOS image recognition technology and intelligent image recognition system, high code scanning recognition rate, fast speed, sensitive card swiping response, strong compatibility, integrated and compact design, and can be easily embedded       into all kinds of equipment. It can be used in the fields of QR code scanning recognition, IC card reading, QR code payment system, access control system, vending machine, smart home, lockers and so on.

## 2、Features

1.wide angle design is applicable to all kinds of QR code scanning, automatic induction, high-speed code scanning, plug and play, convenient and fast

2. super error correction decoding, data transparent transmission, accurate reading of color code, flower code, deformation code and stain code

3. multiple output modes: USB virtual serial port, TTL, WG26 / 34, RS232, RS485, suitable for many industry application scenarios

4.No need programming, connect the computer to install USB driver, and set and debug through USB port

5. good reading performance, with its own white light fill in lamp, it can easily read both screen and paper codes

6. it supports swiping CPU card, IC card, second-generation ID card, mobile NFC and other sensing cards

7.Tempered glass panel, small size, embedded appearance design, easy to integrate into other equipment

7.products can be customized, secondary development, provide detailed technical support and guidance

The factory default is USB virtual serial port / WG / TTL output. It supports the selection of RS232 or RS485 output. Only one of the two can be selected. The following are three data output combination modes:

1. USB virtual serial port / WG / TTL (factory default)

2. USB virtual serial port / WG / 232 / TTL supports simultaneous use of TTL and 232 (optional RS232)

3. USB virtual serial port / WG / 485 / TTL supports simultaneous use of TTL and 485 (optional RS485)

## 3、Application

QM100 code scanning and card swiping module can be easily embedded into various devices as code scanning and reading component applications, such as autonomous cash register, bus code scanning and payment machine, ticket checking machine, automatic vending machine, access control gate and other scenes using QR code scanning and recognition.

## 4. Products Appearance
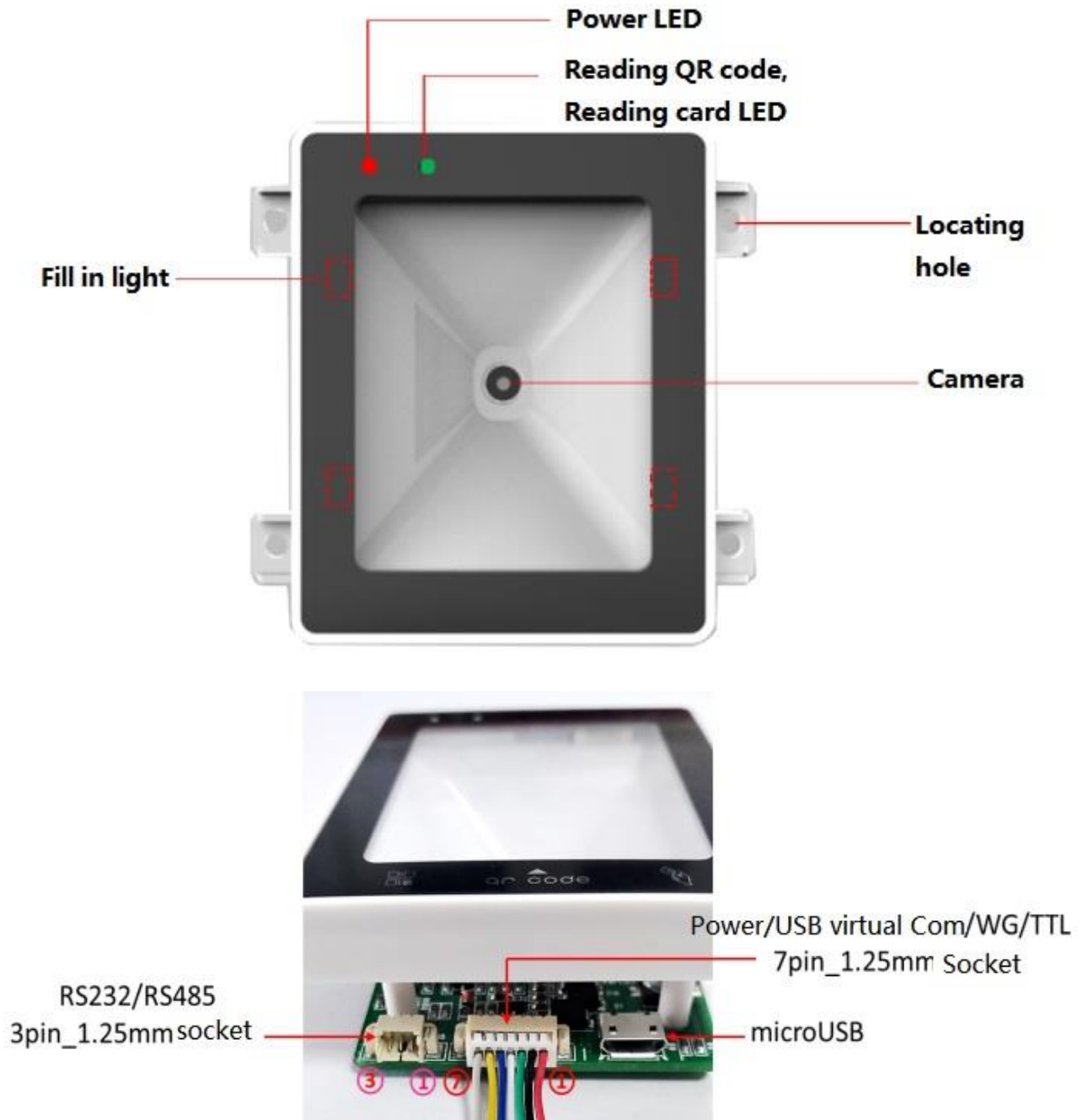


### RS232/RS485，3pin_1.25mm socket Wire connection

| In/Out | Interface definition |
|--------|---------------------|
| / | GND |
| OUT | RS232_TXD /RS485_B |
| IN | RS232_RXD /RS485_A |

## 5、Power/USB Virtual Com/WG/TTL，7pin_1.25mm socket wire connection

| S/N | In/Out | Interface | Illustrate | Wire color |
|-----|--------|-----------|------------|------------|
| 1 | IN | VCC | DC5～12V | Red |
| 2 | / | GND | GND | Black |
| 3 | OUT | D0 | Wiegand DATA0 | Green |
| 4 | OUT | D1 | Wiegand DATA1 | White |
| 5 | IN | BCLT | WG26/WG34 Switch | Blue |
| 6 | OUT | TX | TTL_TX | Yellow |
| 7 | IN | RX | TTL_RX | Grey |

## 6. Diagram of data interface connection

QM100 is equipped with a 7-color

wire with a length of 30cm and spacing of 1.25mm, which must be connected to a host machine to operate and use. One end of the line is connected to the data interface socket, and the other end is connected to the peripheral.The host can be a PC, POS machine, single chip microcomputer, Android host or other intelligent terminal equipment with USB or RS232/RS485 interface.Wiegand DATA0 and DATA1 can be connected to a controller with wiegand input interface to form an access control system.RS232/RS485 data output is equipped with a 3Ppin 20cm line.

The following figure shows a schematic diagram of connecting the cable to the interface of the external equipment

TTL output connect to MCU



USB output
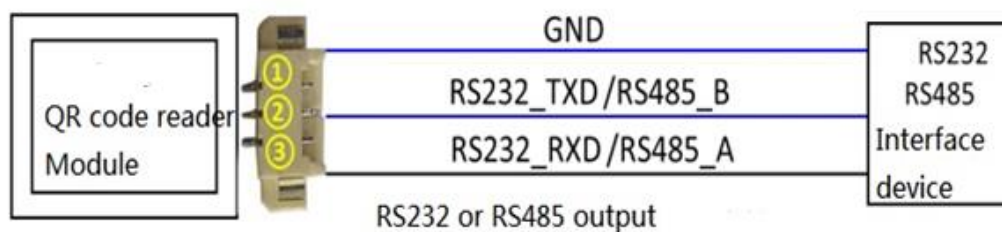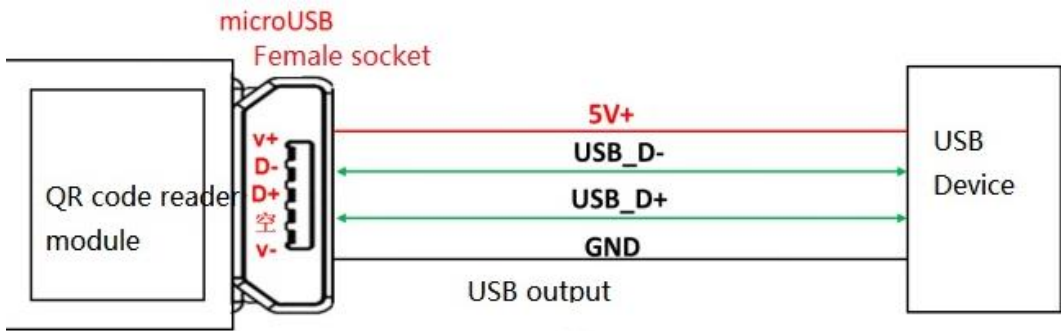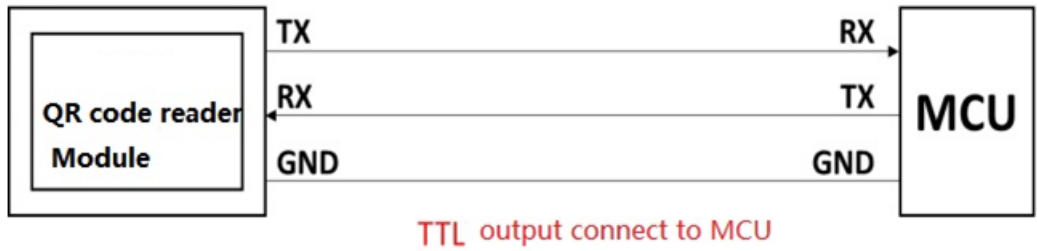
## 7、Products parameter

| Paremeter type | Parameter name | Parameter value |
|---|---|---|
| Products Features | Fill-in light | With LED light, induction light, anti strong light interference |
| | Image sensor | CMOS |
| | Camera pixel | 300000 pixels |
| | Scan resolution | 640*480 |
| | Symbologies | QR Code |
| | Decoding mode | Image based decoding engine |
| | Decoding recognition accuracy | ≥10mil |
| | QR code size | 8～100 mm |
| | Reading range | 1～20cm |
| | Reading angle | Rotate 360 °, tilt ± 45 °, deflection ± 45 ° |
| | Scan mode | Automatic induction, instant wake-up |
| | QR code type | displayed on device screens,paper, metal, plastic code, etc |
| | Reading speed | <200ms |
| | Card Type | Mifare Card |
| | Reading card range | MF 1～5cm |
| | Interface | 1.USB virtual serial port /WG/TTL　Factory default |
| | | 2.USB virtual serial port /WG/232/TTL RS232 Optional |
| | | 3.USB virtual serial port /WG/485/TTL RS485 Optional |

| | Prompt mode | Buzzer sound, red work light on, green feedback light flashes |
|---|---|---|
| Appearance and packing | Size | 65×66×25mm（with Locatibng hole） |
| | Scan window size | 37.5×47.5 mm |
| | Scan window material | HD tempered glass |
| | Packing parts list | （QR code reader module、manual、3P wire、7Pwire）×1 |
| | NW | 40g |
| | Color | White |
| Electrical parameters | Work voltage | 5～12VDC±10% |
| | Work current | 5V 104mA±5% 12V 50mA±5% |
| | Stand by Current | 5V 92mA±5% 12V 40mA±5% |
| | Power Consumption | 0.52W |
| Working environment | Working humidity | 5%-90% |
| | Working temperature | -20~70℃ |

## 8. TTL level and Wigand 26/34 timing description
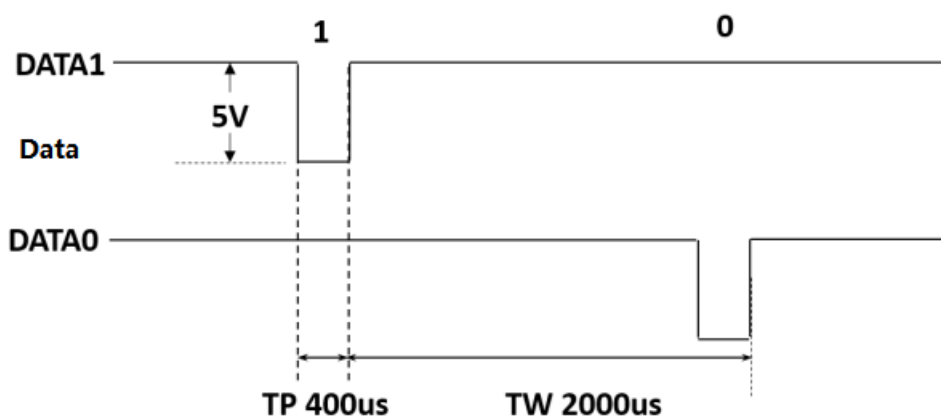
(1), TTL interface level value

R300 minimum input/output high level and low level values:

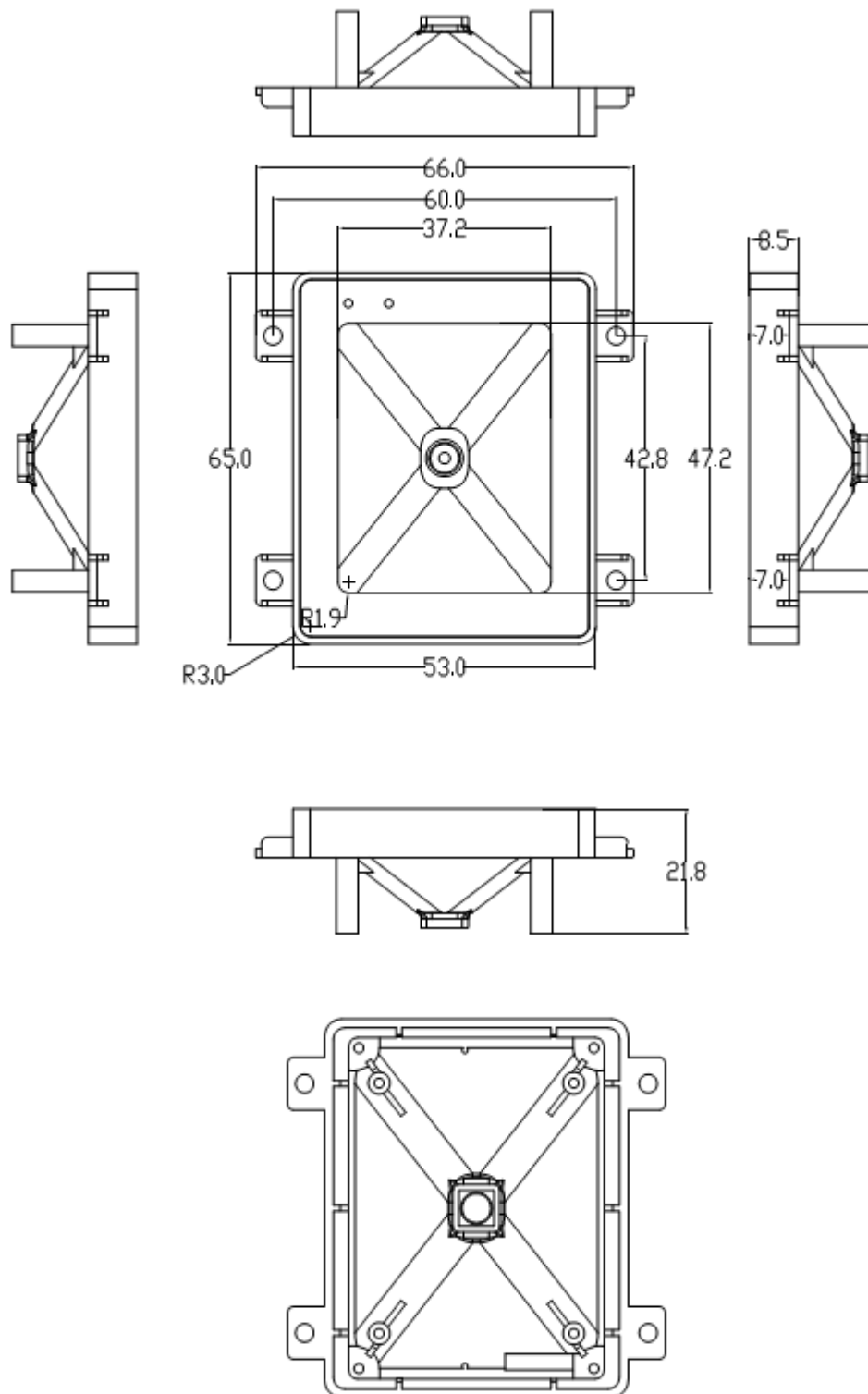Input L: <1.2V;H: > 2.0 V

Output L: <0.8V;H: > 2.4 V

The noise tolerance is 0.4V.



wiegand Data signal oscillogram

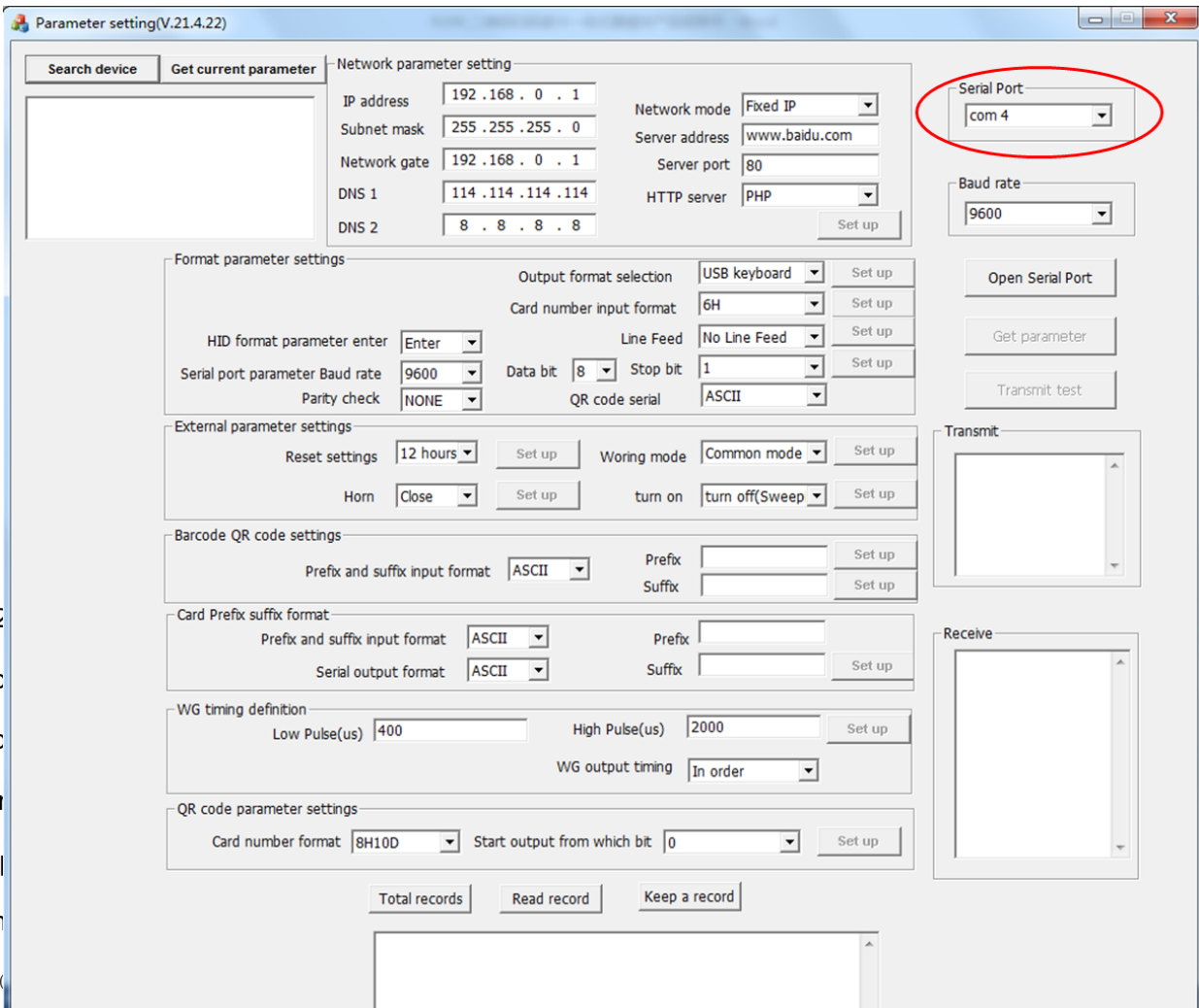TW 2000us

## 9. Appeareance size unit:mm

## 10. Setting instructions

**(1) use the configuration tool to set to meet your needs. Unzip and double-click to open "**

**DoorGuard** **" to enter the parameter setting page of QR code access card reader**

① Use the Mini USB data cable to connect the QR code access card reader with the computer and power on. After the fill in light is on and the buzzer sound, the card reader starts up

② . install USB driver on the computer

③ Open computer management, find the serial port of the device, and then click to open serial port



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oard", and "line feed" is only valid for "TTL")

[serial port parameters] the corresponding serial port parameters can be adjusted as required

（ This parameter setting is invalid for "USB virtual serial port",  only inlid for "232, TTL")

[QR code serial port output format] Decimal, HEX, Decimal inverse code, HEX

inverse code and ASCII are optional. (this function parameter is only valid for "TTL". The output of HEX and HEX inverse code format is hexadecimal card number. ASCII code is output when the total number of digits is odd, and hexadecimal card is output when even

Format parameter settings

| | | | |
|---|---|---|---|
| | Output format selection | USB keyboard ▼ | Set up |
| | Card number input format | 6H ▼ | Set up |
| | Line Feed | No Line Feed ▼ | Set up |
| HID format parameter enter | Enter ▼ | | Set up |
| Serial port parameter Baud rate | 9600 ▼ Data bit 8 ▼ Stop bit | 1 ▼ | |
| Parity check | NONE ▼ QR code serial | ASCII ▼ | |

## (3) external parameter setting

[restart setting] 0 means no restart, and 12 hours and 24 hours are the corresponding 12 and 24-hour restart once;

[working mode] is divided into normal mode, single mode and interval mode,

Normal mode: can continuously swipe QR code;

Single mode: the same QR code cannot be continuously swiped;

Interval mode: the same QR code can be swiped after 15 seconds;

[horn] is not enabled yet;

[QR code scanning fill in light] turn off and on for fill in light of the camera;

External parameter settings

| | | | | | |
|---|---|---|---|---|---|
| Reset settings | 12 hours ▼ | Set up | Woring mode | Common mode ▼ | Set up |
| Horn | Close ▼ | Set up | turn on | turn off(Sweep ▼ | Set up |

Set the prefix and suffix of the QR code, add the corresponding prefix and suffix to the front and back of the QR code information for output;

[prefix and suffix input format] ASCII and hex are optional. Set the prefix and suffix in which format output;

Barcode QR code settings

| | | | |
|---|---|---|---|
| Prefix and suffix input format | ASCII ▼ | Prefix | Set up |
| | | Suffix | Set up |

## (5)Card Prefix format and suffix

Set the prefix and suffix of the card,  add the corresponding prefix and suffix to the front and back of the card number information for output（This parameter setting is only valid for "TTL"

[prefix and suffix input format] ASCII and hex are optional. Set the prefix and suffix format in which format output;

[serial port output format] ASCII and hex are optional. Set the card number format in which output;



### (6) WG timing definition

Set the time period of Wigand

output high and low pulses, which can be set according to the actual Wigand timing of the controller;



### (7) QR code parameter setting

[card number format] 8h10d, hexadecimal, 2h3d + 4h5d are optional, 8h10d is the default (this parameter setting is only valid for WG26 and wg34)