

Shenzhen Bowei RFID Technology Co.,Ltd

BRC-04F Standing Gate reader

User Manual



V1.0

Statement

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Main Contents of the Manual

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Performance Parameters
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Structural Features and Working Principles
Installation and Usage Instructions
Daily Maintenance and Repair
Transportation and Storage
Packaging and Unpacking Inspection
After-Sales Service

Safety Instructions

Warning Labels



Improper operation may damage the equipment.

Improper operation may pose health risks to personnel.

Caution Labels



Ignoring this may prevent your operation from proceeding smoothly.

Ignoring this may lead to undesirable results.

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Chapter 1. Product Introduction

1.1 Product Overview



1. Product Functions and Features

BRC-04F is a high-performance standing gate reader. This system adopts Ultra-High Frequency (UHF) RFID technology and is equipped with high-performance antennas, which can quickly detect multiple tags passing through the channel and provide audio-visual alarms for unauthorized tags. The system features two (dual-channel, four-channel) infrared sensor detection components that can recognize personnel entering and exiting, performing people counting. RJ45 Ethernet interfaces is applied, allowing direct connection to hosts, controllers, or other related devices. This system is an ideal choice for open, high-traffic, channel-based access control, attendance, sign-in, and process control systems.

2. Main Uses and Application Scope

It is used in retail, libraries, archives, warehouse, etc., to solve various material theft problems.

3. Model Description

This manual applies to the BRC-04F, BRC-04L standing gate reader.

4. Environmental Conditions

This product should operate on a dry, hard, flat surface indoors and requires good ventilation and heat dissipation conditions.

Operating Temperature: -20°C to 60°C

Storage Temperature: -30°C to 70°C

Environmental Humidity: 5% to 95% RH, no condensation

Power Supply: 85Vac to 264Vac, 47Hz to 63Hz

Total Power Consumption: Approximately 45W

5. Environmental and Energy Impact

Any radio transmission device, including this device, may interfere with the operation of unprotected medical devices. If there are such issues, consult the manufacturer of the medical devices. This device may also interfere with other electronic devices.

6. Safety and Protection Measures

The range of external power supply for this device is 85Vac to 264Vac. Please carefully check your voltage range before using the external power supply.

1.2 Performance Parameters

1. Main Features

- **Good Reading Performance:** The system uses RFID (UHF) technology and is equipped with high-performance antennas and leading Soc chip, ensuring a high read success rate with no blind spots. The single tag recognition speed can reach 300 times per second, and the detection channel width of the main and auxiliary antennas can reach 220 cm.
- **Aesthetic Design:** The panel is made using vacuum forming technology, resulting in an elegant appearance.
- **Easy Installation and Debugging:** The access control device adopts a modular design, allowing for adjustments without disassembling the panel, making on-site installation convenient.
- **Powerful data processing capabilities:** This device is equipped with a leading CPU platform and can handle complex applications.
- **People Counting and Display:** It has built-in two (dual-channel, four-channel) infrared sensors that recognize movement direction for people counting.
- **Flexible Alarm Modes:** Supports unauthorized tag identification alarms based on EPC code matching, with both online and offline alarm capabilities.
- **Adjustable alarm volume:** the volume of Alarm is software adjustable.
- **Supports Secondary Development:** The I/O interface software is configurable, providing a complete API interface for convenient secondary development.

2. Technical Parameters

The overall power consumption of this device does not exceed $45W \pm 3W$, making it energy-efficient and environmentally friendly. Here are the specific parameters of the device:

- **Operating Frequency Band:** (China frequency band): 920MHz to 925MHz, frequency spacing 250KHz
- **RF Output Power:** 30dBm \pm 1dB (maximum output power) Power Adjustable
- **Communication Interfaces:** 10/100M Ethernet (RJ-45)
- **I/O Interfaces:** 4 opto-isolated inputs (12V, <20mA), 4 opto-isolated control outputs (DC12V, <500mA)
- **Operating Mode:** Offline/Networking
- **Power Supply:** 85Vac to 264Vac, 47Hz to 63Hz

1.3 Dimensions and Weight

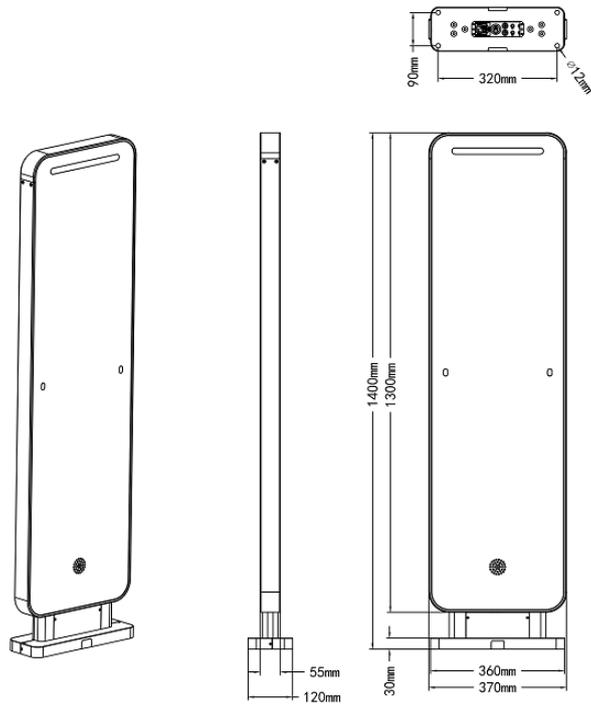


Figure 1-2: Structural Dimensions Diagram

1. Size: 1400mm × 370mm × 55 mm
2. Weight: 25kg
3. Material: Aluminium, ABS.

Chapter 2. Installation and deployment instructions

2.1 Installation condition

Before installing the BRC-04BL security access control, please carefully check whether the product is intact and the accessories are complete according to the "Packing List" in the packaging box. If there is any damage or shortage, please contact the supplier in time for replacement. In addition, check whether the following installation conditions are met:

- ◆ Meet the working environment standards.
- ◆ The installation surface must be flat and firm, and the installation holes can be drilled with impact-resistant drills.
- ◆ The required accessories are complete and meet the required standards to form a complete application environment.

2.2 Installation precautions

- ◆ For single-channel access control, the installation distance between doors is between 80cm and 220cm. For dual-channel access control, the installation distance between doors is 80cm, and the total width of the access control does not exceed 450cm.
- ◆ The installation distance between multiple sets of access control should be greater than 80cm.
- ◆ Check whether the cables are connected correctly and are not loose.
- ◆ During installation, ensure that the infrared sensor's reception and emission are aligned.

2.3 Interface description and installation steps



Figure 2-1: interface diagram of master door

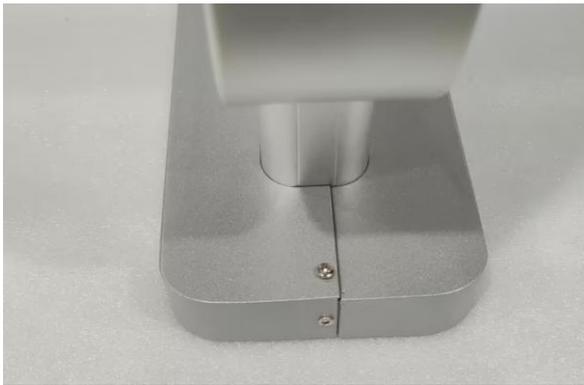


Figure 2-2: interface diagram of slave door

The interfaces of master door and slave door as shown as above. AC socket and switch is for AC power. RJ45 socket is for network communication. 4Pin socket is used for the indicator light and infrared sensor. When installing the gate reader, connect these two socket with a 4-pin signal cable. SMA Female connector is used for the antenna in the slave door.

After receiving the package of gate reader, the disassembly steps are as follows:

Step 1: Unscrew the base cover screws and remove the cover



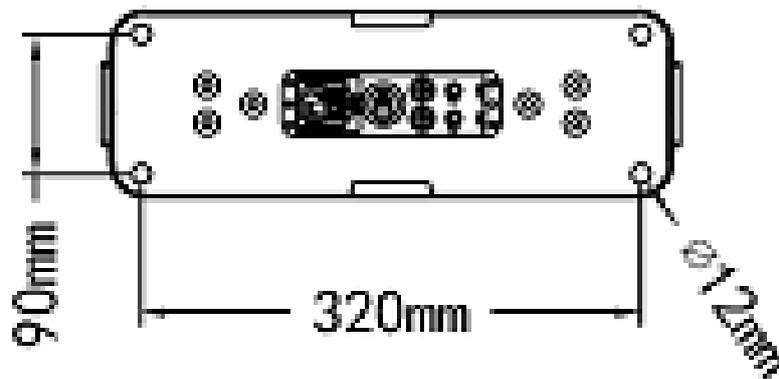
Step 2: Remove the base baffle



Step 3: After disassembly, the overall effect is shown in the following figure



Install the gate reader on the floor with expansion screws, and the corresponding hole positions are shown in the following figure



Chapter 3. Demo software operation

The demonstration software mainly performs system control, parameter setting and querying, tag reading and writing, and data display functions on the reader and writer.

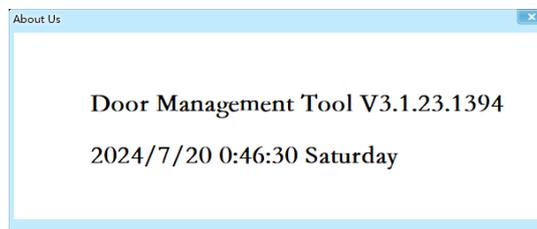
- ◆ Software environment

Windows 2000 Service Pack 3、 Windows Server 2003、 Windows XP Service Pack 2、 Windows 7/10/11 OS

- ◆ Hardware environment

PC with P4/1.7GHz or above, 512M or above memory, 40GB or above hard disk

- ◆ Demo software version

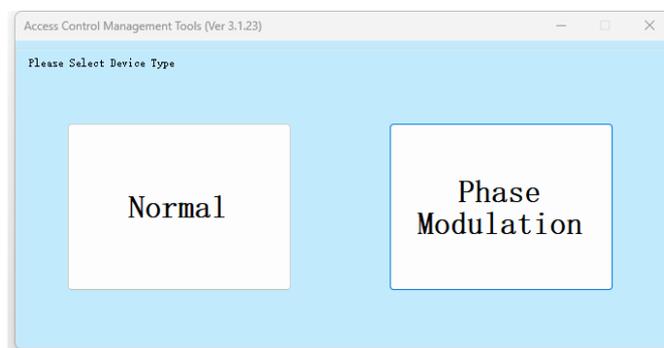


3.1 Connect

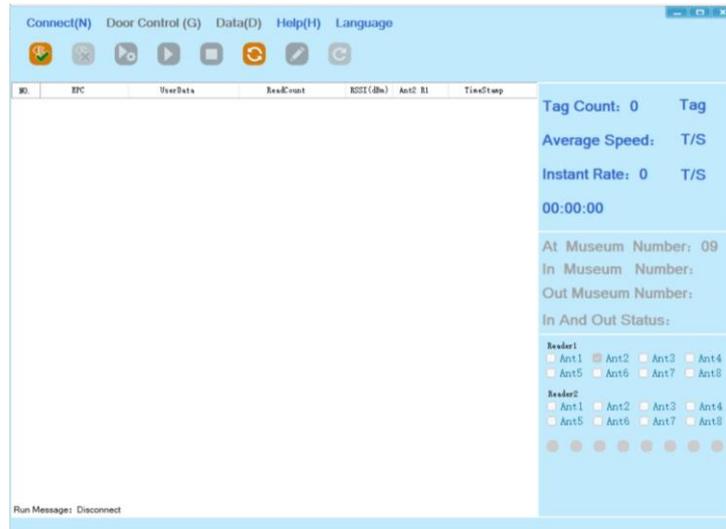
Run the executable file "PartalManagementTools" as below:

名称	修改日期	类型	大小
beep	2024/7/19 19:01	WAV 文件	84 KB
Debug	2024/9/11 15:56	日志文件	1 KB
PartalManagementTools	2024/7/20 0:46	应用程序	12,568 KB
pGray	2024/7/19 19:01	PNG 图片文件	4 KB
PortalAPI.dll	2024/7/19 19:01	应用程序扩展	312 KB
PortalConfigFile	2024/7/19 20:35	xml 文件	1 KB
pRed	2024/7/19 19:01	PNG 图片文件	3 KB
SkinForm.dll	2024/7/19 19:01	应用程序扩展	503 KB

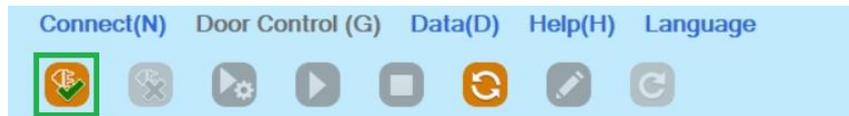
For Bawei's general gate reader, click the button of "Normal".



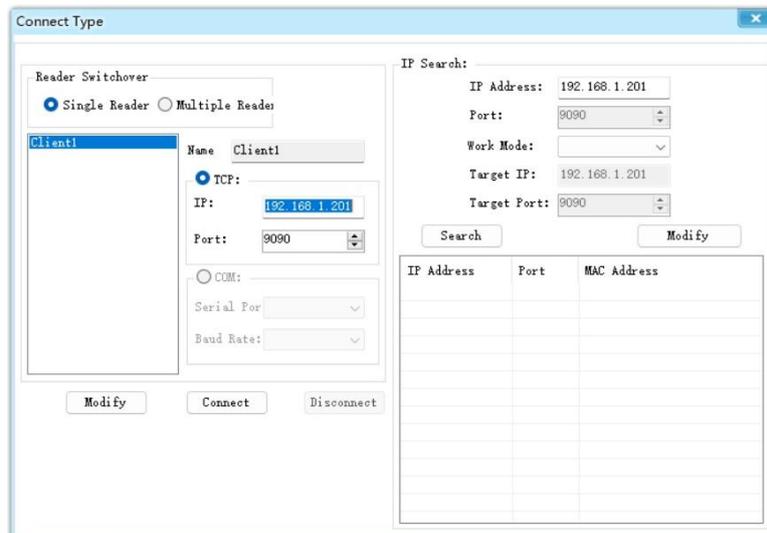
The main window is shown as below:



If the host has connected to the device successfully before and no change on the network configuration , you can click the button of "connect" directly.



First time connecting to the device or the network configuration has changed, Click the drop-down menu of "Connect" and select "Door control Connect" .

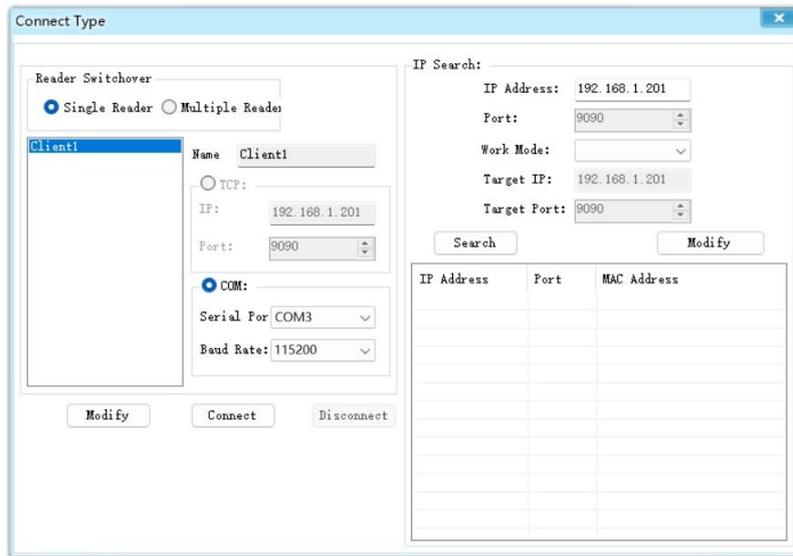


For TCP connection, click the radiobox of "TCP", click the radiobox of "Single Reader" and then select Client1.

If the IP address of the device (default IP:192.168.1.201:9090) is known, you can input the IP address and then click the button of "Connect".

If you don't know the IP address well, Enter any IP address in the same network segment as the device, and then click "Search". The device's IP address will appear in the list.

For serial connection, click the radiobox of "COM", select the serial port which reader connect, select the baud rate to 115200, then click the button "connect" to finish the connection.



If connected successfully, the function button on the window will change from gray to bright, as below:



If connected successfully, the status bar in the lower-left corner displays the following information:

Run Message: Connection Established Successfully!

3.2 Tag reading

After the connection is successful, you can click the button of "ScanTag" to start tag reading.



You can click the button of "Clear Display" to clear the data in the list whether tag reading is on or off.

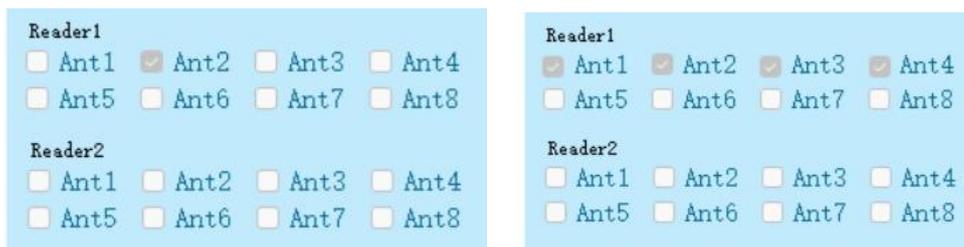


When you want to stop tag reading, click the button of "stop scanning"

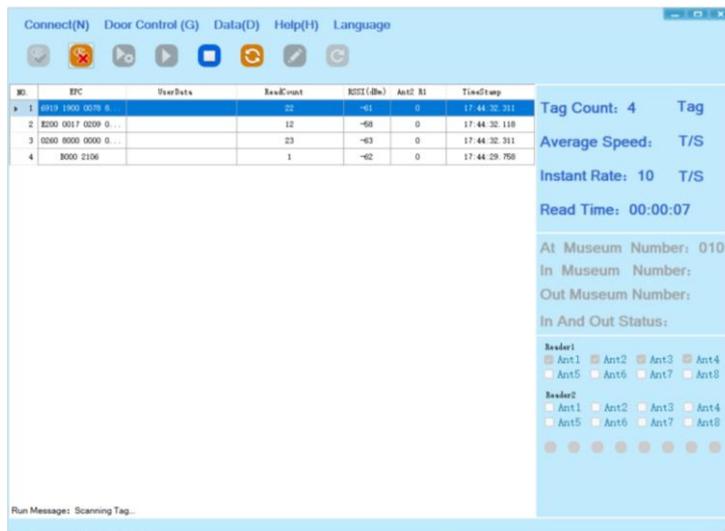


There are two sets of checkbox in the bottom right corner of the window. Under group of "Reader1",

select the antenna you need for portal: Ant1, Ant2, Ant3 and Ant4.



In reading state, the main window displays as follows:

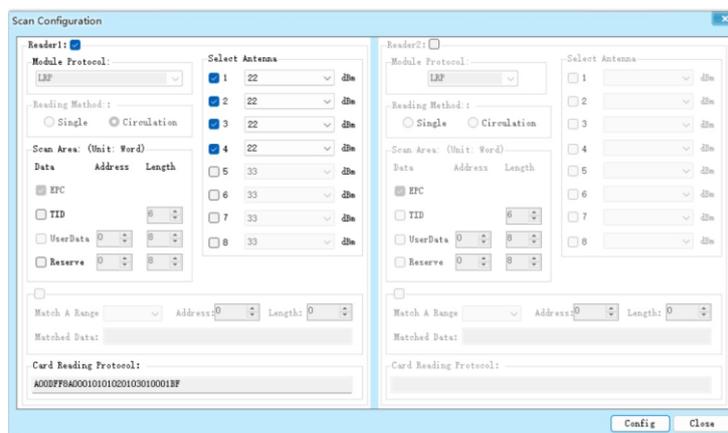


3.3 RF power setting

Click the button of “ScanConfig” to set RF power as below:



Then a dialog box of “Scan Configuration” will pop up:



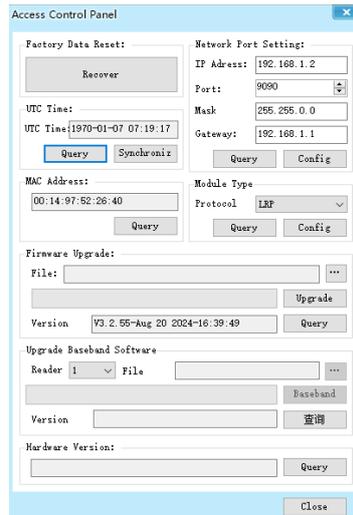
Select the checkbox of group “Reader1”. For reading method, select the radio box of “Circulation”, Select the ports which are used and set the RF power you want; then click the button of “Config”.

3.4 Control board parameter settings

Control board parameter settings mainly involve UTC time, network communication address, firmware version, and other related content.



Click the drop-down menu of “Door Control” and select “Access Control Panel”, The following dialog box will pop up.



In “UTC Time” group, control board’s UTC time will appear in the Text box after clicking the button of “Query”; Click the button of “Synchronize”, the UTC time of Host will synchronized to the control board.

In “Network Port Setting” group, you can query and set IP address information of this control board. MAC address query is also supported.

In “Module Type” group, you can query current module type. The default protocol is CRP.

Firmware version query and upgrade is also supported. To avoid malfunction of the equipment, please consult the original factory staff before performing upgrades and configurations.



Click the button of “Recover”, all parameters will be restored to factory settings. Firmware, baseband software and hardware keep it the same.

3.5 Device parameter Setting

Click the drop-down menu of “Door Control” and select “Device Parameter Setting”, The following dialog box will pop up.



"Ir Setting" label mainly include triggering functions and entry and exit direction judgment functions, etc.

◆ Infrared function setting

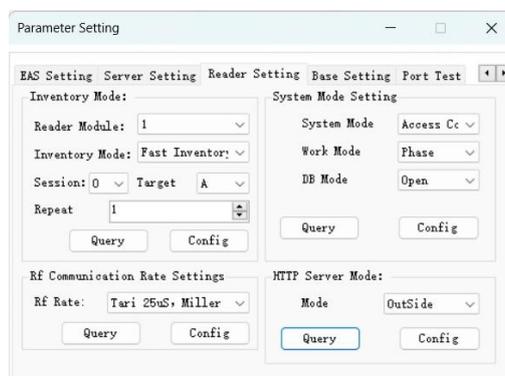
There are 2 pairs of infrared radiation sensors. When the state is set to "Close", triggering mode will turn off. When the state is set to "Open", when the infrared is blocked, it will trigger tag reading. In the drop down box of "Direction", "Out" and "Both" as optional. If "out" is selected, it will be triggered when someone pass through the gate reader from inside to outside, the opposite direction will not trigger. "Both" is recommended.

◆ Delay Time

This value represents reading duration after each trigger. 3~5 second is recommended.

◆ Infrared Entry And Exit Direction

This parameter is used to adjust the definition of inside and outside



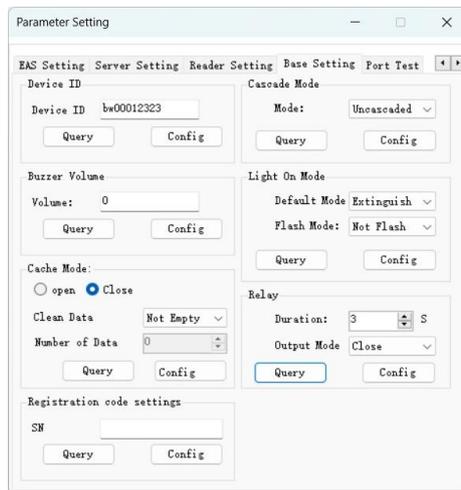
"Reader Setting" label mainly includes reader work mode and RFID work mode.

◆ Inventory Mode

These are mainly some parameters related to the EPC Global C1G2 protocol.

◆ System Mode Setting

These parameters are related to product types of Bowei. For general gate reader, System mode select "Access Control", Work mode select "Normal", DB mode select "Close"

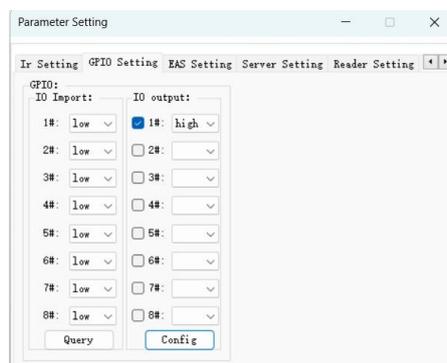


"Base setting" label mainly includes some basic operation.

As a network device, gate reader need a name (ID) except IP address. In this way, the management system can identify the device easily.

"Buzzer Volume" is used to set different alarm volumes according to different application environments. The range is 0~255, The higher the number, the louder the volume. Not all models of gate reader support volume adjustment.

"Light On Mode" is used to set light working mode.

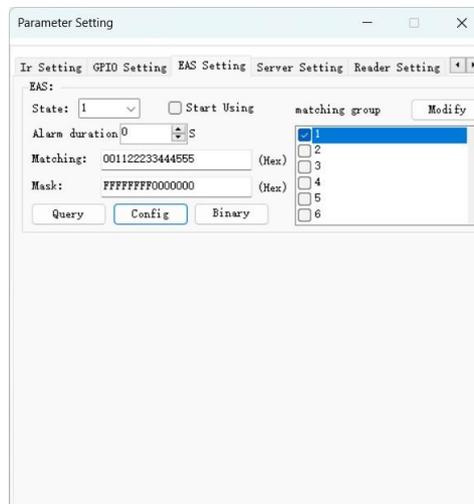


"GPIO Setting" label is used to inquiry GPIN and set the GPON of the gate reader.

Click the button of "Query", the status of the GPIN ports will display in the drop down text box.

GPIN 1 and GPIN 2 represent infrared radiation sensors which are fixed on the frame. Check the

check box of the GPO (Output) and select the value you want, then click the button of “Config” to set the ourput of the GPO. As shown in the picture, GPO1 represents the red light and alarm of the gate reader. GPO2 represents the blue light.



“EAS Setting” label is used to set a rule for EAS alarm.

The EAS function compares the EPC information of the electronic tag read with the matching bit set by the system, and then controls the alarm to alarm according to the requirements.

Check the check box of “Start Using” to enable the EAS function.

◆ State 1 (mode 1):

When there is only one matching group and the tag data is consistent with the match code, an alarm will be issued; which bit of data participates in the matching, the corresponding bit in the mask code needs to be set to 1. When multiple group of matching bits are checked, as long as any one of them If the group meets the matching requirements, the alarm will be issued.

◆ State 2 (mode 2):

The matching bit rules are: when the tag data is inconsistent with the set matching, an alarm will be issued; which bit of data participates in the matching, the corresponding position of the mask must be set to 1. When multiple group of matching bits are checked, as long as any one of them If the group meets the matching requirements, the alarm will be issued.

◆ State 3 (mode 3):

Alarm as soon as the label is read.

Chapter 4. Common troubleshooting

4.1 Power supply failure

Check whether the power supply of the power adapter is normal and whether the AC power supply voltage meets the requirements of 100V~240V.

4.2 Serial port communication failure

The serial cable is not connected or is not securely connected, make sure it is a direct serial cable.

Check whether the selected COM port is correct

Check whether the baud rate is 115200

4.3 Network communication failure

The default IP address of the reader is 192.168.1.201, make sure that PC's IP and Reader's IP are in the same network segment. For example, "192.168.1.XXX" can be connected to the reader.

For problems that users cannot solve by themselves, please contact after-sales.

Chapter 5. Accessories

5.1 Accessories

Accessories list form

Item	Description	Material code	Unit	QTY	Note
1	AC cable		1	pcs	Standard
2	Coaxial cable		2	pcs	Standard
3	4 core signal cable		1	pcs	Standard
4	Expansion Screws		8	pcs	Standard
5	Qualification Certificate		1	pcs	Standard

5.2 Storage requirements

The read-write module should have the following conditions for long-term storage:

☆ Storage temperature: -40°C~+85°C

☆ Storage humidity: 5%RH~95%RH (non-condensing)

Chapter 6. After-sales service

Notice

Our aim is to continuously update our products, and if there are differences between the characteristics, composition and design of the product, this instruction manual and the equipment actually provided, we will provide a corrected sheet in a timely manner. If you fail to provide the corrected attachment in time, please consult the after-sales service.

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