# Fixed UHF RFID Reader
# SIR7223
# Hardware User Manual

Serial No.：20220409001
Version：V1.0
Date：2022/04/09


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## Revision History

| File Number | Version Number | Modified By | Modified Date | Revision Reason | Revision Contents |
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| | V1.0 | | 2022-04-09 | | None |
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# Contents

# Chapter 1 Abstract

This series of products adopts an industrial-grade design and uses a unique ARM7 control board.

It has a network port (POE function), RS232, 4-way antenna interface, 4-in and 4-out GPIO ports (one of the outputs is a relay), and has strong driving capability, and can directly drive peripherals such as indicators and alarms.

It has compact structure, easy installation and stable performance, and is suitable for various industrial applications.

# Chapter 2 Electric Parameters

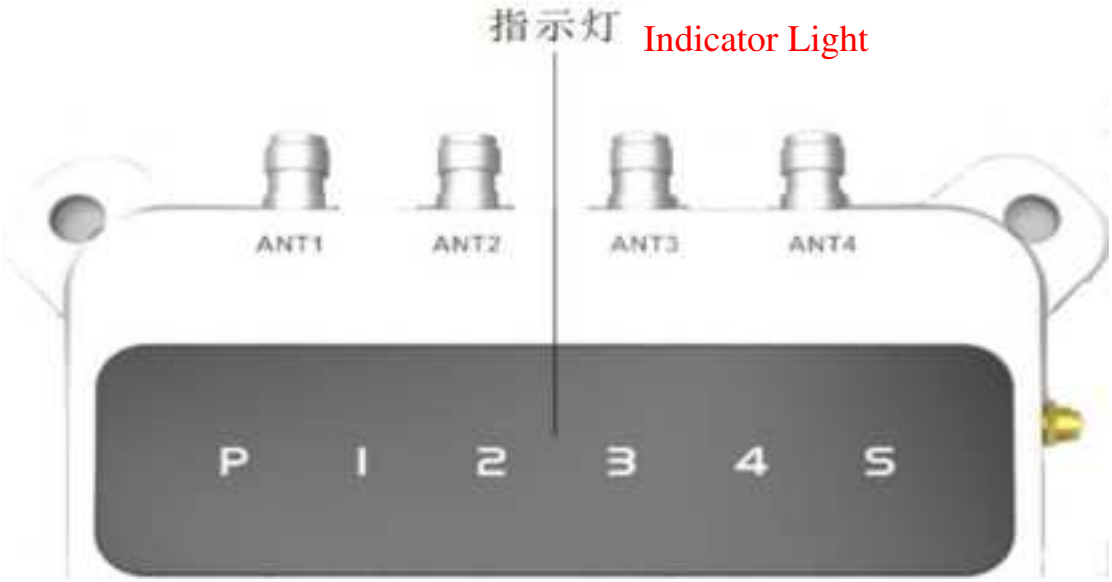
| | |
|---|---|
| **Air Interface Protocl** | |
| Protocol | EPC Class 1 Gen 2（ISO18000-6C） |
| **RF Parameters** | |
| Antenna Connector | 4 TNC reverse-female connector |
| RF Output | 5dbm to 33 dbm（2W）±1dbm<br>4 antenna connectors can be adjusted independently |
| Frequency | FCC： 902-928MHz<br>ETSI： 865-867MHz<br>CN： 920-925MHz<br>Open Band：860-960MHz<br>(TELEC version, RCM version waiting for update) |
| **Hardware Structure** | |
| CPU | ARM7 |
| RFID Chip | E710 |
| **Hardware Connector** | |
| Network port | 10M/100M Adaptive network port |
| Serial Port | RS232 Electric level |
| Wireless Port | WIFI / 4G<br>2.4GWIFI: IEEE 802.11b/g/n,OPEN/WEP/WPA/WP |
| Indicator Light | Power indicator, working Status indicator |
| GPIO | 4 input<br>3 high drive output（300mA）<br>1 relay connector |
| **Power Supply/Consumption** | |
| Power Supply | 9-24V standard adaptor 12V/3A<br>POE power supply 802.3af or 802.3at |
| Power Consumption | Stand by： 1.6W<br>Working: 10W (MAX) ; 10.8W（4G） |
| POE Power Supply | 100 meters of Category 5e network cable, there are deviations in different models of POE switches.<br>Use 803.af do power supply, max. Load 13.8W<br>Use 803.at do power supply, max. Load 17.5W |
| **RFID Performance** | |
| Reading Speed | ＞900pcs/s |
| Reading Distance | ＞13meters, with 8dbi aluminum board antenna<br>Write distance is half of the reading distance<br>The specific value is affected by the performance of the antenna and tag. |

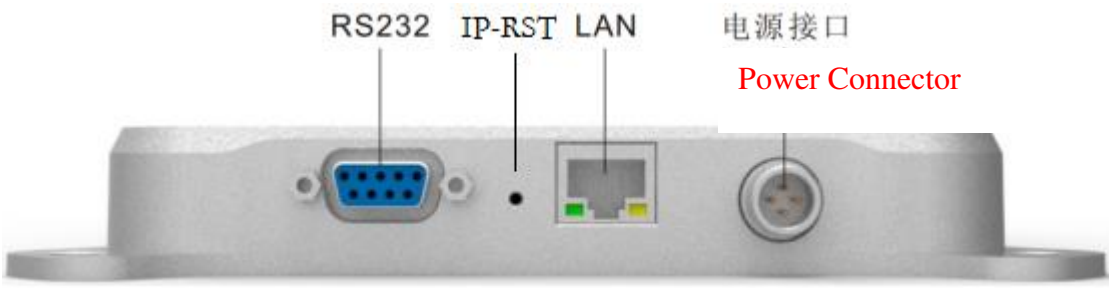
| **Environmental Parameters** | |
|---|---|
| Working Temp. | -25℃ — +65℃ |
| Storage Temp. | -40℃ — +85℃ |
| Humidity | Relative Humidity: 5-95% non-condensing |
| **Safety** | |
| Adaptor | Air discharge: 8KV,<br>touch discharge: 6KV,<br>Surge Immunity: 4KV,<br>EFT: 2KV |
| Reader | touch discharge: 6KV，EFT:2KV |
| **Dimension** | |
| L*W*H | 183.4 mm × 174.4 mm × 25 mm |

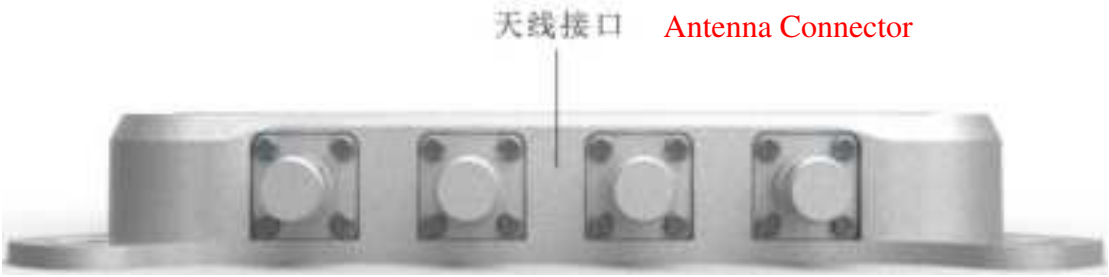
# Chapter 3 Hardware Instruction

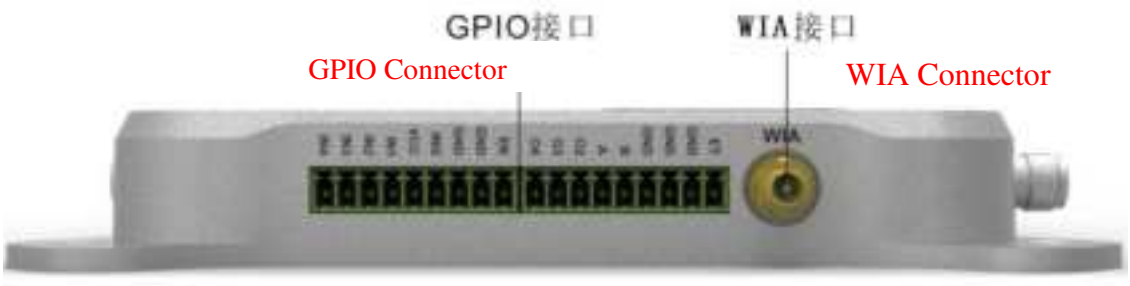
## 3.1 Product Appearance


## 3.2 Connector Instruction



SIM card/TF card slot on the bottom of the reader

| **GPIO Connector** | Description |
|---|---|
| IN1-IN4 | GPIO input, Ground is ING, Input power range: 0-24V<br>Input power: 3.3-24V, logic electric level is 0<br>Demo app, GPIO control interface get GPIO status, don't tick<br>☐ GPI1 ☐ GPI2<br>☐ GPI3 ☐ GPI4<br>Input Power Voltage: 0-0.7V， logic electric level is 1 (default)<br>Demo app, GPIO control interface get GPIO status, tick<br>☑ GPI1 ☑ GPI2<br>☑ GPI3 ☑ GPI4 |
| ING | GPIO input refers to ground，need to connect to GND |
| VCC | Supply 12V power in reader internal, max. current 0.3A |
| GND | Ground |
| O2-O4 | GPIO output, output voltage range: 0V-VCC,<br>Each output IO port has an internal 3K resistor pulled down to ground.<br>Current pulling capacity: single channel maximum 0.3A<br>☑ GPO2 ☑ GPO3 ☑ GPO4<br>DEMO app, GPIO control interface get GPIO tick 1,output high electric level（VCC）<br>☐ GPO2 ☐ GPO3 ☐ GPO4<br>DEMO app, GPIO control interface get GPIO untick 0,output low electric level（default） |
| A / B | Normally open relay contacts A and B<br>Drive performance：3A/50V/AC 3A/30V/DC<br>Response time: <10ms<br>Relay life time：100 thousand times<br>Set and control via DEMO app OI.<br>DEMO app, GPIO control interface get GPIO untick, set 0<br>A,B disconnect （default）<br>☐ GPO1<br>DEMO app, GPIO control interface get GPIO tick, set 1<br>☑ GPO1 |

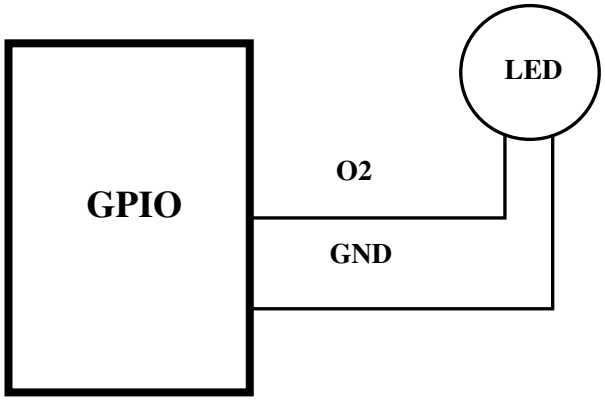
| | |
|---|---|
| | A / B Short |
| ET / ER | Debug debug, RS232 electric level<br>ET: Debug TX<br>ER: Debug RX |
| SIM card<br>TF card | Make sure power off, open the card slot<br>SIM card: Supports the use of standard SIM cards<br>TF card: class 4 TF, max. storage: 16GB |

| Other Connector | Description |
|---|---|
| IP-RST | IP reset button, Press and hold for 5 seconds. |
| Indicator light | P: power indicator light, Nor: light and hold<br>S: status indicator light, Nor: light and hold, Err: flash |
| WIA Connector | RF Antenna Connector TNC reverse |

## 3.3 GPIO Cable Connection Description

### 3.3.1

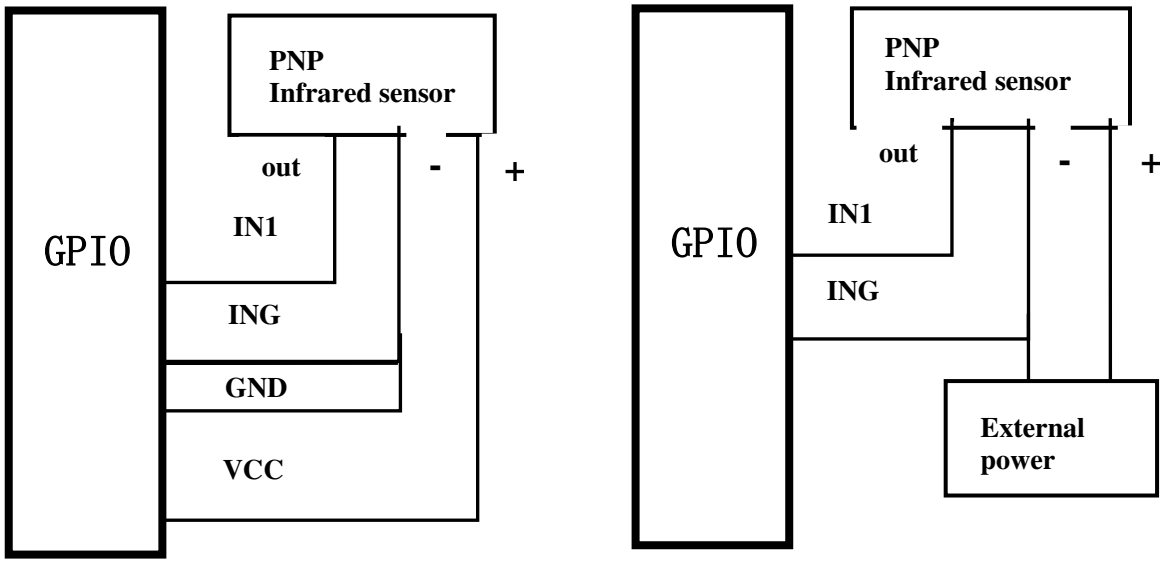
The driving capacity of the GPO port can reach 0.3A, which can directly drive relays, common cathode alarm lights, and alarms. It is recommended to use a DC 12V, no control line, common cathode alarm light.




GPO2 drive alarm light directly

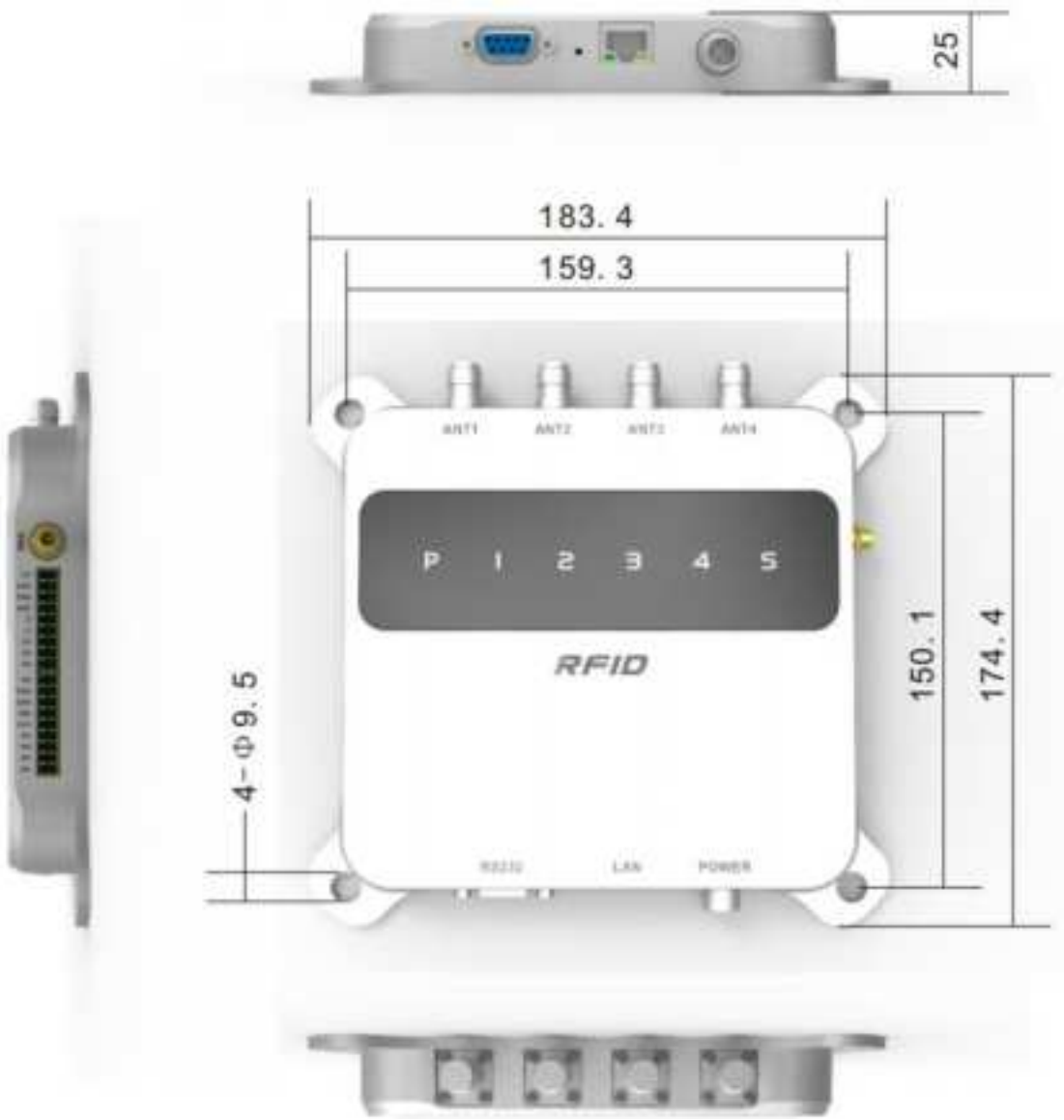
3.3.2

Infrared distance sensors are generally divided into two types: NPN and PNP. They have one output control line, two power lines, and one mode control line. If the IN port is connected to an infrared distance sensor, it is recommended to use a 12V PNP type infrared sensor.




The device power supply powers the infrared sensor.
The external power supply powers the infrared sensor.

3.4 Dimension
(unit:mm)



# Chapter 4 Connection

## 4.1 IP Reset

Press and hold the button inside the IP-RST reset hole for more than 5 seconds, then release it. The system will restart. Wait about 10 seconds for the reset to be completed.

After IP reset, the status is wired network connection mode. After IP reset, the network parameters are as follows:

IP address :192.168.1.100
Sub-net Mask :255.255.255.0
Gateway :192.168.1.1

## 4.2 Connection

Power on the device and connect it through a network cable or serial cable. The default IP address is 192.168.1.100 and the mask is 255.255.255.0.
In the LAN, ensure that the computer IP and device IP are in the same network segment.
Use the corresponding demonstration software to connect and operate the reader. When connecting, select 4 as the number of antenna ports.
For specific function operations, please refer to the DEMO app instructions.

FCC Warnning:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection againstharmful interference in a residential installation. This equipment generates, uses and can radiateradio frequency energy and, if not installed and used in accordance with the instructions, maycause harmful interference to radio communications. However, there is no guarantee thatinterference will not occur in a particular installation. If this equipment does cause harmfulinterference to radio or television reception, which can be determined by turning the equipmentoff and on, the user is encouraged to try to correct the interference by one or more of thefollowing measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1)This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 25cm between the radiator and your body.