

# **SR 9 SERIES READER**

User manual

# Contents

|   |           |
|---|-----------|
| <b>FIRSTLY . SR 9 SERIES READER READER BRIEF INSTRUCTION.....</b>         | <b>3</b>  |
| 1. SR 9 SERIES READER READER USE.....                                     | 3         |
| 2. SR 9 SERIES READER READER MAIN FUNCTIONS .....                         | 3         |
| 3. SR 9 SERIES READER READER TECHNICAL PARAMETER .....                    | 3         |
| <b>SECONDLY. SR 9 SERIES READER READER’S INTERFACE INSTRUCTIONS .....</b> | <b>4</b>  |
| 1 READER’S INTERFACE INSTRUCTIONS .....                                   | 4         |
| 2 TAG OPERATIONS .....  | 5         |
| 3 WORKING MODE.....   | 5         |
| 4 BORDER IDENTIFICATIONS.....   | 6         |
| <b>THIRDLY . SR 9 SERIES READER READER’S DISPLAYING .....</b>             | <b>6</b>  |
| <b>FOURTHLY SR 9 SERIES READER DEMO SOFTWARE INSTRUCTIONS .....</b>       | <b>9</b>  |
| <b>FIFTHLY SR 9 SERIES READER THE SECOND DEVELOPMENT .....</b>            | <b>10</b> |

## **Firstly . SR 9 SERIES READER Reader Brief Instruction**

The products can be compatible with multi-protocol, integrated design ,quickly read, multi-tag read, water-proof, can be used widely in RFID systems, the mainly applying site is:

1 Logistics and warehouse Management: Goods flow, warehouse management, and the flowing management of mail, parcel, luggage.

2 Intelligent parking Management :Parking management and automatic charge

3 Productive lines Management: Production process fixed identification

4 Product counterfeit-proof inspection: Using memory's write-protect functions inside tags, and identifying with true-false of products

5 Other fields: Used widely in club management, library, student's school, consumption management,time management, dinner management, pool management

### **1. SR 9 SERIES READER Reader use**

It can be used goods identification and data gather, making use of good speciality ,specially in following field can be used widely

1) Transport management: Road, railway, container management and so on

2) Motor vehicle management: Police and transportation department manage and control all types of motor vehicle

3) Passing –bridge charge: As the product can read tag data with long-distance .so can charge when vehicle do need to stop..

4) Customs management: Customs through and transfer' goods and vehicle management

5) warehouse and logistic management: Goods flows ,warehouse management and mailing, package, airline luggage's flowing management

6) Parking management: realizing management and charge automation

7) Door-control management: including vehicle and personnel entry/exit management

8) Arts producing line: Monitoring parts in whole production

### **2. SR 9 SERIES READER Reader main functions**

1) Arousing tag: Only tag that be aroused can transmit with reader ,prevent disturbing Of other tags outside systems, ensure news changing credibility and exactly of readers can systems

2) Reader tag data: Not only can read tags'ID ,but also can read data in appointed tag storage area; Not only can read only one tags' data, but also can read at the same time multi-tags' data during antenna range

3) Write into tags data :it can write into data in appointing tag stored area

4) It can connect directly control facility with standard weigand26,34 interface ,no need develop, use simply

5) Connecting controller and PC by standard communication interface ,doing data communication and exchange ,offer SDK to further develop

### **3. SR 9 SERIES READER Reader technical parameter**

1) Frequency Range: ISM 902.5~927.5MHZ (FCC)

2) Read card distance: can adjustable range:1-12M

- 3) Read card sensitivity: double-polarization read card mode
- 4) Read card time: Single-tag 64 bits ID number read timing<6ms
- 5) Working voltage:DC 5V
- 6) Working temperature: -20°C ~ +80°C
- 7) Storage temperature: -40°C ~ +125°C;

## Secondly. SR 9 SERIES READER Reader's interface instructions

### 1 Reader's interface instructions

#### 1.1 RS232

Reader offer RS232 communication interface ,used in communication connect with controlling mainframe (PC is popular).RS232 interface' data format is 8 data bits , one is the first bit ,one is the stopped bit, no check bit; Data frequency can choose 9600,19200,38400,57600 and 115200.RS232 communication interface support reader parameter display, demo ,and all the second SDK

#### 1.2 RS485:

DRF series A and B reader offer RS485 communication interface,RS485 can connect PC's interface, using RS232-RS485 switcher to switch ,In this mode,RS485 interface can support all supported RS232 functions. In addition, RS485 is also tag data output interface, when using RS485 interface upload tag data, can choose 3 transmitted mode:

Active uploading: Uploading data at once when reader read tag

Passive uploading: Non-uploading data when reader read tag ,and waiting for mainframe's order to read data

Responding transmission: when reader read a tag ,reader will upload tag data again and again in a 10 second space, until receive mainframe orders

Reader RS485 uploading data format as follows :

|      |           |          |         |                |      |        |
|------|-----------|----------|---------|----------------|------|--------|
| SOF  | Add       | Add      | Antenna | Tags data      | EOF  | Check  |
| 0x02 | high byte | Low byte | 1 byte  | 8 byte (ASCII) | 0x03 | 1 byte |

There into, the mode of checking is all bytes' different check

Mainframe data Command farmat as follows

|      |          |        |       |         |      |
|------|----------|--------|-------|---------|------|
| SOF  | Identify | Module | Add   | Command | EOF  |
| 0x09 | 0x5B     | 1byte  | 1byte | 0x83    | 0x0D |

Mainfram's response frame when receiving data

|      |          |        |       |         |      |
|------|----------|--------|-------|---------|------|
| SOF  | Identify | Module | Add   | Command | EOF  |
| 0x09 | 0x5B     | 1byte  | 1byte | 0x82    | 0x0D |

#### 1.3 Wiegand interface

Reader offer weigand data interface, user can choose Wiegand 26/34 Communication agreement. The two agreement's data format as follows.

Table 1 Wiegand26 format

|    |          |         |    |
|----|----------|---------|----|
| P0 | Front 12 | Back 12 | P1 |
|----|----------|---------|----|

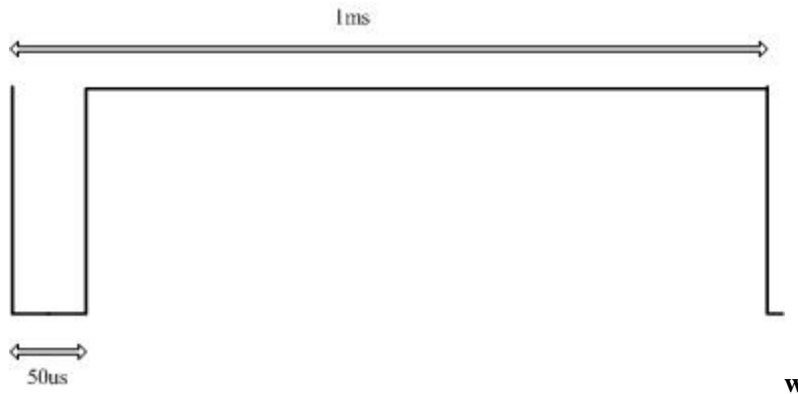
Thereinto, P0 is even front 12,P1 is odd back 12

Table 2 Wiegand34 format

|    |          |         |    |
|----|----------|---------|----|
| P0 | Front 16 | Back 16 | P1 |
|----|----------|---------|----|

Thereinto,P0 is even front 16,P1 is odd back 16

Wiegand interface comprise of three lines, one line shows “0”, one shows “1”,another shows ground lines. each data’s typical format as follows. Certainly ,user can set Weigand interface data format according to controlling machine’s detail demand



Picture 3 Weigand Signal Shows

In order to improve the reliability of data transfer, the reader offer multi-output functions. Namely when read a tag, weigand interface will transfer many times’ the tag data at regular intervals.. Reading times can be 1-3 ,transferring intervals can set in setting software

## 2 Tag operations

### I ISO18000-6B Tags :

- Multi-tags identifying: Searching all tags in antenna radiated range ,and read theirs 8 bytes UID
- Multi-tags reading: Searching all tags in antenna radiated range, and read theirs 8 bytes data
- Single-tag writing: Writing into a byte’ data in appointed tags’ address
- Single-tag locking: Locking appointed tag address’s data. When the address is locked ,will not be revised
- Single-tag locking Inquiry:Inquiring appointed address’s locked state

### II EPC GEN2 (ISO18000-6C) Tags

- Multi-tags identifying: Searching all tags in antenna radiated range, and read its EPC,EPC Gen 2 Length can reach to 256 bits at the longest ,nowadays can support 96 bits
- Single-tag initializing: Defining tags’ EPC length, generally is 96 bits
- Single-tag: Writing into tags’ EPC, Each time can write 16 bits
- Single-tag locking: Locking tags’ EPC. When are locked, tags’ EPC cannot be revised
- Single-tag destroying: Destroying tags, when be destroyed, the tags cannot be used again

## 3 Working mode

### I COMMAND:

In this work mode, reader work under the control of PC machine and other controller. Between reader and controller can communicate with RS232.RS485 or Internet interface. This work mode support the second development’s all functions

### II TIMING READ:

Reader can read card automatically by certain cycle (can collocate), data that have been output by appointed communicated interface. The operation for tags of the mode sign “only read”

### III TRIGGER READ:

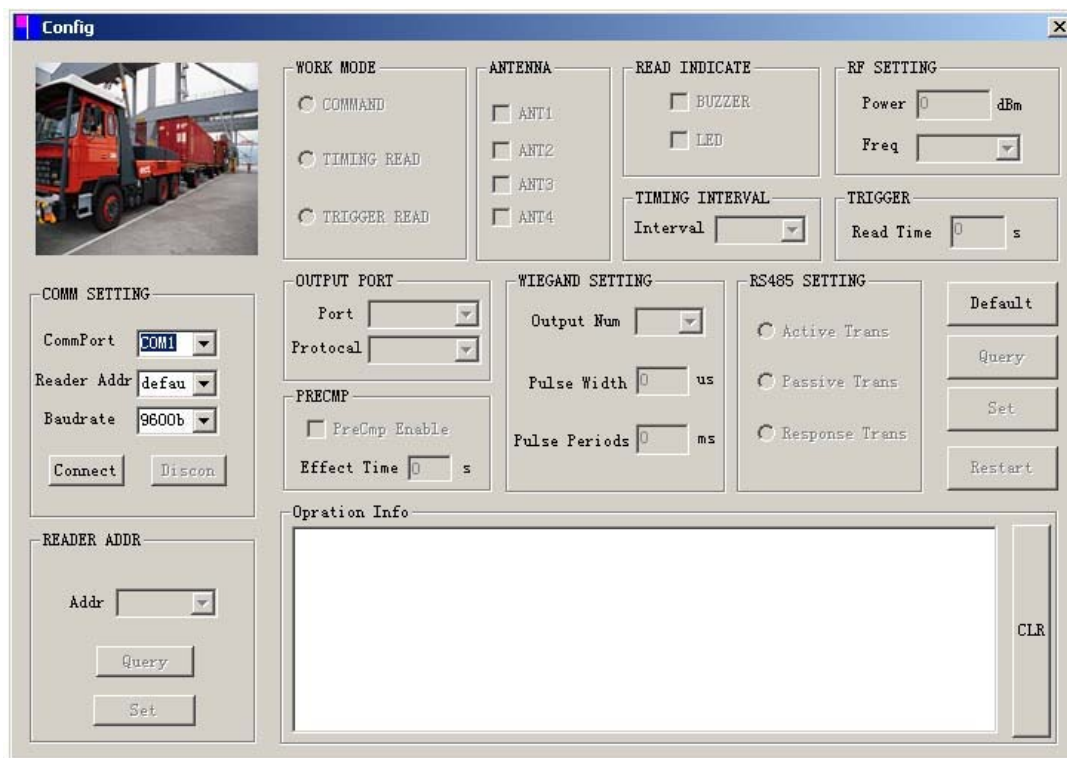
When trigger put into low power supply, reader begin to read card periodically, after a while will close automatically

## 4 BORDER IDENTIFICATIONS

Border identifications is designed for just reducing redundant problem when reader upload data. if you choose this function, when reader read the same tags in many continuous read ,only can upload a set of data. Border identifications can choose effective time, namely if adjoining the twice read time space exceed effective time ,will not operate boader identifications. User should choose according to detailed requirements.

### Thirdly . SR 9 SERIES READER reader’s Displaying

The company offer Config.exe program, used in reader’s work parameter’s displaying .Parameter displaying program interface as follows:

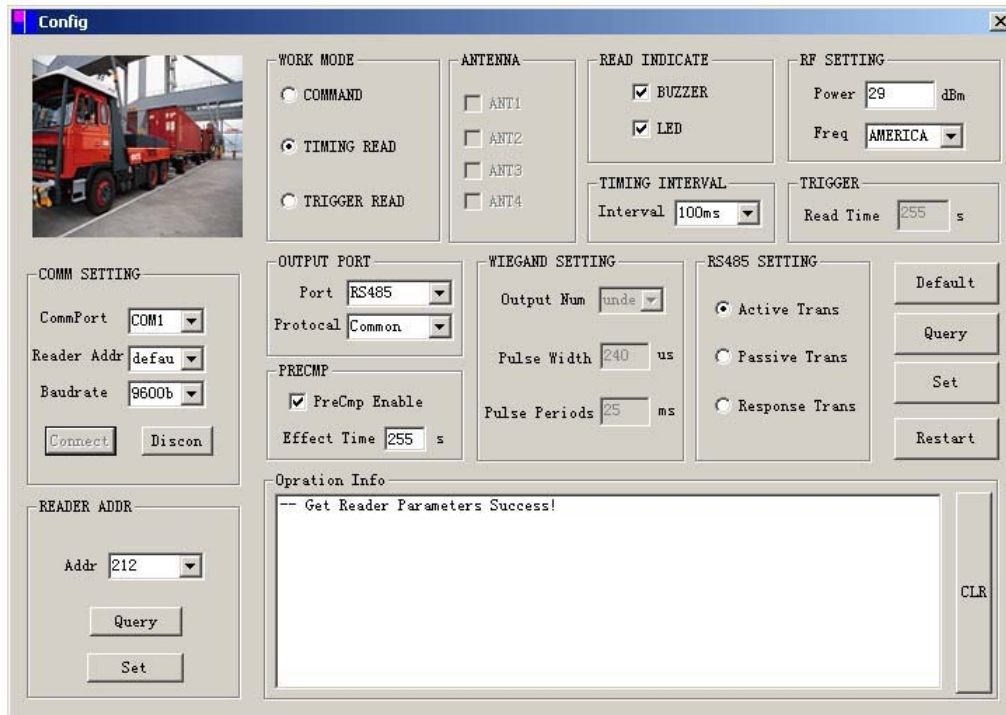


Picture 4 Displaying software interface

#### 1) Port displaying

Port displaying includes port choose, baud rate display and reader’ address choose. Reader’s address from 1-240 ,only choose correct address, the reader can build communication connection. In addition, you can choose “default”, is effective to all reader. After .Clicking “connect” button, PC machine and reader build communication connection

when software and reader connect ,timely automatic read out reader’ current work parameter, interface is as follows after connecting:



Picture 5 Displaying interface

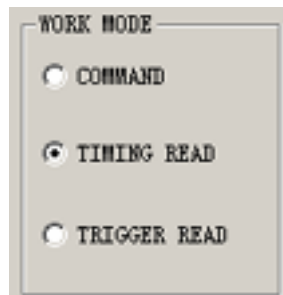
**2) READER ADDR revising**



Picture 6 Displaying interface

If need revise reader'address,choose new address below reader address revising item's frame,click "set"button,then revising is succussful.New address is effective when reader replace

**3) WORK MODE CHOOSE**



Picture 7 Displaying interface

User can display reader'work mode by chart 7 ,When choose COMMAND,reader can display radio

frequency and antenna(multi-port),other parts become gray.when choose timing and trigger mode,reader can be displayed for radio reQUENCY parameter,timer parameter,communicate interface parameter.When choose trigger mode, also can display for trigger' parameter,will explain below words

**4) RF SETTING**



Picture 8 Displaying interface

User can set reader's frequency power and frequency according to application needs.The largest power parameter can set as 30dBm.Radio frequency can choose 920MHz~925MHz or 902MHz~928MHz,other frequency need to customize.

**5) ANTENNA DISPLAY**

When use multi-port reader, can choose antenna. You can choose related antenna ,then shows starting this antenna

**6) READ INDICATE DISPLAY**

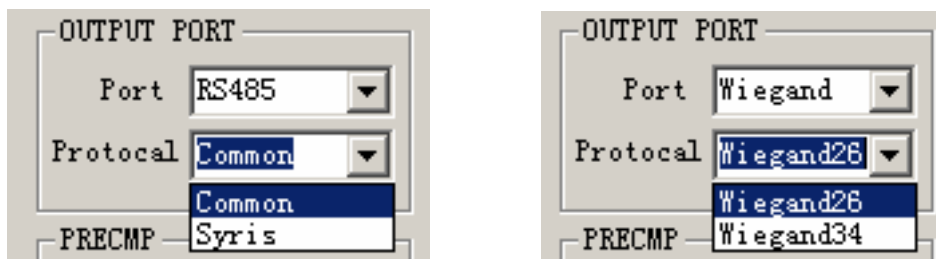
Reader can choose BUZZER and LED reading indications ,user also choose according to needs

**7) TIMING INTERVAL DISPLAY**

This includes reader tag frequency setting (namely timing cycle) and boader identifications. Timing cycle can set as 10ms~1000ms.User can choose boader identification, and can do setting for boader identification effective time, when no need set effective time, this can choose "0"

**8) Communication parameter settings (OUT PORT)**

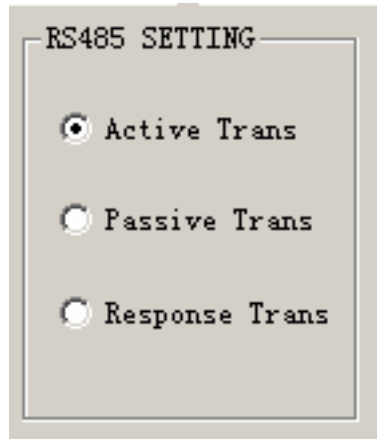
Set data output communication interface and its communication agreement. When choose RS485 communications interface, can choose Syris agreement and common transfer agreement. Common transfer agreement's format as before said , syris agreement can reference syris controller related messages. When choose Wiegant interface, can choose Weigand26 or Weigand34 agreement.



Picture 9 Displaying interface

**9) RS485 PARAMETER SETTING**

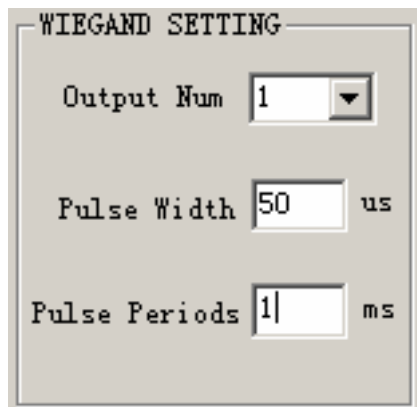




Picture 10 Displaying interface

When choose common 485 transferring format,user can choose active upload, passive upload, response transferring,RS485' transfer speed is 9600bps;When choose Syris agreement to transfer, please choose 485 passive transfer format .Syris agreement transfer speed is 19200bps

#### 10) Wiegand setting



Picture 11 Displaying interface

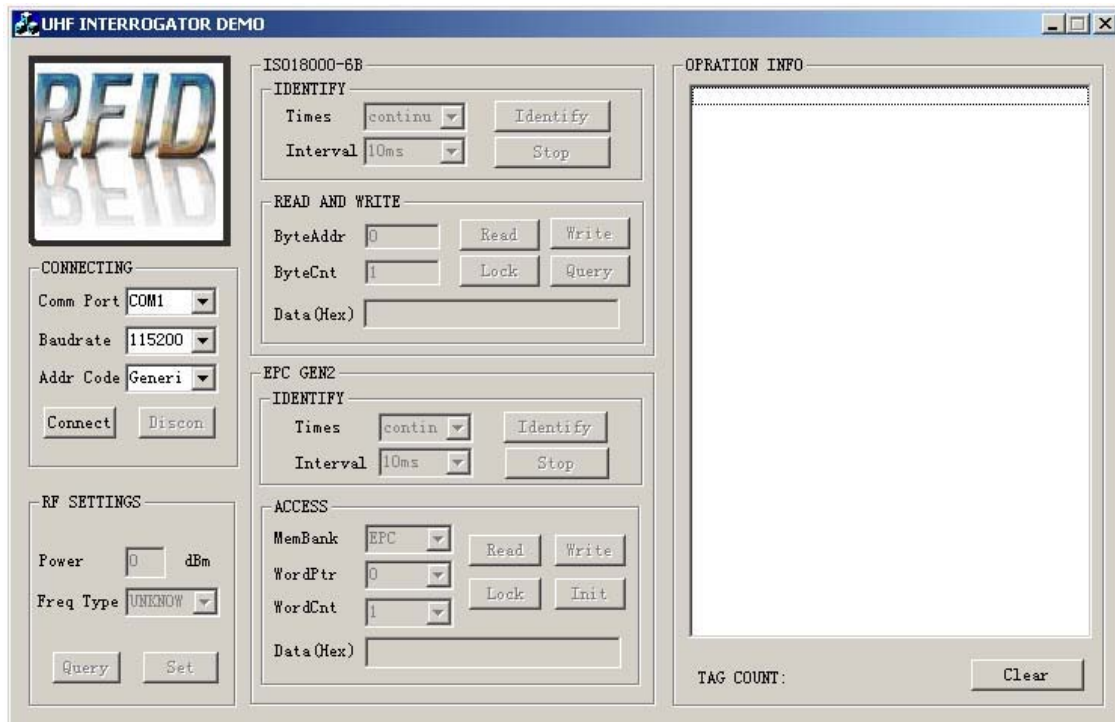
Chart 11 is used to set Wiegand interface's parameter. Setting content are: Wiegand output time and signal format. Wiegand signal format need setting Wiegand pulse width(shows low pulse width) and pulse periods(shows a date's time)

When all functions are choosed ,click "SET" button. When set successfully, parameter will make effect after reader reposition. User can click "Restart" button ,then reader can make repositions

### Fourthly SR 9 SERIES READER Demo Software Instructions

The demo program of the reader provides the contend of all kinds of operation to the tag and parameter setting of radio frequency Users can evaluate the function of the function of the reader through this demo program, of consider to make the second exploitation of the reader.

The demo program of the reader includes "DEMO exe" and "MR915ApiV10.dll"Please put this two parts in the same file catalog ,then double click ,it will begin to circulate ,the interface is like the following picture indicated.



Choose the COM communication port and baud rate you use, and choose the right reader address. Click "Connect" to establish connection with the reader .After successful connection, the right and left information frames will indicate the successful connection and the edition NO. of the reader firmware. And you can operate all demos

## **Fifthly SR 9 SERIES READER The Second Development**

Users can make the second exploitation to the application software reader according to the need. .We provide the exploitation bag basis on the C language ,which supports the environment of VC++,vb, and C+Buider and so on .Please make reference to the <<reader SDK instruction>>about the use of exploitation tag.

**FCC STATEMENT**

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 UNDESIRE OPERATION.

NOTE: 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 against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following 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.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.