



## **UHF Reader User Manual**

2E-2656  
2E-2657

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## 1. Model Parameter:





Model	2E-2656	2E-2657
Picture		
Interface	RS232/485	RS232/485
Sensing Distance	1-6m	1-15m
Frequency	860-960mhz	860-960mhz
Working Temperature	-20°C -+80°C	-20°C -+80°C
Working Humidity	20% -95%	20% -95%
Size	227*227*60MM	450*450*70MM
Voltage	DC12V/300MA	DC12V/300MA
Output Format	Wiegand 26/34	Wiegand 26/34
Waterproof	IP66	IP66
Related Tag	2E-HFWSPE	2E-HFWSPE

## 2. Model Package:

In the package include one reader, 1 RS232 Serial port, 12V adapter and the antenna bearer. When you open the box, please check the spare parts, if with any question, please contact distributor or sales department.

See below picture for the inside package and separate products picture(2E-2656).



Description	Picture
Device	
RS232 Serial Port Cable	
12V Adapter	
Antenna Bearer	

### 3. Wiring Diagram:

Wire No.	Color	Function	Description	Model
1	Red	DC9-15V	Positive	2E-2656/57
2	Black	GND	Negative	2E-2656/57

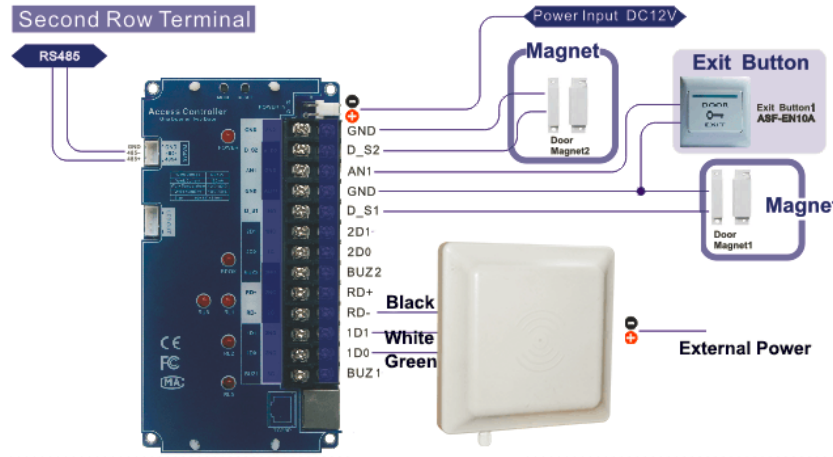
3	White	Data1	Wiegand D1	2E-2656/57
4	Green	Data0	Wiegand D0	2E-2656/57
5	Yellow	TXD	RS232 PIN2	2E-2656/57
6	Brown	RXD	RS232 PIN3	2E-2656/57
7 Blue	GND	RS232 GND	PIN5	2E-2656/57
8	Grey	Trigger	/	2E-2656/57
9	Orange	485+	/	2E-2656/57
10	Purple	485-	/	2E-2656/57

TCP/IP UHF reader without Grey, orange and purple cable.

### 3.1 Example with Anson Controller

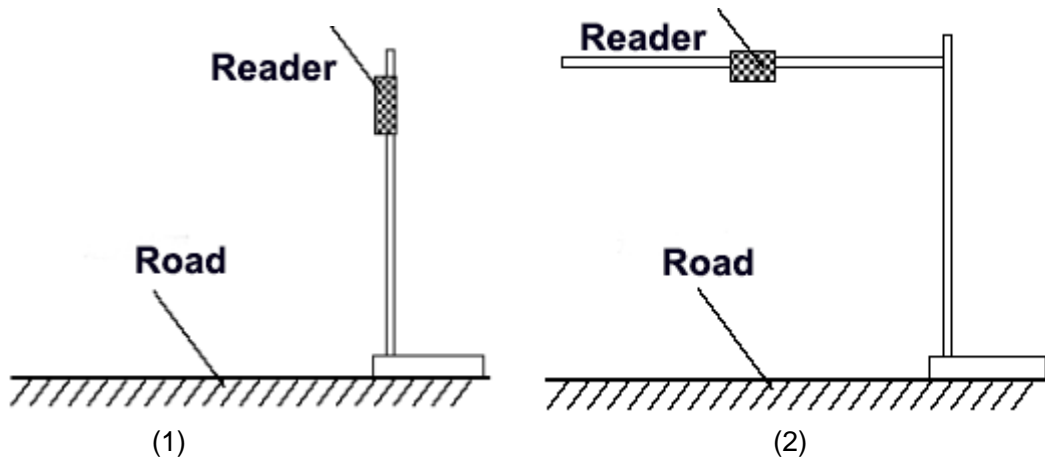
### 3.2 Connect to Ground:

In case you use the external power supply for the UHF reader, then you must have a common ground with controller, or will cause unknown problems.



### 4. Installation:

In general there are two installation ways of UHF reader, see blow picture 1 and 2.



Installation 1 will be easy for installation, but distance will be less than installation 2, installation 2 will be more difficult for installation.

#### 4.1 Installation 1 example:



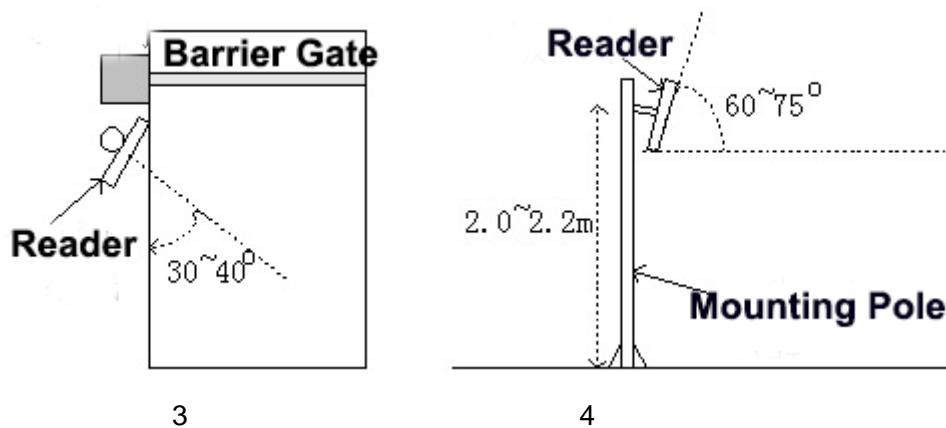
#### 4.2 Mounting reader and height adjustment

For installation 1, the mounting pole diameter should be 50-60mm, height should be 2.2m, we suggest to use the stainless steel material(thickness greater than 1.2mm), use the bearer inside the reader box to fix into pole top, and adjust the height from reader center position to road according to vehicle type, in general the height is 1.8-2.2m.

For installation 2, the L type mounting pole diameter should be 60-80mm, the cross beam diameter should be 50-60mm, and we suggest to use the stainless steel material (thickness should be 1.2mm-2mm). Use the bearer inside the reader box to fix into pole top and adjust the height from reader center position to road according to vehicle type, in general the height is 3.5-4m.

### 4.3 Reader Installation Angle Adjustment

See below picture 3 and 4 for reference adjust angle for reader.



### 4.4 Installation Example-Parking Lot

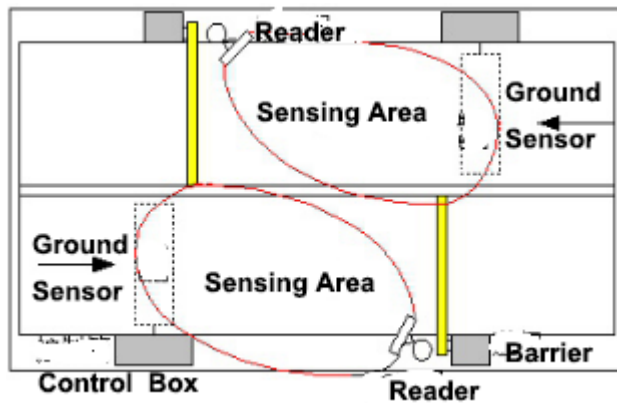
Principal to install the reader:

- (1) Reader and barrier gate linear distance no go across 1m.
- (2) Between reader and tag, no items covered.
- (3) Distance between reader and control panel or PC distance we suggest as closer as possible and install shielded communication cable.
- (4) For detailed installation please according to real situation.

Reader close to barrier, and make sure the sensing area can cover the ground sensor,

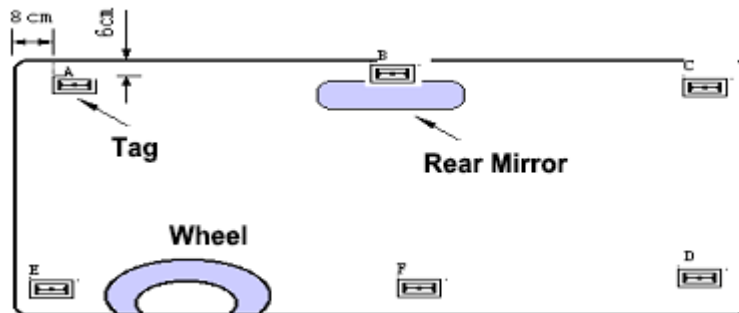
2E-2656 is 1-6m, 2E-2657 is 1-15m. And the vehicle speed should less than 15km/h.

See below picture.



#### 4.5 Tag position in vehicle

In general, the parking devices are installed in the left side of the lane, then the tag should be stick in the position of below picture showed. For small vehicle, we suggest A, B and C position, for big truck or big bus, we suggest D, E and F position. The principal of the tag position is not cover the eyesight of driver.



**Suggest Position:** If reader install in left side, then suggest A and E position. If reader install in the top, then suggest B and F, if reader install in right side, then we suggest C and D position.

#### Tag installation when vehicle windshield with metal UV film:

- (1) Original UV film: According to European standard, Position B will reserve



120m\*70mm space(no contain metal) for RFID stickers. When install the tag, just install in the B position.

(2) Self-stick UV film: Cut a space 120\*70mmm special for RFID stickers.We suggest B,D or E position.

(3) Use anti-metal tags, install in the car license plate.

(4) Manual hold the RFID card to read.



Correct Hold Card



Wrong Hold Card

## 5. Application:

- (1) Transport Control:
- (2) Vehicle Management
- (3) Parking Management
- (4) Access Control Management
- (5) Product Anti-fake Detection
- (6) Anti-thief Management

## 6. Quick Start for Software

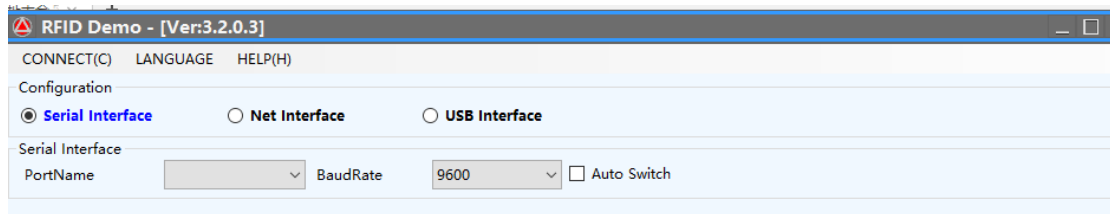
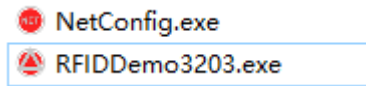
The UHF reader with software to read and write the tags and cards, as well to adjust the basic parameter of the reader.

### 6.1 Connect reader With PC

There are two mode of reader, one is TCP/IP and RS232 communication, the other is RS232 communication only.

## 6.1.1 RS232 Communication

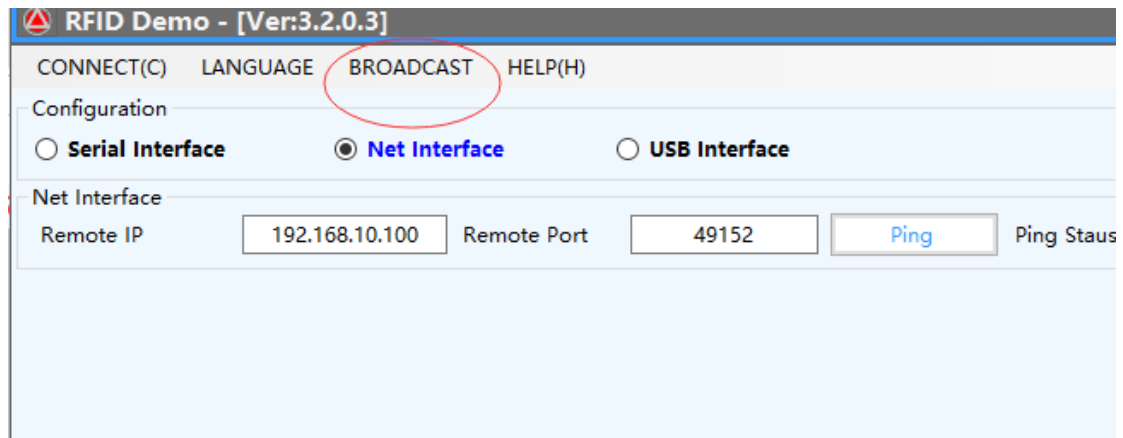
There are two client in software package, one is RFIDDemo3203.exe other is Netconfig.exe. For RS232 communication device, just open RFIDDemo3203.exe client. See below.



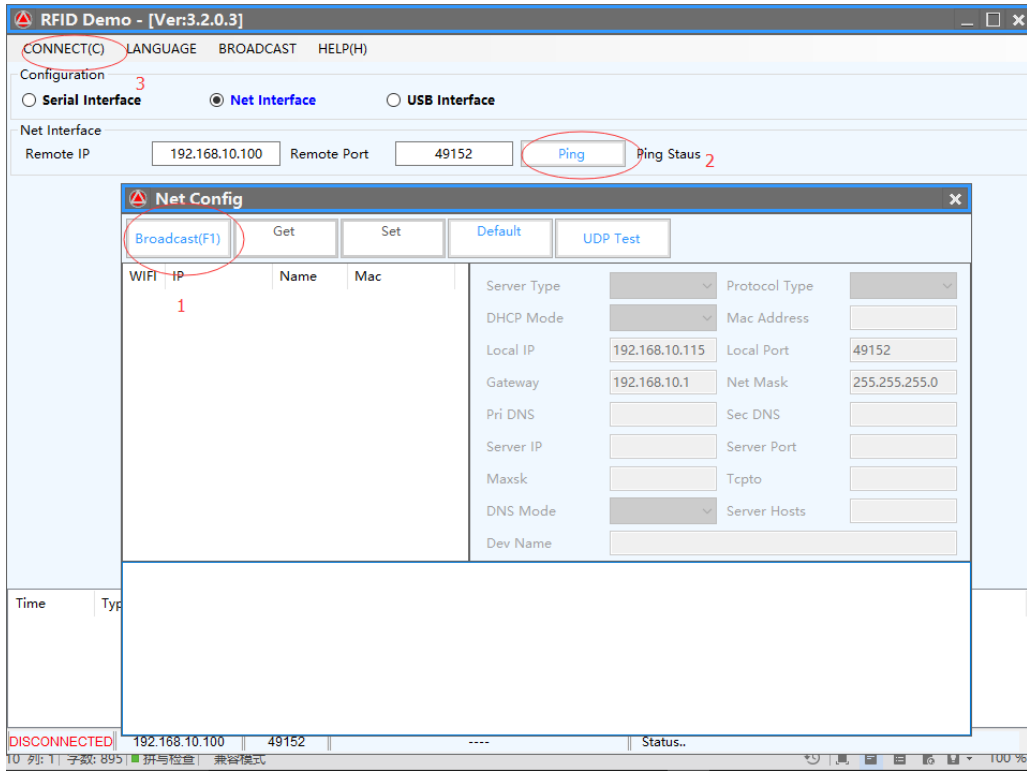
Please ensure serial port of reader connect with PC, and select correct port in PC, then select baud rate, then click connect.

## 6.1.2 TCP/IP Communication

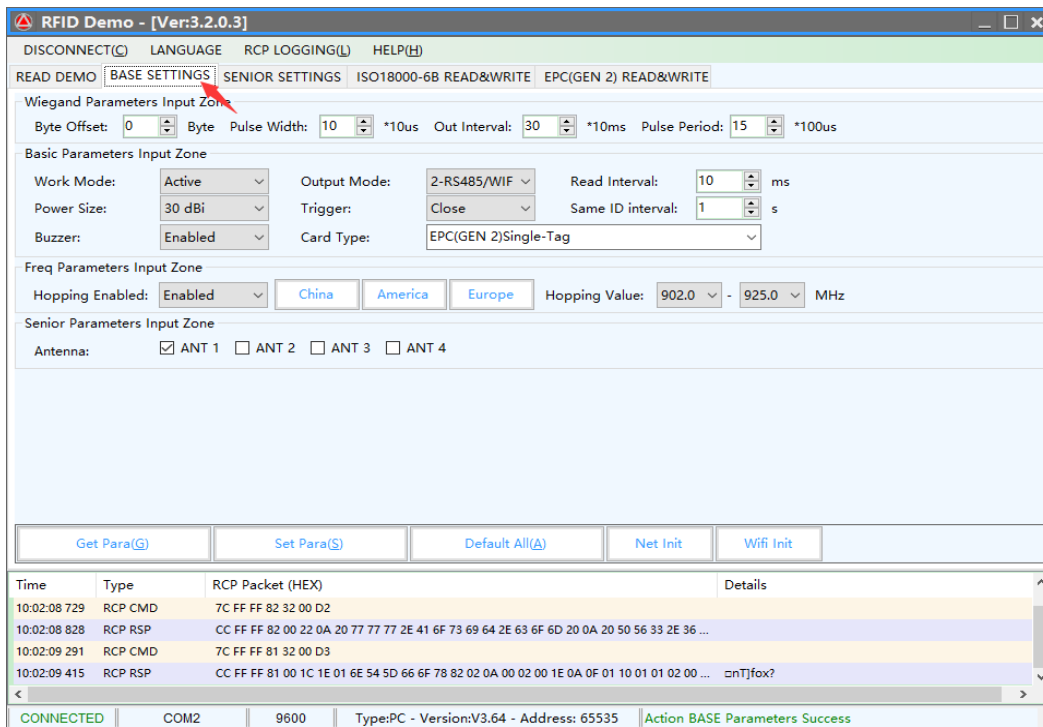
For TCP/IP communication, you need open two client, Netconfig.exe and RFIDDemo3203.exe. Netconfig.exe to get the IP address and port of connected UHF reader. You can open it by click broadcast.



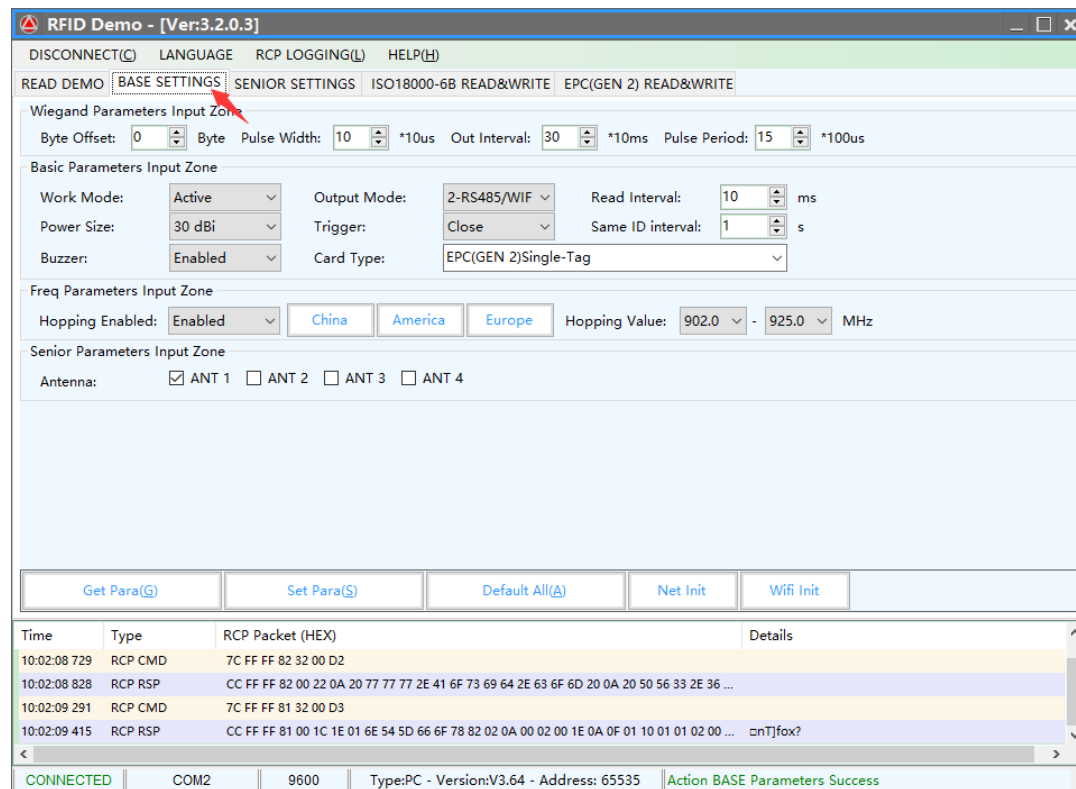
1. See below procedure 1, click broadcast to get the IP of uhf reader.
2. And input the detected IP, but make sure that your pc and the address at the same LAN, be simple, you can ping the IP, see procedure 2.
3. Then click "Connect" to connect the reader.



4. If communication OK, see below



## 6.2 Basic Settings:



### 6.2.1 Wiegand Parameter Input Zone:

It is mainly related to Wiegand output interface. Only communication mode is Wiegand26 or Wiegand34 available.

**Byte Offset:** The byte of card number to be offset, there is a initial position when read card number. To change the initial position, for example Wiegand 26,output 3 byte, but 18600-6B card number (E0 01 02 03 04 05 06 07) i s 8 byte, the parameter is this 3 byte, when the value is 0, it is (E0 01 02), when the value is 1, It is (01 02 03)... More details, please refer to Wiegand protocol.

**Output Period:** It is frequency of Wiegand port. More details, please refer to Wiegand protocol. **Pulse Width:** It is the time length of Wiegand signal.

**Pulse Period:** It is interval time that from first low pulse to next low pulse sending. For details, please refer to Wiegand protocol.

**Note:** In general, user only need set byte offset, other setup is default.

### 6.2.2 Basic Parameters Input Zone:

**Work Mode:**

It includes 3 items: Active , Passive and Response mode

**Active:** Reader keep reading card, and transmit each of card number by communication port (apply to active upload data).

**Passive:** Reader keep reading card, and each of card number store in reader, but do not upload card number, the max. storage is 100pcs (apply to passive upload). 3.

**Response:** Reader do not read card, reader response according difference commands. For example, PC send a recognize card command, reader will read a time and reply card number to PC (apply to short distance read and write card, test).

### **Output Mode:**

It includes RS232, TCP/IP, CANBUS, Wiegand26 and Wiegand34.

**RS232:** Serial port communication mode, It connects with PC serial port directly and point to point mode.

**TCP/IP :** Network communication mode, it communicate with PC by LAN or WAN.

**CANBUS :** BUS communication mode, it is point to multiple mode.

**Wiegand26 :** It is standard reader communication mode, one-way communication mode.

**Wiegand34 :** It is standard reader communication mode, one-way communication mode.

**Read Interval:** The speed of reading card.

**Note:** read card interval must more than 10ms. If read card interval is too short, it will short lift of the reader.

**Power Size:** The max. value is 30.

### **Trigger:**

1. **Close:** Close trigger mode to read card.

2. **Low Trigger:** When trigger lead (gray wire) connect with low power (OV), reader power on, when trigger lead (gray wire) connect with high power (12V), reader power off.

**Note:** When Trigger mode is Close, trigger lead must connect with high power or low power and can not be dangling.

### **Same ID Interval:**

When reader read a same card continuously, reader only upload one data. The read interval can be set at here, and if the read time is over set interval, reader will upload continuously. Buzzer: When reader read card, the buzzer beep or not.

### **Buzzer:**

It includes disable and enable, disable mean turn off the buzzer, when read card, no beep, enable mean turn on the buzzer, when read card, with beep.

## **Card Type:**

1. **ISO18000-6B** : Only read ISO18000-6B protocol tag.;
2. **EPC ( GEN 2 ) Single – Tag** : Only read EPC ( GEN 2 ) protocol tag, read one tag one time. Reader hard to or not read multiple tags when put them in the effective range.
3. **EPC ( GEN 2 ) Multi – Tag** : Only reader EPC ( GEN 2 ) protocol tag, multi-tag can be read.
4. **EPC ( GEN2 ) Multi –Data** : Only read EPC ( GEN 2 ) protocol tag,except read default EPC area 12 bytes data, other area data can be read. (Select this type and set to read the length of other area data in senior parameter, the max. Is 12 bytes)
5. **ISO18000-6B + EPC ( GEN 2 )** : ISO18000-6B and EPC ( GEN 2 ) protocol tag can be read.

Freq Parameters Input Zone It refer to 18000-6b and EPC card, normally hopping need be selected.

### **6.2.3 Freq Parameters Input Zone:**

It refer to 18000-6b and EPC card, normally hopping need be selected.

### **6.2.4 Senior Parameter Input Zone:**

It is used for multiple channel reader (split reader), integrative reader default is antenna

### **6.2.5 Active Encrypt Function**

For this version software, the encrypt function is hided, to enable the encrypt function, please see below procedure.

- 1) Press "F8" 5 Times

RFID Demo - [Ver:3.2.0.3]

DISCONNECT(C) LANGUAGE RCP LOGGING(L) HELP(H)

READ DEMO BASE SETTINGS SENIOR SETTINGS ISO18000-6B READ&WRITE EPC(GEN 2) READ&WRITE

Wiegand Parameters Input Zone  
 Byte Offset: 0 Byte Pulse Width: 10 \*10us Out Interval: 30 \*10ms Pulse Period: 15 \*100us

Basic Parameters Input Zone  
 Work Mode: Active Output Mode: 2-RS485/WIF Read Interval: 10 ms  
 Power Size: 30 dBi Trigger: Close Same ID interval: 1 s  
 Buzzer: Enabled Card Type: EPC(GEN 2)Single-Tag

Freq Parameters Input Zone  
 Hopping Enabled: Enabled China America Europe Hopping Value: 902.0 - 925.0 MHz

Senior Parameters Input Zone  
 Antenna:  ANT 1  ANT 2  ANT 3  ANT 4  
 Encrypt authorized:  Do not use unless customized reader! Enter Use Password!  
 Input:0987654321

Get Para(G) Set Para(S) Default All(A) Net Init Wifi Init

Time	Type	RCP Packet (HEX)	Details
10:02:08 729	RCP CMD	7C FF FF 82 32 00 D2	
10:02:08 828	RCP RSP	CC FF FF 82 00 22 0A 20 77 77 77 2E 41 6F 73 69 64 2E 63 6F 6D 20 0A 20 50 56 33 2E 36 ...	
10:02:09 291	RCP CMD	7C FF FF 81 32 00 D3	
10:02:09 415	RCP RSP	CC FF FF 81 00 1C 1E 01 6E 54 5D 66 6F 78 82 02 0A 00 02 00 1E 0A 0F 01 10 01 01 02 00 ... cnT]fox?	

CONNECTED COM2 9600 Type:PC - Version:V3.64 - Address: 65535 Action BASE Parameters Success

RFID Demo - [Ver:3.2.0.3]

DISCONNECT(C) LANGUAGE RCP LOGGING(L) HELP(H)

READ DEMO BASE SETTINGS SENIOR SETTINGS ISO18000-6B READ&WRITE EPC(GEN 2) READ&WRITE

Wiegand Parameters Input Zone  
 Byte Offset: 0 Byte Pulse Width: 10 \*10us Out Interval: 30 \*10ms Pulse Period: 15 \*100us

Basic Parameters Input Zone  
 Work Mode: Active Output Mode: 2-RS485/WIF Read Interval: 10 ms  
 Power Size: 30 dBi Trigger: Close Same ID interval: 1 s  
 Buzzer: Enabled Card Type: EPC(GEN 2)Single-Tag

Freq Parameters Input Zone  
 Hopping Enabled: Enabled China America Europe Hopping Value: 902.0 - 925.0 MHz

Senior Parameters Input Zone  
 Antenna:  ANT 1  ANT 2  ANT 3  ANT 4  
 Encrypt:  Do not use unless customized reader! Enter Use Password!

Get Para(G) Set Para(S) Default All(A) Net Init Wifi Init

Time	Type	RCP Packet (HEX)	Details
10:02:08 729	RCP CMD	7C FF FF 82 32 00 D2	
10:02:08 828	RCP RSP	CC FF FF 82 00 22 0A 20 77 77 77 2E 41 6F 73 69 64 2E 63 6F 6D 20 0A 20 50 56 33 2E 36 ...	
10:02:09 291	RCP CMD	7C FF FF 81 32 00 D3	
10:02:09 415	RCP RSP	CC FF FF 81 00 1C 1E 01 6E 54 5D 66 6F 78 82 02 0A 00 02 00 1E 0A 0F 01 10 01 01 02 00 ... cnT]fox?	

CONNECTED COM2 9600 Type:PC - Version:V3.64 - Address: 65535 Action BASE Parameters Success

2) Choose then "Enabled", and set password, then set Parameters [Set Para].

RFID Demo - [Ver:3.2.0.3]

DISCONNECT(C) LANGUAGE RCP LOGGING(L) HELP(H)

READ DEMO BASE SETTINGS SENIOR SETTINGS ISO18000-6B READ&WRITE EPC(GEN 2) READ&WRITE

Wiegand Parameters Input Zone  
 Byte Offset: 0 Byte Pulse Width: 10 \*10us Out Interval: 30 \*10ms Pulse Period: 15 \*100us

Basic Parameters Input Zone  
 Work Mode: Active Output Mode: 2-RS485/WIF Read Interval: 10 ms  
 Power Size: 30 dBi Trigger: Close Same ID interval: 1 s  
 Buzzer: Enabled Card Type: EPC(GEN 2)Single-Tag

Freq Parameters Input Zone  
 Hopping Enabled: Enabled China America Europe Hopping Value: 902.0 - 925.0 MHz

Senior Parameters Input Zone  
 Antenna:  ANT 1  ANT 2  ANT 3  ANT 4  
 Encrypt: Enabled Password: 0000 Encrypt Tag(F8)

Get Para(G) Set Para(S) Default All(A) Net Init Wifi Init

Time	Type	RCP Packet (HEX)	Details
10:02:08 729	RCP CMD	7C FF FF 82 32 00 D2	
10:02:08 828	RCP RSP	CC FF FF 82 00 22 0A 20 77 77 77 2E 41 6F 73 69 64 2E 63 6F 6D 20 0A 20 50 56 33 2E 36 ...	
10:02:09 291	RCP CMD	7C FF FF 81 32 00 D3	
10:02:09 415	RCP RSP	CC FF FF 81 00 1C 1E 01 6E 54 5D 66 6F 78 82 02 0A 00 02 00 1E 0A 0F 01 10 01 01 02 00 ... cnT]fox?	

CONNECTED COM2 9600 Type:PC - Version:V3.64 - Address: 65535 Action BASE Parameters Success

RFID Demo - [Ver:3.2.0.3]

DISCONNECT(C) LANGUAGE RCP LOGGING(L) HELP(H)

READ DEMO BASE SETTINGS SENIOR SETTINGS ISO18000-6B READ&WRITE EPC(GEN 2) READ&WRITE

Wiegand Parameters Input Zone  
 Byte Offset: 0 Byte Pulse Width: 10 \*10us Out Interval: 30 \*10ms Pulse Period: 15 \*100us

Basic Parameters Input Zone  
 Work Mode: Active Output Mode: 2-RS485/WIF Read Interval: 10 ms  
 Power Size: 30 dBi Trigger: Close Same ID interval: 1 s  
 Buzzer: Enabled Card Type: EPC(GEN 2)Single-Tag

Freq Parameters Input Zone  
 Hopping Enabled: Enabled China America Europe Hopping Value: 902.0 - 925.0 MHz

Senior Parameters Input Zone  
 Antenna:  ANT 1  ANT 2  ANT 3  ANT 4  
 Encrypt: Enabled Password: 9999 Encrypt Tag(F8)

Get Para(G) Set Para(S) Default All(A) Net Init Wifi Init

Time	Type	RCP Packet (HEX)	Details
10:02:08 729	RCP CMD	7C FF FF 82 32 00 D2	
10:02:08 828	RCP RSP	CC FF FF 82 00 22 0A 20 77 77 77 2E 41 6F 73 69 64 2E 63 6F 6D 20 0A 20 50 56 33 2E 36 ...	
10:02:09 291	RCP CMD	7C FF FF 81 32 00 D3	
10:02:09 415	RCP RSP	CC FF FF 81 00 1C 1E 01 6E 54 5D 66 6F 78 82 02 0A 00 02 00 1E 0A 0F 01 10 01 01 02 00 ... cnT]fox?	

CONNECTED COM2 9600 Type:PC - Version:V3.64 - Address: 65535 Action BASE Parameters Success

3) Now, put the tag on the reader, the reader is not beep;

4) Presses “Encrypt Tag”, until the reader beep, then encrypt succeed;

Note: when the encrypt tag, you can move the tag to accelerate the process of encryption;



### 6.2.6 . Get Parameter

Click “Get Para” button, parameter of the reader can be acquired. Acquire parameter succeed if display green in status bar; Acquire parameter failure if display red in status bar.(Do not read card when acquire parameter)

### 6.2.7 Set Parameter

When change parameter in demonstration area, click “Set Para” button, updated data will be set in currently reader. Setup succeed if display green in status bar; Setup failure if display red in status bar.

### 6.2.8 Default All

Click “ Default All” button, basic parameter and senior parameter will recover to default. (Need to click “parameter setup”, updated parameter will be set in reader).

### 6.2.9 Net Initialize

Null

### 6.3.10 WIFI Initialize

Null

## 6.3 Senior Settings

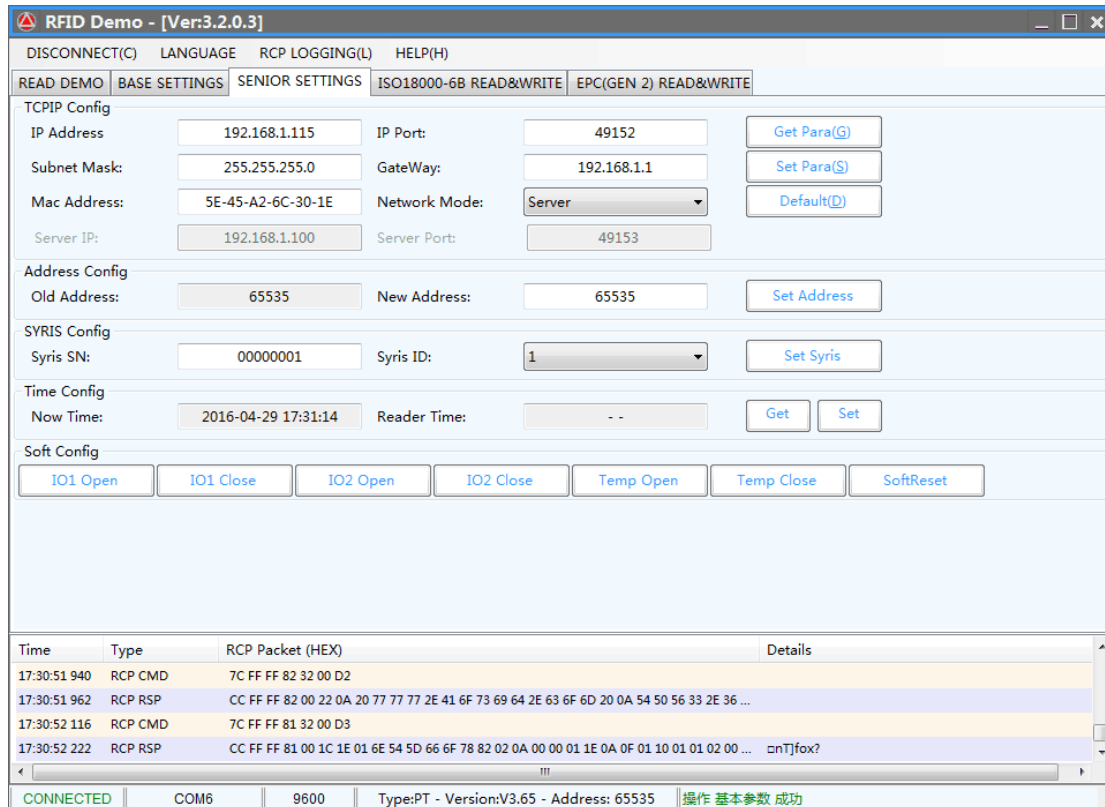
Senior settings is mainly setup the TCP/IP reader parameter, such as IP address, Syris config and time config etc.

**TCP/IP config:** User can modify the TCP/IP uhf reader

**SYRIS Config:** It is to set Syris SN and Syris ID.

**Time Config:** It is to set reader time.

**Soft Config:** In general can ignore the function, soft reset, is reset the device by software.



## 6.4 EPC Read and Write

The module is used to read and write the EPC card number. when you click the module, will show below picture interface.

**Identify:** When click, the card in the reader Hex number will display here.

**Read:** When click read, the related address and length Hex number will display, for example the card number is 01-02-03-04-05-06-08-09-10-11-12,

Address 2, length 2: 01-02, length is 3, then 01-02-03

Address 3., length 2:03-04

Address 4, length 2: 05-06

...

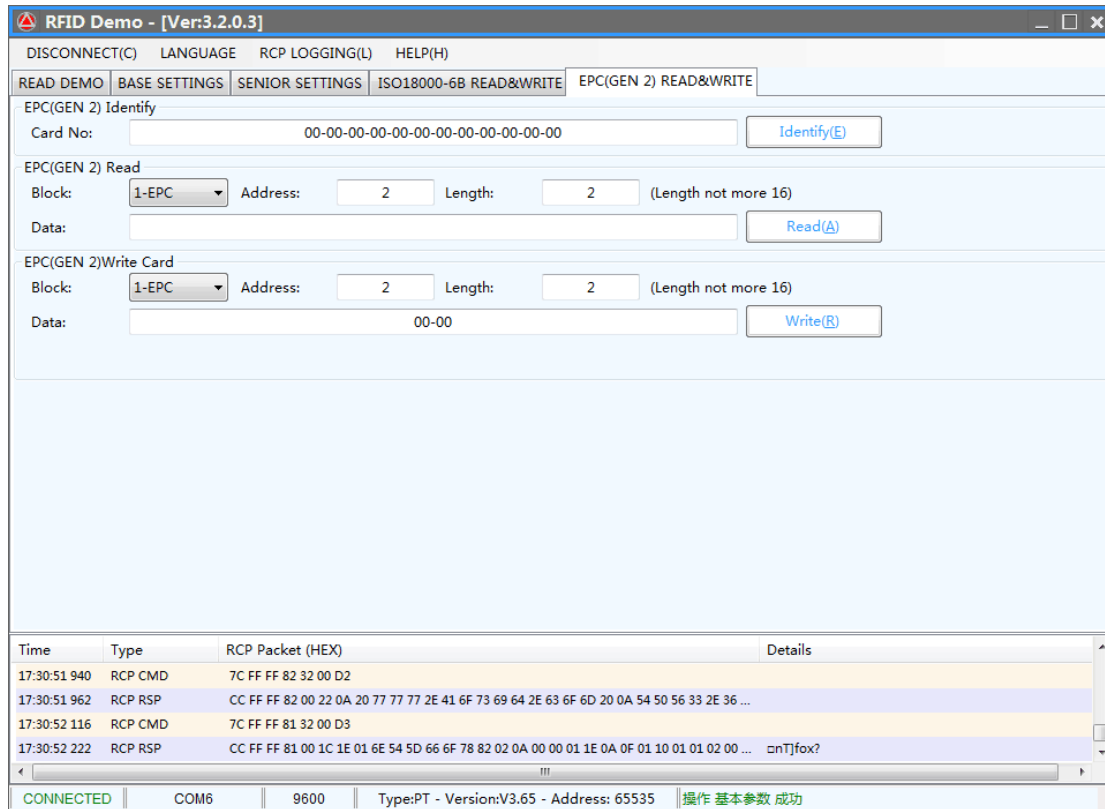
**Write:** When click write, will write the related Hex to related address.For example the card number is 01-02-03-04-05-06-07-08-09-12-10

Address is 2 and length is 2, and write 02-01 to the address, then the card no. Become

02-01-03-04-05-06-07-08-09-10-11-12

If write to address 3 and the length is 2.

Then card number become 01-02-02-01-05-06-08-09-10-11-12



## 6.5 ISO1800-6B Read and Write

For this module is to read and write 1800-6B card number.

**Identify:** When click, the card in the reader Hex number will display here.

E0-04-00-00-3F-0B-22-07-00-00-00-00

**Read:** When click read, the related address and length Hex number will display, for example the card number is E0-04-00-00-3F-0B-22-07-00-00-00-00,

Address 0, length 2: E0-04, length is 3, then E0-04-00

Address 1., length 2:04-00

Address 2, length 2: 00-00

...

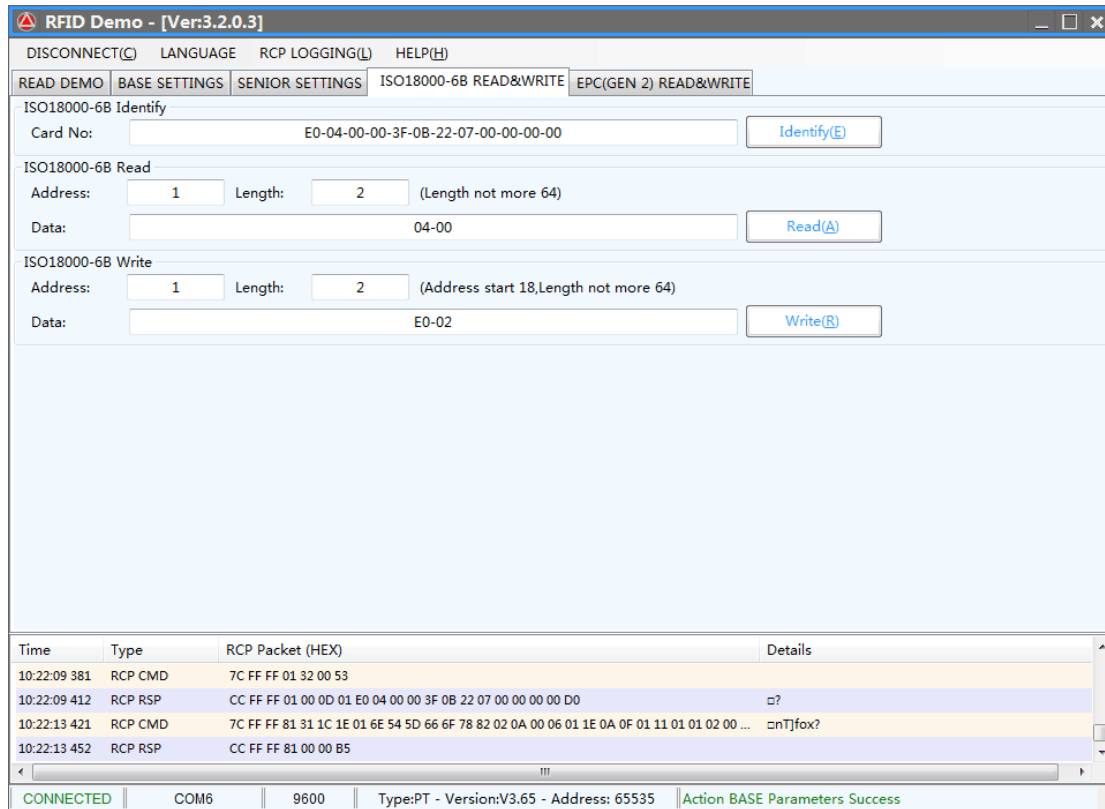
**Write:** When click write, will write the related Hex to related address. For example the card number is E0-04-00-00-3F-0B-22-07-00-00-00-00,

Address is 0 and length is 2, and write 01-02 to the address, then the card no. Become

01-02-00-00-3F-0B-22-07-00-00-00-00,

If write to address 1 and the length is 2.

Then card number become E0-01-02-00-3F-0B-22-07-00-00-00-00



## 7. Notice

1. When reader is working, the operator should away from reader 30cm to satisfy the FCC RF requirement.
2. Reader must away from the high he strong magnetic field
3. When reader use external power supply, must connect the common ground with the controller or the device you connect with.
4. For the reader, we suggest 9-15v power supply, you'd better use the power supply we supply or appropriate voltage power supply.
5. Mount the reader on a round pole or flat surface when you do installation.
6. Connect all the wire as wiring diagram suggest.