SL130

UHF RFID Integrated Reader

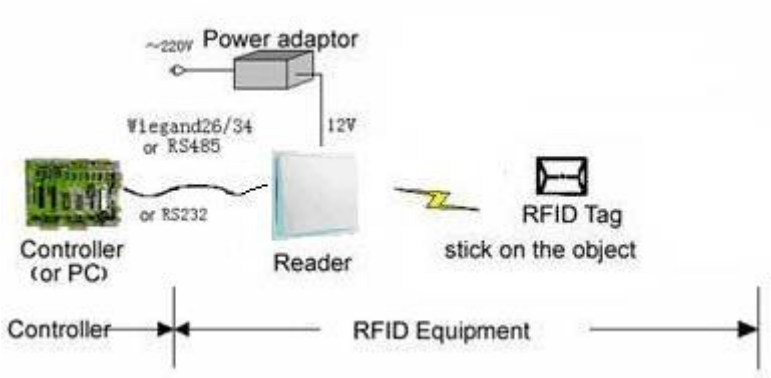
Software operation manual

1 Content

2 Software Operation

2.1 Set up testing system

Connect the equipment as illustrated below, structure a simple reader testing system in the studio:



（1） Connect the reader module to PC through the RS232 port.

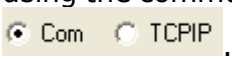
（2） Run the Demo software of the reader on PC, set reader index and test reading, writing for the reader according to the notes below.

2.2 Start up test software

The CD-ROM for contains『application software』UHFReader188demomain. exe, this program needs to be in the running in under the environment of Microsoft Windows 95 or higher version of the operating system IBM pc-compatible computers. Run UHFReader188demomain. exe can start this software.

2.2.1 Open COM Port

Before open com port, please make controller properly connected with the host using the communication cable provided and then turn on the power.then select

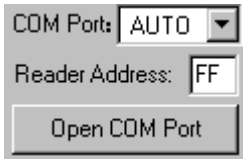


.

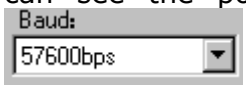
（1）Auto Open Comport:

Value 255(0xFF) is broadcasting address. All controllers will respond the order with a broadcasting address.

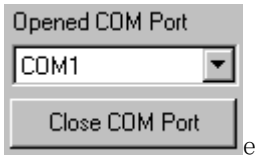
Other value (0x00~0xFE) is controller address. Only will the controller conforming to the address respond the operation.



Click , If reader connect the computer's COM1 ~ COM9, we can see the port display in the place. the demonstration software to



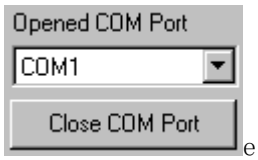
by connecting the port and written communication, the connection to the port to have a beginning, such as ：



else

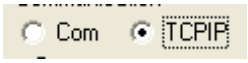
（2）Open Designated Comport:

Click ,the Baud will Auto Select From 115200bps, 57600bps, 38400bps,19200bps，9600bps,if success



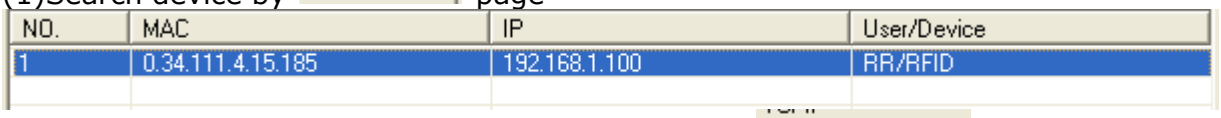
else

2.2.2 Open Net Port

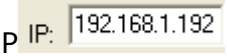
Select 

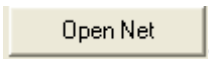
(1)Search device by 

page



(2) Input device TCPIP communication port 

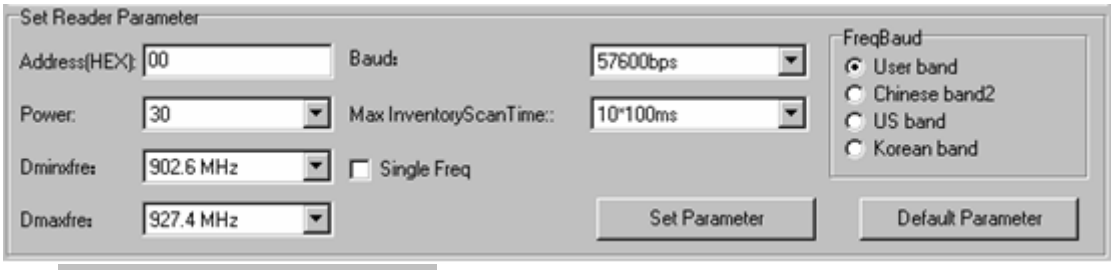
and IP 

(3)click 

open devide and 

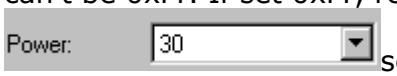
close device

2.2.3 Parameter Setting:



（1） 

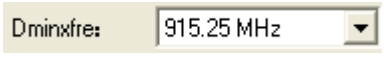
the new reader address to set. This address can't be 0xFF. If set 0xFF, reader will return error information.

（2） 

set and save power configuration.

（3） 

select the reader’s band, different band, the frequency of different。

（4） 

Set reader working Min Frequency and Max Frequency. In different places, the radio requires the rule to be different. Users can follow the local situation and choose to read more sensitive frequency range of the card. In single frequency point operation, only need to set two frequencies to the same value. In frequency hopping operation, only need to set two frequencies to the different value.

（5） 

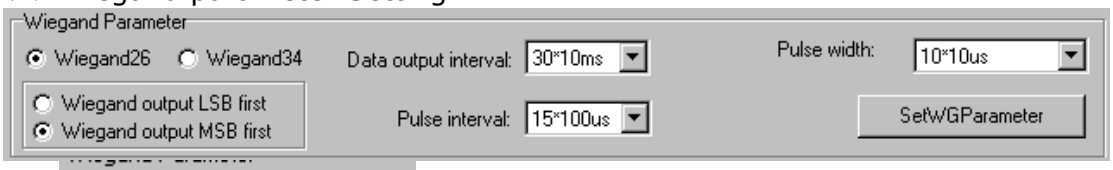
demo software start run, default use the baud rate 57600 to open COM port, reader power on, reader baud rate default is 57600. After change the baud rate, reader use the new baud rate until power off. Close port and open port, the baud rate no change. The demo software will use the new baud rate, until close the demo software.

（6） 

set the inventory scan max response time of reader. If demo software sends the inventory order, it will wait 30*10ms for reader response and exits.

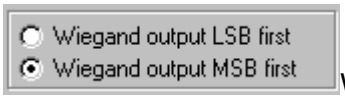
2.2.4Work mode parameter setting

（1）Wiegand parameter Setting



〈1〉 

Weigand 26、34 select.

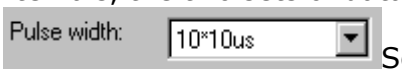
〈2〉 

Weigand output formart select.

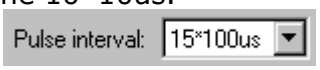
〈3〉 

Settings wergen the output of data at regular

intervals, the two sets of data gaps between wergen at least 30 - 10ms.

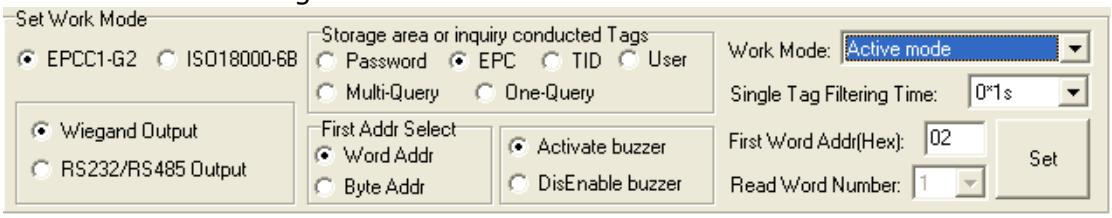
〈4〉 

Set weigand Pulse Width，this pulse width is the 10*10us.

〈5〉 

Set a pulse. the interval between pulses for 15 - 100us, with the interval between pulses weigand agreement. the impulse to burst the interval between pulses.

（2）Work mode setting:



Response to the mode of argument is invalid, the initiative in this mode is valid.

〈1〉 

Set Reader's support of the protocol. Select 

Reader is only support ISO18000-6C ; Select 

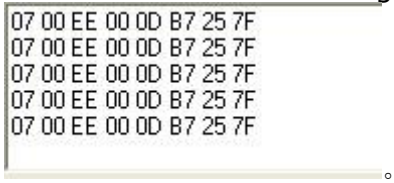
Reader is only support ISO18000-6B.

〈2〉 

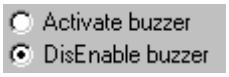
Set output mode of active work mode.when select 

putout Reader data with RS232/RS485. click 

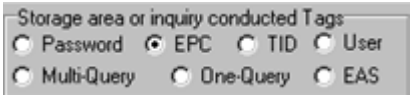
show message as



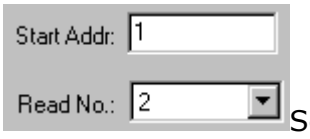
。

〈3〉 

Set up to the reader when the data is there a buzzer prompt sound.

〈4〉 

Set reader of the tag to read some of the data or checks for the tag of EPC. if the data with a password protected areas then can not read.

〈5〉 

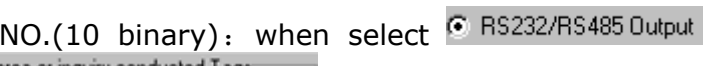
Set the start address and number of to be read,a word is 2 bytes.

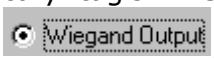
Starting address (16 binary):when select 

, that Reader support ISO18000-6C protocol， 0 read from the first word(The appropriate storage first16 bit)，1 read from second word，four times；when select 

，that Reader support ISO18000-6B protocol，0 read from the first byte(The appropriate storage first 8 bit)，1 read from

second byte，four times. if"Start Addr+Read NO." Greater than the corresponding storage area to read, read and write the address of the data will not read data。

Read NO.(10 binary)：when select 

，Reader inventory tag's EPC，And the starting address and read is not；when select 

，Read data nmber is 2，can not setting，for this time,if"Start Addr+2" Greater than the corresponding storage area to read, read and write the address of the data will not read data。

<6> 

Set the start address

（3）Get work mode parameter: 

click this button，can get Reader's waigand and work mode parameter.

（3） 

Used to get or set Qvalue and Session when query tag on active mode.

（4） 

,set two relay release or active.first select then click set button.

2.3 The Necessary Knowledge

2.3.1 EPCC1G2 tag memory

Tag memory divided into four storage areas, each storage area can be made up of one or more memory words. The four storage areas:

EPC areas (EPC): Store the area of EPC number, this module stipulates it can store 15 word EPC number. Can read and can write.

TID areas (TID): Store ID number established by the tag production firm. There are 4 words and 8 words two kinds of ID numbers at present. Can read and not can write.

User areas (User): This area of different manufacturers is different. There is no user area in G2 tag of Inpinj Company. There are 28 words in Philips Company. Can read and can write.

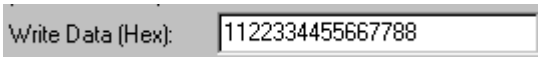
Password areas (Password): The first two words is kill password, the last two words is access password. Can read and can write.

Can write protect in four storage areas. It means this area is never writeable or not writeable under the non-safe state; only password area can set unreadable.

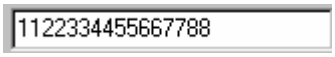
2.3.2 18000-6B tag

6B tag has a memory space, the minimum 8 bytes (byte 0- 7) is UID of the tag, and can't be rewritten. Following byte all can be rewritten, can be locked too, but once locking, can't rewrite again, can't unblock either.

2.3.3 Data display (tag ID, passwords, memory data is display in 16 hexadecimal)



Display in Hex, then 11 is first byte, 22 is second byte, and 1122 is first word.



Total 8 bytes, in other words, total 4 words.

2.4 EPCC1-G2 Test opration（COM IS OPEN）

2.4.1 Query Tag (The operation needing to choose the tag all need to query tag first)

（1） 

Every 50ms issued a command checks.

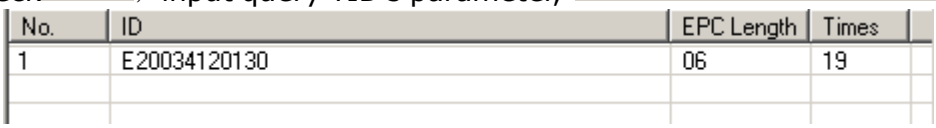
（2）select

can see 

No.	ID	EPC Length	Times	RSSI
1	E200285050030231226 02E27	0C	14	88

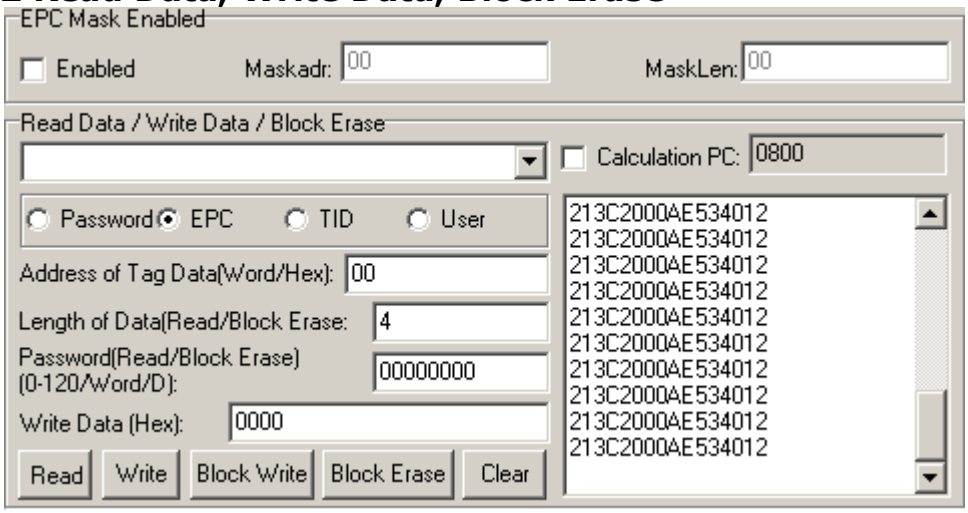
（3）Check 

, input query TID's parameter, 

can see 

No.	ID	EPC Length	Times
1	E20034120130	06	19

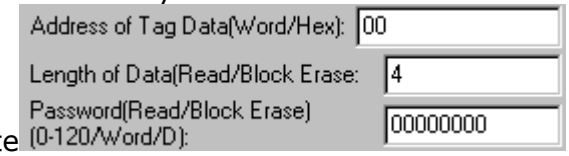
2.4.2 Read Data, Write Data, Block Erase



(1) Read data operation

<1> Choose tag 

<2> Choose memory 

<3> Write 

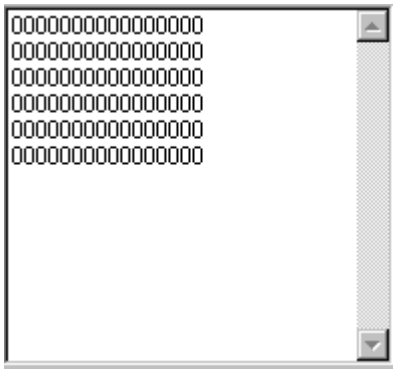
Start address: 0x00 stand in start to read data from first word in the designated storage area, 0x01 stand in start to read data from second word in the designated storage area, and so on.

Read the length: Number of the word to be read. It read 120 words at most. Can not set 0 or 120, otherwise, return the parameter error information.

Access password: From left to right it is the former high-word, low word in the access password. If operation don't need access password, it can be the arbitrary value, but can't lack.

<4> Click 

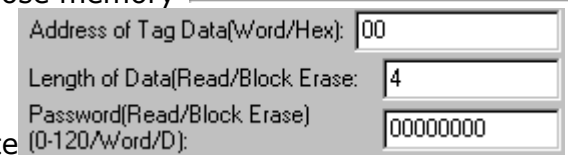
can see 



(2) Write data operation

<1> Choose tag 

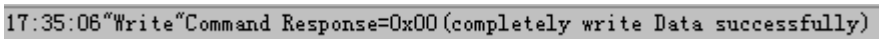
<2> Choose memory 

<3> Write 

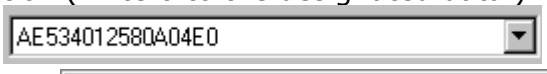
(EPC memory Address of tag is 2)

Start address: 0x00, the first word of data (from left) is written in address 0x00 of the designated storage area, and so on.

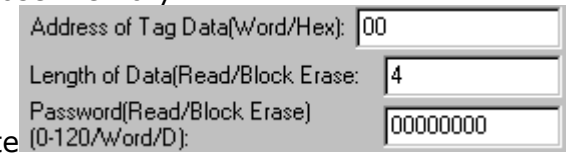
<4> Click 

can see 

(3) Block Erase Operation (write 0 to the designated data)

<1> Choose tag 

<2> Choose memory 

<3> Write 

Start address: 0x00 stand in start to erase data from first word in the designated storage area, 0x01 stand in start to erase data from second word in the designated storage area, and so on.

The difference from write operation: Needn't fill in the data.

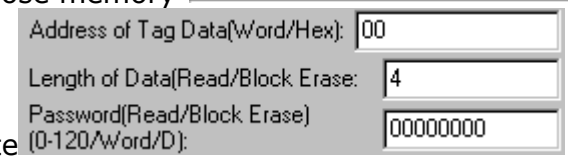
<4> Click 

can see

(4) Write block operation

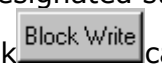
<1> Choose tag 

<2> Choose memory 

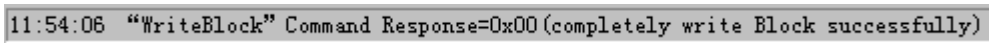
<3> Write 

(EPC memory Address of tag is 2)

Start address: 0x00, the first word of data (from left) is written in address 0x00 of the designated storage area, and so on.

<4> Click 

can see



(4) EPC Mask Enable

<1>

Maskadr : The mask the first byte address.

MaskLen: The mask of bytes length.

(5) Write EPC

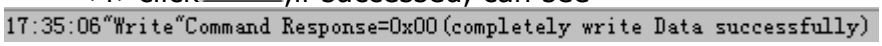
<1>check 

<2>select 

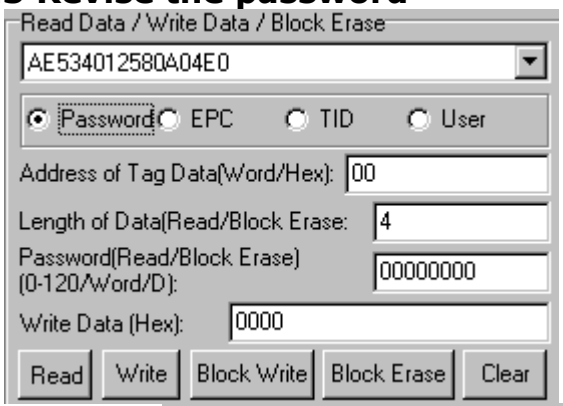
<3>Input new EPC number 

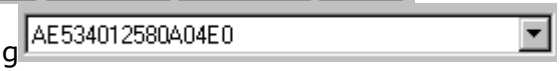
<4>click 

,if successed, can see



2.4.3 Revise the password



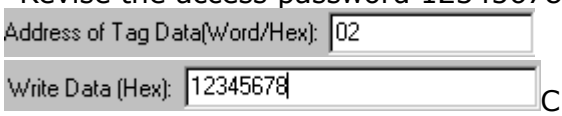
(1) Choose tag 

(2) Choose memory 

(3) Write access password 

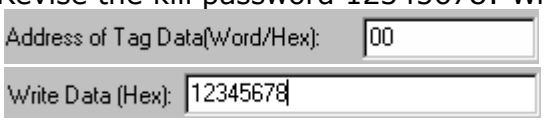
Access password: From left to right it is the former high-word, low word in the access password. If operation don't need access password, it can be the arbitrary value, but can't lack.

(4) Revise the access password 12345678: Write



Click 

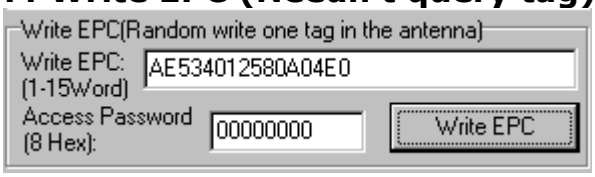
(5) Revise the kill password 12345678: Write



Click 

(6) If succeed, we can see

2.4.4 Write EPC (Needn't query tag)



(1) Write access password (If EPC area of the tag has not set password protection, we can write 8 data arbitrarily)

(2) Write EPC.

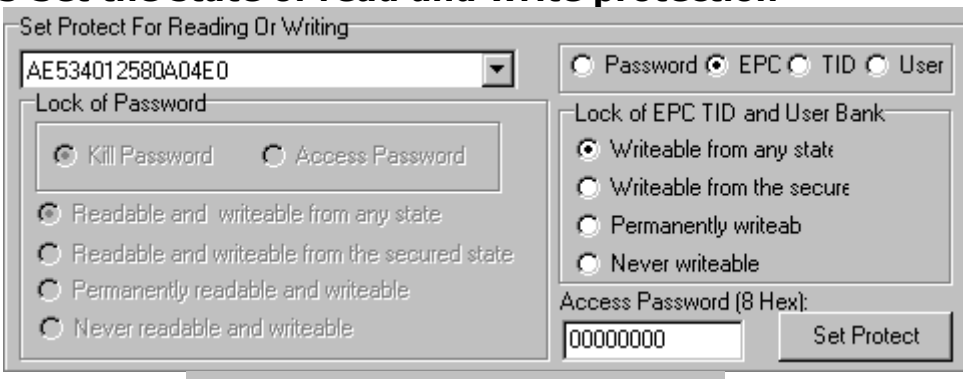
(3) Click 

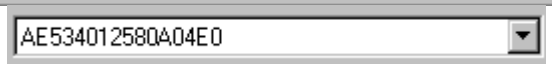
. (Random write one tag in the effective range of antenna)

When there are many or EPC pieces of tag in the effective range of antenna, and the access password of one tag is the same as you entered, or EPC area of tag set no password protection, click 

at a time, random write EPC number of one tag in the effective range of antenna.

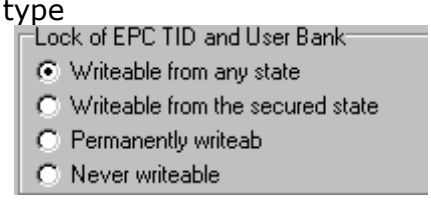
2.4.5 Set the state of read and write protection



(1) Choose tag 

(2) Choose memory 

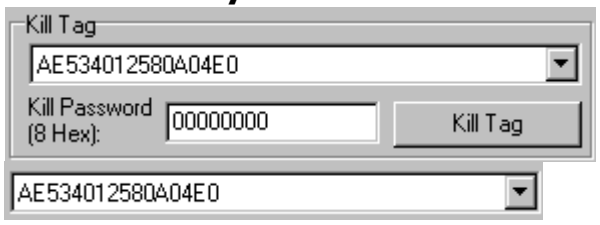
(3) Choose protection type



(4) Write access password:

Any storage area in no password protection status still must write the correct access password.(password can not be zero).

2.4.6 Kill Tag（Permanently Kill）



(1) Choose tag

(2) Write

Kill password can not be the whole 0. Otherwise, the tag can not be killed, and the tag return response with parameter error.

2.5. 18000-6B Test Interface Operation (After Open COM Port)

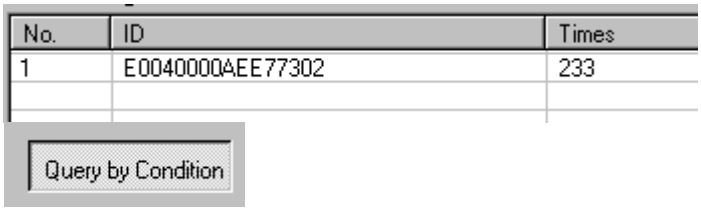
2.5.1 Query Tag

(1) 

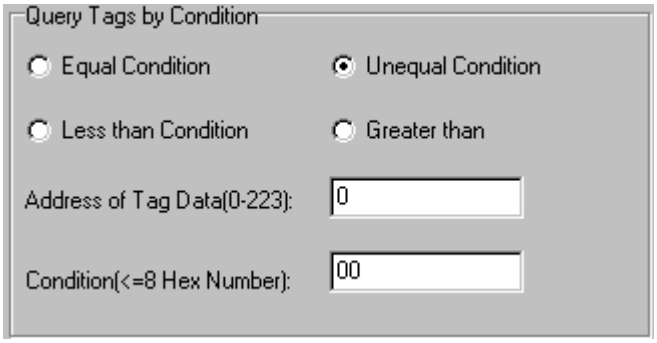
send a inventory command every 50ms.

(2) 

Only query the single tag. If many tags are in the effective range of antenna at the same time, it may be unable to query the tag.

(3) 

<1> Unequal Condition:



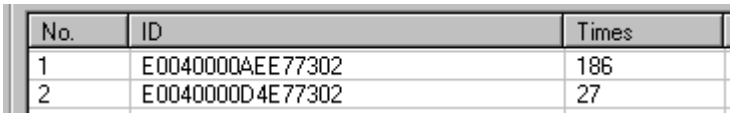
Note:

The 8 bytes of 6B tag number write in the 0~7 which in the address of tag data (0- 233)

Figure, query condition begin to compare from the tag data address 0. The comparative content is 22.

Click

See

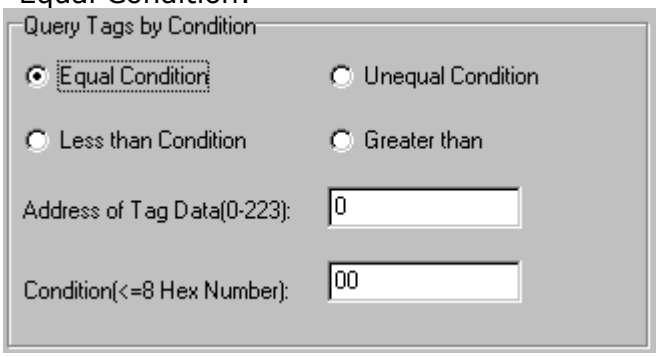


No.	ID	Times
1	E0040000AEE77302	186
2	E0040000D4E77302	27

Figure, from the tag number we can see the addresses 0 of tag data: 00, 00, 11, 11.

Unequal condition 22, therefore, the four tags are read.

<2> Equal Condition:



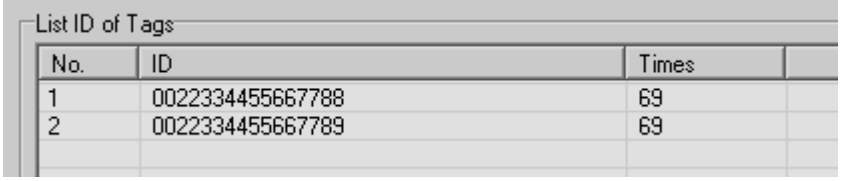
Note:

The 8 bytes of 6B tag number write in the 0~7 which in the address of tag data (0- 233)

Figure, query condition begin to compare from the tag data address 0. The comparative content is 00.

Click

See



List ID of Tags

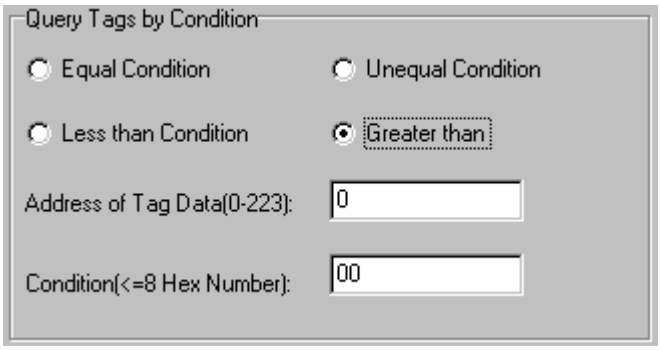
No.	ID	Times
1	0022334455667788	69
2	0022334455667789	69

Figure, from the tag number we can see the addresses 0 of tag data: 00,

00.

Equal condition 00, therefore, the two tags are read.

<3> Greater than



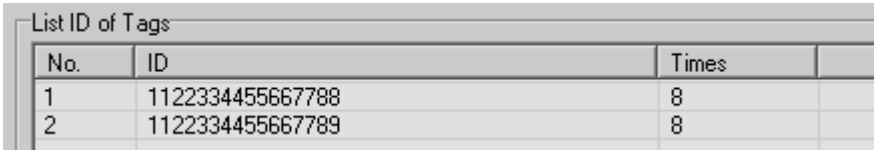
Note:

The 8 bytes of 6B tag number write in the 0~7 which in the address of tag data (0- 233)

Figure, query condition begin to compare from the tag data address 0. The comparative content is 00.

Click

See

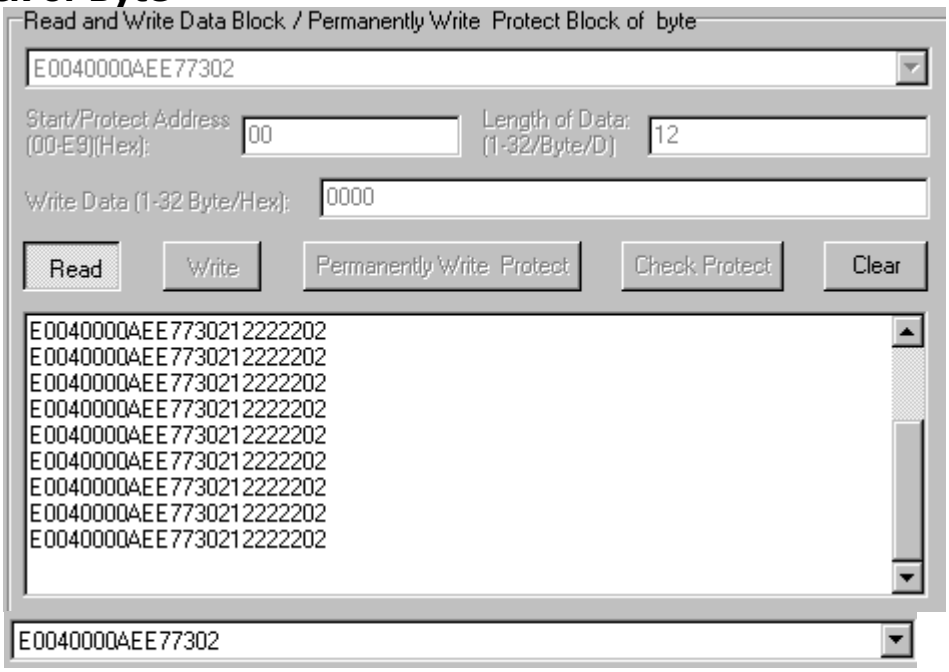


Figure, from the tag number we can see the addresses 0 of tag data: 11, 11.

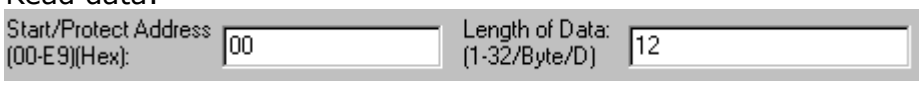
Great than 00, therefore, the two tags are read.

2.5..2 Read and Write Data Block / Permanently Write Protect Block of Byte

(1)



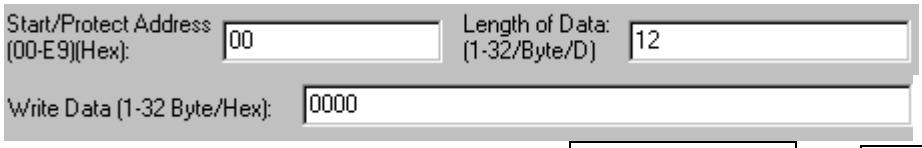
(2) Read data:



Start address: 0x00 stand in start to read data from first word in the designated storage area, 0x01 stand in start to read data from second word in the designated storage area, and so on. Range is 8~223. Beyond this range, reader will return parameter error.

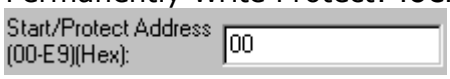
Read length: pointed to the number of bytes to read. Range is 1~32. If Start address + Read length greater than 224, or Read length greater than 32 or is zero, reader will return parameter error information. The high bytes of Read length write in the low address in tag.

(3) Write data:



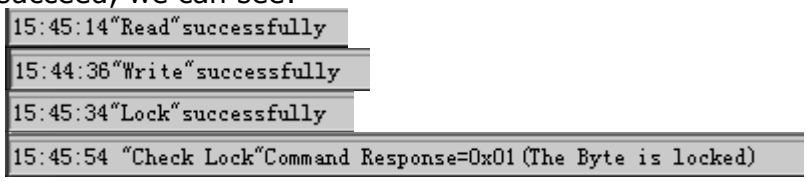
Write data: Range is 1~32. If Start address + Write length greater than 224, or Write length greater than 32 or is zero, reader will return parameter error information. The high bytes of Read length write in the low address in tag.

(4) Permanently Write Protect: lock the designated byte.

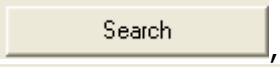


(5) Check Protect: check whether the designated byte is locked.

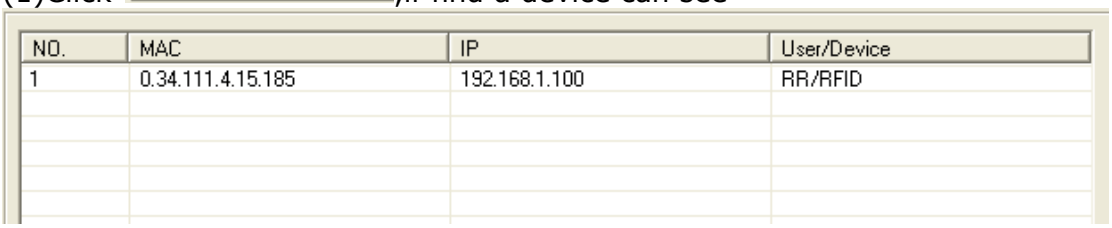
(6) If succeed, we can see:



2.6 TCP/IP Config

(1)Click 

,if find a device can see



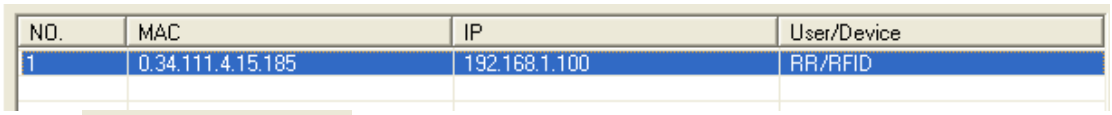
NO.	MAC	IP	User/Device
1	0.34.111.4.15.185	192.168.1.100	RR/RFID

(1)Click 

, If the device is correctly connected with the host, the device's IP address will show up in below text area. This IP address can be changed by clicking 

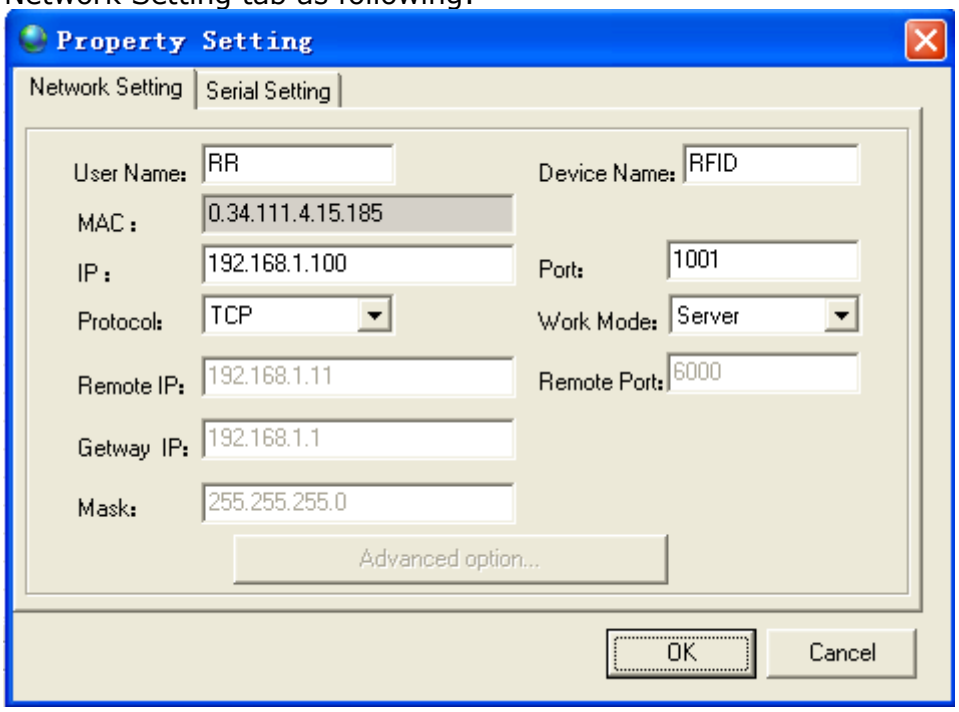
button.

(2) Select device



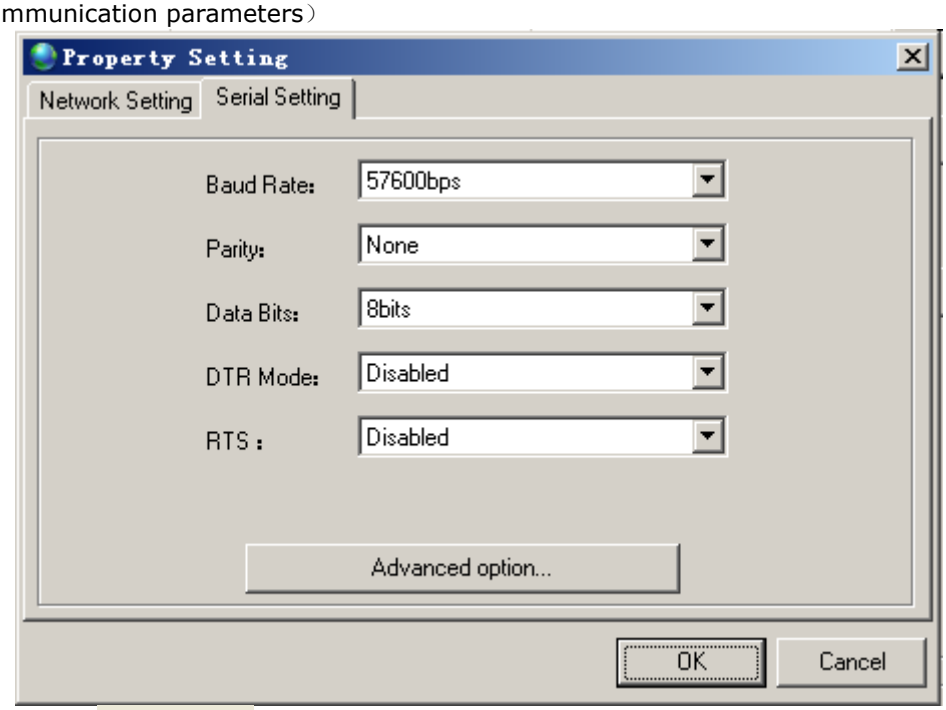
Click 

button to set the TCP/IP interface parameters.Set Network Setting tab as following:



Set Serial Settings tab as following:

(Remark: Baud rate and Parity should be set according to every device's serial communication parameters）



(3)Click 

button to finish the parameter setting procedure.

The host application software uses socket communication method to

exchange information with the device, there is no other configuration procedure needed. The device’s built-in TCP/IP interface supports windows socket communication programming API. Application software should exchange information with the device using the protocol described in device’s user’s manual