

Uhf desktop electronic label reader Demo Software User's Guidev1.0

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1. Parameter interface operation

1.1 Open COM Port

Before use this demo, please install the USB serial port driver,.net framework.



If success , can see 2014-7-25 14:09:35 Connected COM4@57600bps

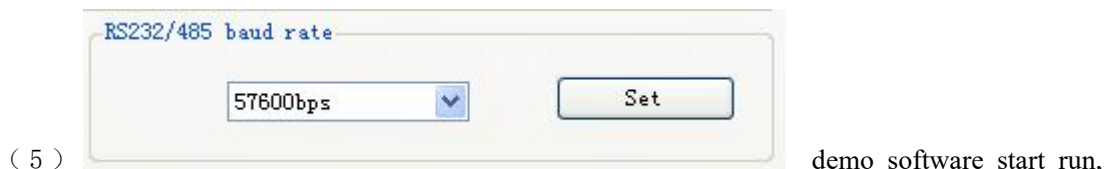
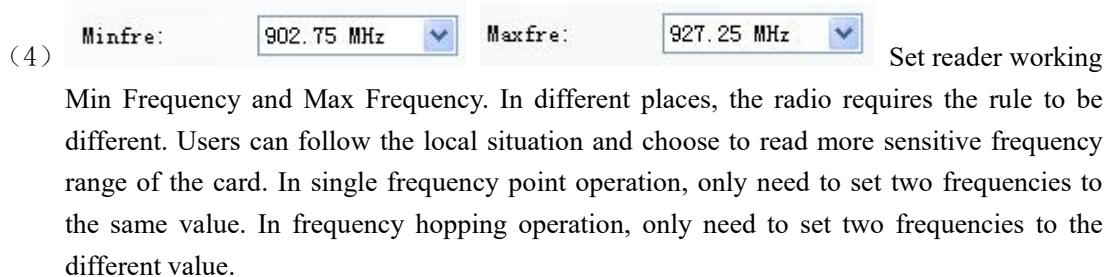
1.2 Parameter Setting:



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



select the reader's band, different band, the frequency is different.



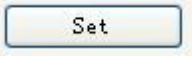
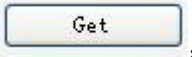
default use the baud rate 57600 to open COM port, reader power on, reader baud rate default is 57600. After change the baud rate, reader use the new baud rate until power off. Close port and open port, the baud rate no change. The demo software will use the new

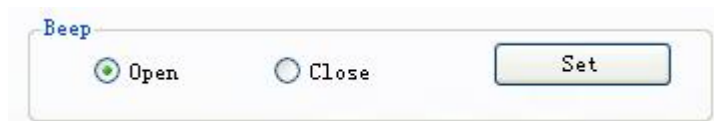
baud rate, until close the demo software.

(6) GPIO Operation



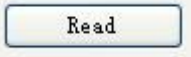
Select need

pins, click , Can control the output state pins, Click , can get output state pins.



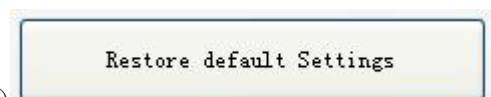
(7) , Set beep open or close



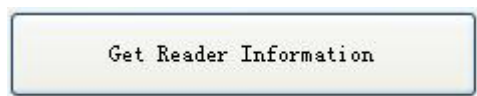
(8) , click  can get reader's serial number.



(9) , this function is used to get or set EPC/TID length on buffer tag.



(10) , this function is used to restore default setting of reader.



(11) , this function is used to get reader's information.

2. The Necessary Knowledge

2.1 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.

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

Write Data (Hex): 1122334455667788

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

1122334455667788

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

3. EPCC1-G2 Test

3.1 Query Tag EPC

(1) Select EPC or TID to read, like

Select other condition

The screenshot shows a software interface for testing EPCC1-G2 tags. At the top, there are two radio buttons: 'EPC' (selected) and 'TID'. Below them, there are several input fields and a checkbox. The 'Q' field is set to '4', 'Session' is '0', and 'Max-ScanTime' is '10*100ms'. The 'Target' field is set to 'A'. There is a checkbox labeled 'Read' which is checked, and a text label 'times no tag then A/B conversion'.

Note: about Q, S choice, a single tag or less number must be S0, a lot of tag queries using S1 or S2, S3. 2⁰ equal tag number is better. If it is a single query effect must use S0

(2) Click

Start

Tag List File Export			
NO.	EPC	Time	RFID
1	E211210100120000000001BA	0	178
2	E22000000000000000001368	0	178
3	F7000000000000000000AFB	0	146
4	E2012051000000000000176	0	178
5	C20000000000000000000013	0	178
6	E870000000000000000000153	0	178
7	E201205100000000000001AC	0	146
8	E1030000000000000000014D6	0	174
9	E21121001100000000001F	0	146
10	E20000000000000000001700	0	146
11	E10000000000000000000043	0	178
12	F700000000000000000004F	0	178
13	E211210011000000000017	0	174
14	F40000000000000000000T1	0	178
15	E20120510000000000000C7	0	178
16	E21121001100000000000CF	0	174
17	E1000000000000000000008	0	171
18	E200000000000000000001E	0	178
19	F7000000000000000000049	0	178

Tag Number:

888 63

Read: 82 Write: 625

Total tag number: 89

Total read/write: 1437

3.2 Read Data, Write Data, Block Erase

Read Data / Write Data / Block Erase

Start address (Hex): 0000 Read/Write data (Hex): 0000

Length (Dec): 4 ☐ Auto Compute read and write 0000

Password (Hex): 00000000 ☐ Password ☒ EPC ☐ TID ☐ User

E211210100120000000001BA

E211210100120000000001BA

E220000000000000000001368

F7000000000000000000AFB

E20120510000000000000176

C20000000000000000000013

E870000000000000000000153

E201205100000000000001AC

E1030000000000000000014D6

<1> Select one tag then click

, check

☒ Selected tag: E211210100120000000001BA

Select memory

☐ Password ☐ EPC ☐ TID ☒ User

to be operation

(1) Read data operation

Start address (Hex): 0000

Length (Dec): 4

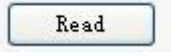
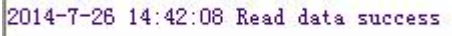
Password (Hex): 00000000

<1> Input data like

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.

<2> Click  can see 

 8866000000000000

 is used to read large memory of tag.

(2) Write data operation

<1> Input Write data word address

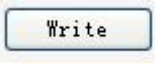
Start address: (Hex):  and Password

Password: (Hex): 

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

<2> Input data what you want to write like

 123456789012

<3> Click  can see

2014-7-26 14:45:10 Write data success

Note: write data can be used to change the EPC number

(the method is as follows)

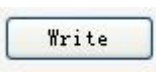
<1> Choose memory , and

select 

<3> Write EPC number

 111122223333444455556666

(EPC memory Address of tag is 2)

<4> Click  can see

2014-7-26 14:45:10 Write data success

Then query tag EPC, can see

Tag list (No Repeat)			
NO.	EPC	Times	RSSI
1	111122223333444455556666	3	132

Ext Write

is used to Write large memory of tag.

(3) Input erase data address and length

Start address: (Hex):	0000
Length (Dec):	4
Password: (Hex):	00000000

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

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

<4> Click **Erase** can see

2014-7-29 12:07:56 Block erase success

then the data will be set to 0

(4) Write block operation

<1> Input Write data word address

Start address: (Hex):	0000
Password: (Hex):	00000000

and Password

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

<2> Input data what you want to write like

Read/Write data (Hex)	123456789012
-----------------------	---

<3> Click **Write** can see

2014-7-26 14:45:10 Write data success

3.3 Revise the password

(1) Select one tag

☒ Selected tag:	E211210100120000000001BA
---	---

Select memory ☒ Password ☐ EPC ☐ TID ☐ User

to be operation

- (2) Write access password

Password: (Hex):

Access password: default is 00000000, if you have change to others, you should input right values.

- (3) Revise the access password 12345678: Write

Start address: (Hex):

Read/Write data (Hex)

Write

Click

- (4) Revise the kill password 12345678: Write

Start address: (Hex):

Read/Write data (Hex)

Write

Click

- (5) If succeed, we can see

2014-7-29 14:10:31 Write data success

3.4 Write EPC

Write EPC

EPC:

Password: (Hex)

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

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,

Write EPC

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

3.5 Lock Operation

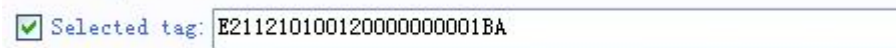
Set Protect For Reading Or Writing

☐ Kill Password ☒ Access Password ☐ EPC ☐ TID ☐ User

☒ UnLock ☐ Lock ☐ UnLock forever ☐ Lock forever

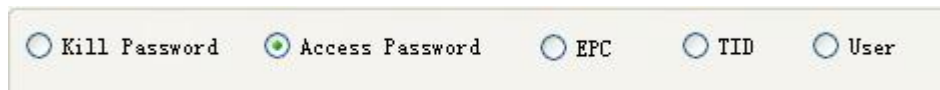
Password: (Hex)

- (1) Select one tag



☒ Selected tag: E211210100120000000001BA

- (2) select memory



☐ Kill Password ☒ Access Password ☐ EPC ☐ TID ☐ User

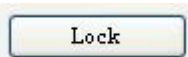
to be operation

- (3) select protect type



☒ UnLock ☐ Lock ☐ Unlock forever ☐ Lock forever

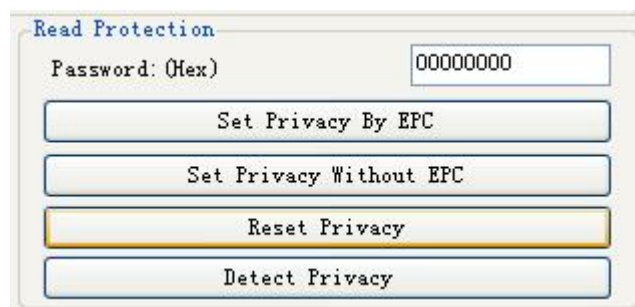
- (4) Input access password Any storage area in no password protection status still must write the correct access password.(password can not be zero).



Lock

- (5) Click then, the option is over.

3.6 Read Protection



Read Protection

Password: (Hex) 00000000

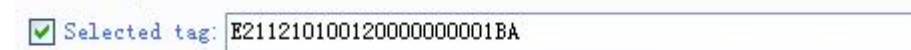
Set Privacy By EPC

Set Privacy Without EPC

Reset Privacy

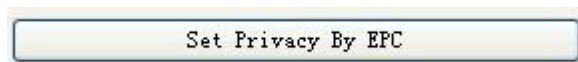
Detect Privacy

Select one tag



☒ Selected tag: E211210100120000000001BA

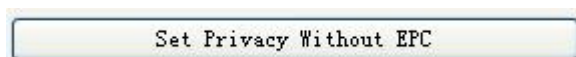
- (1) Set Single Tag Read Protection



Set Privacy By EPC

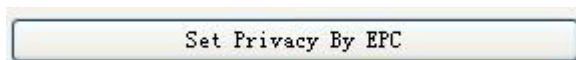
According to EPC number of the tag, setting read protection, make tag unable to be read and written by any order, even if query the tag, it is unable to get EPC number of the tag. Only NXP UCODE EPC G2X tags valid.

- (2) Set Single Tag Read Protection without EPC



Set Privacy Without EPC

can set tag read protection in the effective range of antenna



Set Privacy By EPC

The difference from : When there are several tag in the effective range of antenna, reader don't know the tag which the order

operate.

If operate several tags, then the access password of the tag had better be the same.
Only NXP UCODE EPC G2X tags valid.

(3) Reset Single Tag Read Protection without EPC



Use for reset the tag read protection.

Only put a tag in the effective range of antenna. Only NXP UCODE EPC G2X tags valid.

Comments: If tag does not support the read protection setting, it must be unprotected.

(4) Detect Single Tag Read Protection without EPC



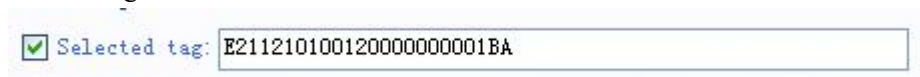
Can't detect tag whether it support read protection order, can only detect single tag whether it is protected. If tag does not support the read protection setting, it must be unprotected.

Make sure that there is single tag in the effective range of antenna. Only NXP UCODE EPC G2X tags valid.

3.7 EAS Alarm



Select one tag



(1) Alarm setting

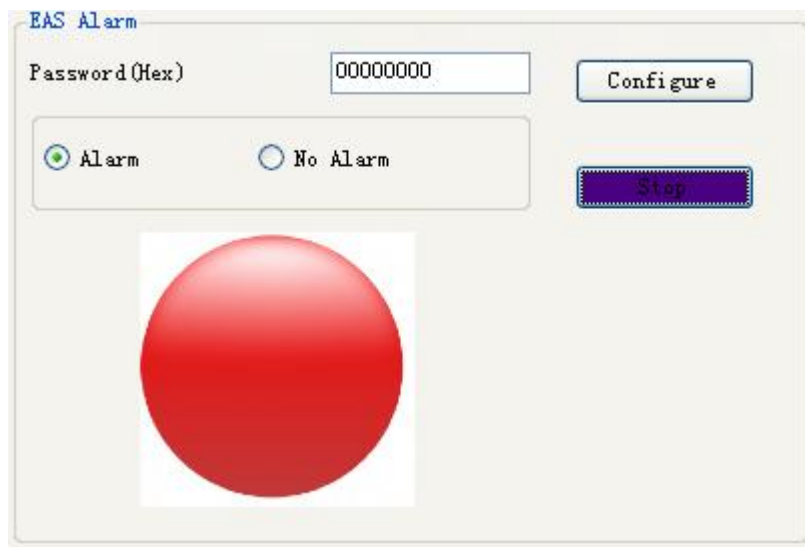


<3> Choose alarm

Set or reset the EAS status bit of tag. Only NXP UCODE EPC G2X tags valid.

- (2) Check alarm without EPC and access password

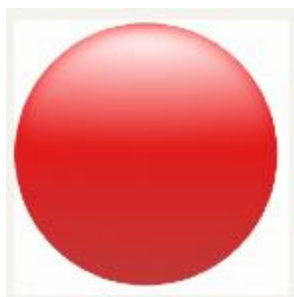
<1> Click check alarm



Check the EAS alarm of tag. Only NXP UCODE EPC G2X tags valid.

<2> EAS alarm:

2014-7-29 14:27:37 EAS Alarm

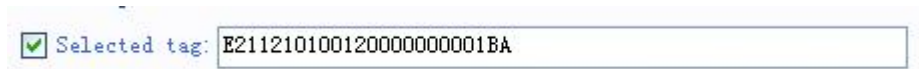


No EAS alarm:

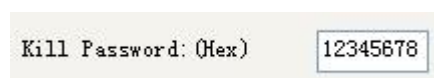
2014-7-29 14:28:26 No EAS Alarm

3.8 Kill Tag (Permanently Kill)

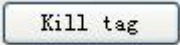
- (1) Select one tag



- (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.

(3) Click , if success, the tag is killed.

3.9 Mask conditions



check enable



Only check enable can do mask operation.

For example, EPC mask:

Choose EPC area:



Mask Start Bit Address (Hex):

Mask Bit Length (Hex):

Mask Data (Hex):

Only the first byte of tag's EPC is DA could response.

For example, TID mask:



<1>Query TID

Can see TID

SN	EPC	Times	RSSI
1	E20034120141F1000DF52E26	8	133

<Mask condition>

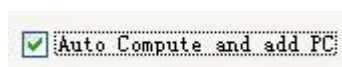


For example change EPC :

<2> select



and



Start address: (Hex):

Length (Dec):

Password: (Hex): (EPC memory Address of tag Is 2)

<3> Write

Read/Write data(Hex)

<4> Click can see

2014-7-29 14:39:20 Write data success

4. Buffer operation

(1) Select EPC/TID query. For example: EPC

☒ EPC ☐ TID

This demo is used Q=4,S=1,Target A to inventory tag, if there are some tag

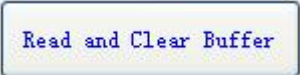
Tag Buffer: Speed: Total number:
 read times left: Total readed:

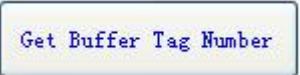
(2) is used to read tag in the buffer, if there are tag

Tag Buffer: Speed: Total number:
 read times left: Total readed:

No.	EPC/TID	Length	Antenna	RSSI	Time
1	00000000000000000000000000000000	10	0000	100	1
2	00000000000000000000000000000000	10	0000	100	1
3	00000000000000000000000000000000	10	0000	100	1
4	00000000000000000000000000000000	10	0000	100	1
5	00000000000000000000000000000000	10	0000	100	1
6	00000000000000000000000000000000	10	0000	100	1
7	00000000000000000000000000000000	10	0000	100	1
8	00000000000000000000000000000000	10	0000	100	1
9	00000000000000000000000000000000	10	0000	100	1
10	00000000000000000000000000000000	10	0000	100	1

(3) is used to clear tag information in the buffer.

- (4)  is used to read out tag and clear tag in the buffer.

- (5)  is used to get