

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.

Select Port Port: COM4

And baud rate Baud rate: 57600bps (default) , click **Connect** ,


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


1.2 Parameter Setting:


(1)  the new reader address to set.

The 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 is 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.

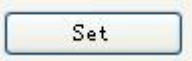
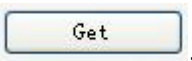
(5)  demo software start run, default use the baud rate 57600 to open COM port, reader power on, reader baud rate default is 57600. After change the baud rate, reader use the new baud rate until power off. Close port and open port, the baud rate no change. The demo software will use the new

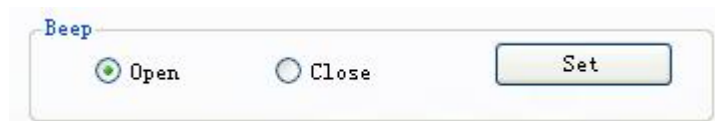
baud rate, until close the demo software.

(6) GPIO Operation



Select need

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



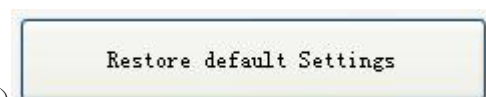
(7) , Set beep open or close



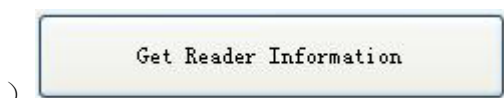
(8) , click  can get reader's serial number.



(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 the 'Query Tag EPC' interface. At the top, there are two radio buttons: 'EPC' (selected) and 'TID'. Below them, there are several configuration fields: 'Q:' with a dropdown set to '4', 'Session:' with a dropdown set to '0', and 'Max-ScanTime:' with a dropdown set to '10*100ms'. There is also a 'Target:' dropdown set to 'A'. A checkbox labeled 'Read' is checked, and next to it is a dropdown set to '2' followed by the text '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 (No Repeat)			
NO.	EPC	Times	RSSI
1	E211210100120000000001BA	2	138
2	E220000000000000000001368	2	132
3	F700000000000000000000AFB	2	146
4	E201205100000000000000176	2	136
5	C200000000000000000000013	1	139
6	E8700000000000000000000153	2	138
7	E2012051000000000000001AC	2	145
8	E103000000000000000000014D6	2	134
9	20121009181200000000001F	2	145
10	E10300000000000000000001700	2	140
11	E1030000000000000000000AC5	1	138
12	F70000000000000000000006AF	1	136
13	2012100918120000000000017	1	134
14	F4000000000000000000000071	2	136
15	E2012051000000000000000C3	1	132
16	201210091812000000000002F	2	134
17	E1020000000000000000000885	1	133
18	E103000000000000000000031E	2	138
19	F7000000000000000000000A49	2	132

Tag Number: 00000003

Speed: 82 cmd time (ms): 625

Total tag number: 89

Total-cmd-time (ms): 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 and add PC 0800

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

E211210100120000000001BA

E211210100120000000001BA

E220000000000000000001368

F700000000000000000000AFB

E201205100000000000000176

C200000000000000000000013

E8700000000000000000000153

E2012051000000000000001AC

E103000000000000000000014D6

<1> Select one tag then click

Select

, 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

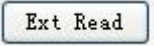
Start address: 0x00 stand in start to read data from first word in the designated storage area, 0x01 stand in start to read data from second word in the designated storage area, and so on.

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 

Read/Write data(Hex) 

 is used to read large memory of tag.

(2) Write data operation

<1> Input Write data word address


Start address: (Hex): 

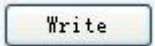
and Password

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


Read/Write data(Hex) 

<3> Click  can see



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

(the method is as follows)


<1> Choose memory , and

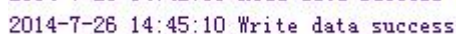
select 

<3> Write EPC number

Read/Write data(Hex) 

(EPC memory Address of tag is 2)

<4> Click  can see



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):	<input type="text" value="0000"/>
Length (Dec):	<input type="text" value="4"/>
Password: (Hex):	<input type="text" value="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):	<input type="text" value="0000"/>
Password: (Hex):	<input type="text" value="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)

<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:

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)

Click

- (4) Revise the kill password 12345678: Write

Start address: (Hex):

Read/Write data(Hex)

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.

- (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.

3.5 Lock Operation

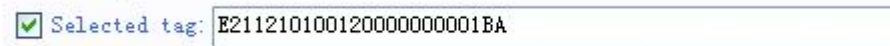
Set Protect For Reading Or Writing

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

☒ UnLock
 ☐ Lock
 ☐ Unlock forever
 ☐ Lock forever

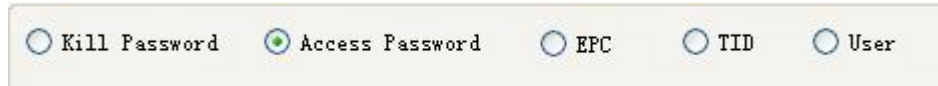
Password: (Hex)

- (1) Select one tag



☒ Selected tag: E211210100120000000001BA

- (2) select memory



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

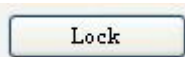
to be operation

- (3) select protect type



☒ UnLock ☐ Lock ☐ Unlock forever ☐ Lock forever

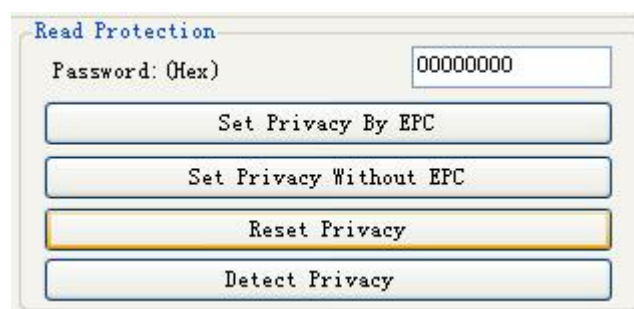
- (4) Input access password Any storage area in no password protection status still must write the correct access password.(password can not be zero).



Lock

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

3.6 Read Protection



Read Protection

Password: (Hex) 00000000

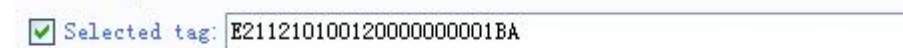
Set Privacy By EPC

Set Privacy Without EPC

Reset Privacy

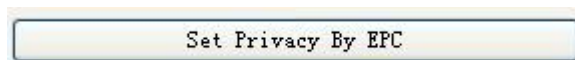
Detect Privacy

Select one tag



☒ Selected tag: E211210100120000000001BA

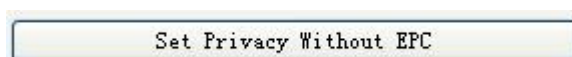
- (1) Set Single Tag Read Protection



Set Privacy By EPC

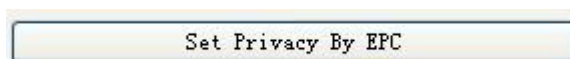
According to EPC number of the tag, setting read protection, make tag unable to be read and written by any order, even if query the tag, it is unable to get EPC number of the tag. Only NXP UCODE EPC G2X tags valid.

- (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



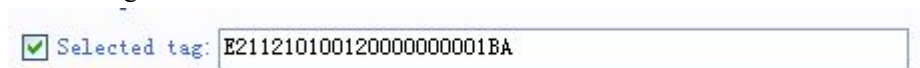
Can't detect tag whether it support read protection order, can only detect single tag whether it is protected. If tag does not support the read protection setting, it must be unprotected.

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

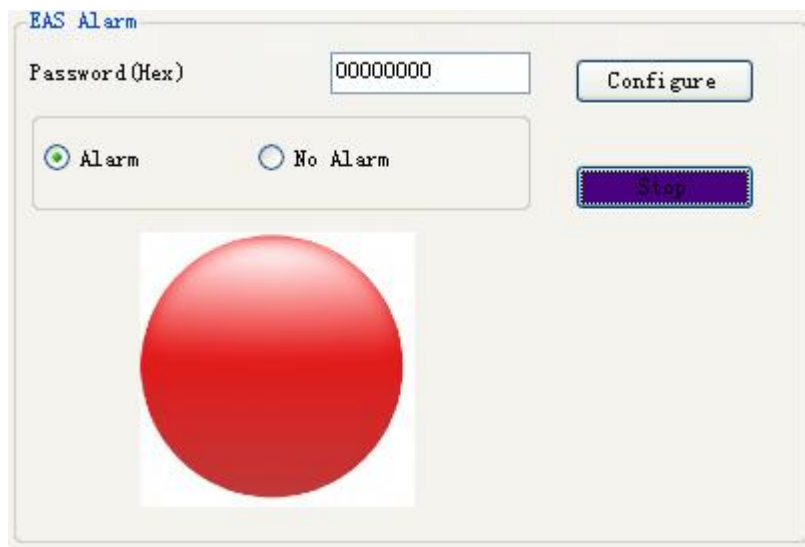


<3> Choose alarm

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

- (2) Check alarm without EPC and access password

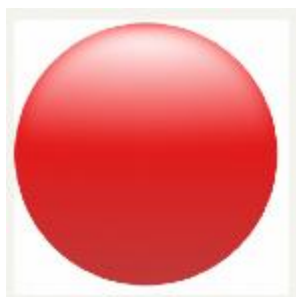
<1> Click check alarm



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

<2> EAS alarm:

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

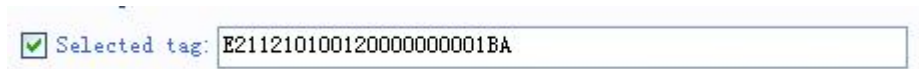


No EAS alarm:

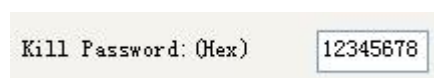
2014-7-29 14:28:26 No EAS Alarm

3.8 Kill Tag (Permanently Kill)

- (1) Select one tag



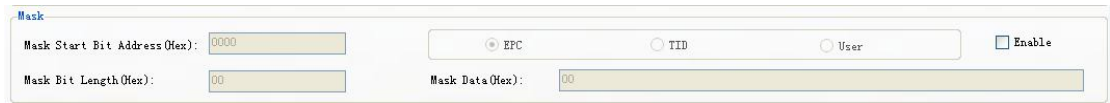
- (2) Write




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

NO.	EPC	Times	RSSI
1	E20034120141F1000DF52E26	8	133

<Mask condition>

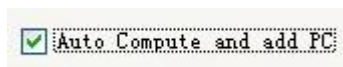


For example change EPC :

<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 Number:

speed:

cmd time(ms):

Total number:

Total time(ms):

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

Tag Number:

speed:

cmd time(ms):

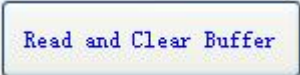
Total number:

Total time(ms):

Tag List:

No.	EPC/TID	Length	Antenna	RSSI	Times
1	201210091812000000000019	12	0001	141	1
2	E201205100000000000001D6	12	0001	152	1
3	E103000000000000000001700	12	0001	135	1
4	2012100918120000000000027	12	0001	146	1
5	E102000000000000000001628	12	0001	139	1
6	2012100918120000000000000	12	0001	143	1
7	2012100918120000000000008	12	0001	140	1
8	E102000000000000000000170A	12	0001	136	1
9	2012100918120000000000008	12	0001	146	1
10	201210091812000000000001E	12	0001	155	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