

SHENZHEN CHAINWAY INFORMATION TECHNOLOGY CO., LTD

# C61 UHF User Manual

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# Statement

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# Chapter 1 Product Intro

## 1.1 Intro

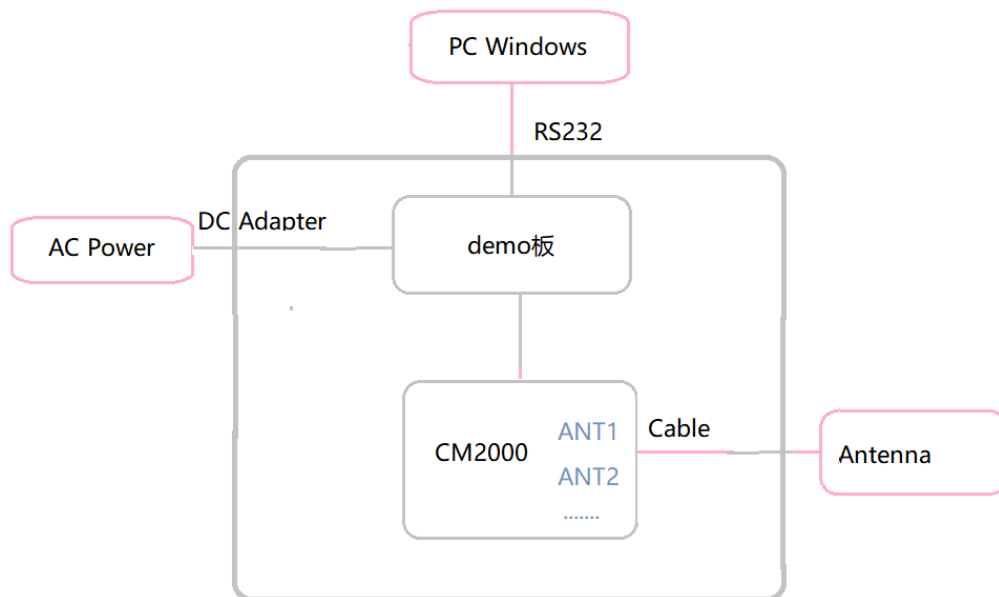
Chainway C61 UHF is a single channel UHF RFID reader module with high performance. It can be integrated in mobile UHF RFID readers, fixed UHF RFID readers, UHF card readers, integrated RFID readers and etc. With high integration level, this reliable module is small in size, low in power consumption. It is also resistant to electromagnetic interference and good at heat dispersion. All make it to absolutely satisfy needs of all environments. The module appeals to challenging industries like warehousing, logistics, apparel, production lines and such.

## **1.2 Brief**

C61 module can be adopted with multiple types of antennas with output powers as 5dBi, 9dBi, 12dBi. The port is SMA and development board, Windows SDK and demos are provided.

## 1.3 Device installation

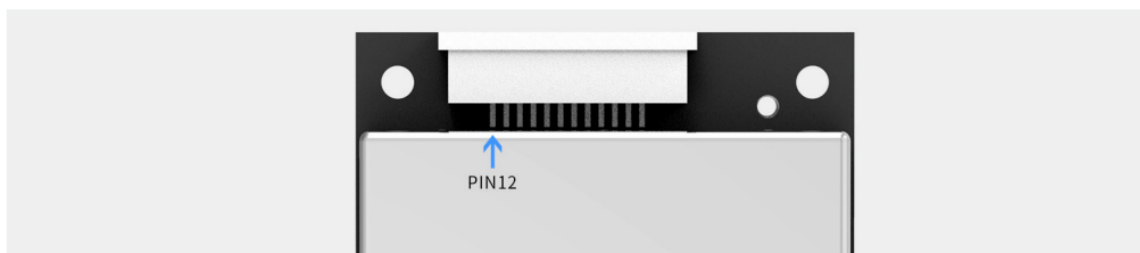
C61 can be connected as Pic.2. PC can connect with development board by cable. Single C61 module can connect with different amounts of antennas according to different models.



Pic.2

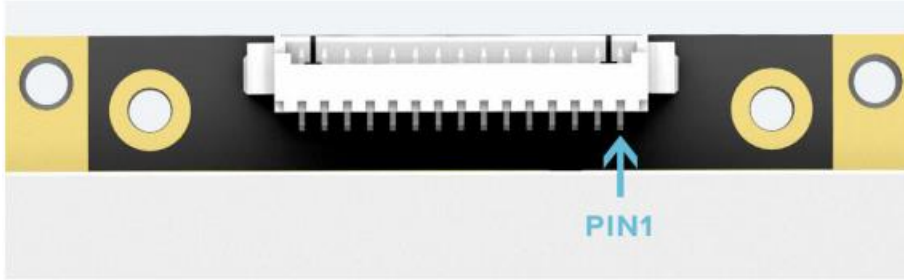
# Chapter 2 Module Interface Definition

## 2.1 C61 UHF



PIN#	Interface	Description
1	VIN	3.5-5.25VDC
2	VIN	
3	GND	Ground
4	GND	Ground
5	EN	High LLT level (>1.2V) boot the module Low LLT level (<0.4V) out the module
6	IO1	Reserved GPIO 3.3V TTL level
7	IO2	Reserved GPIO 3.3V TTL level
8	IO3	Reserved GPIO 3.3V TTL level
9	RXD	UART receive 3.3V TTL level
10	TXD	UART transmit 3.3V TTL level
11	USB_DP	USB_DATA(+)
12	USB_DM	USB_DATA(-)

## 2.2 C61 UHF



PIN	Interface	Description
1	GND	Positive
2	GND	
3	VIN	Negative
4	VIN	Input voltage range : 3.5-5.25 VDC
5	GPIO3	Reserved GPIO 3.3V TTL level
6	GPIO4	Reserved GPIO 3.3V TTL level
7	GPIO1	Reserved GPIO 3.3V TTL level
8	BUZZ	Driving 3.3V buzzer
9	UART_RXD	UART receive 3.3V TTL level
10	UART_TXD	UART send 3.3V TTL level
11	USB_DM	USB_DATA(-)
12	USB_DP	USB DATA(+)
13	GPIO2	Reserved GPIO 3.3V TTL level
14	EN	>1.25V power-on mode <1.18V standby mode
15	GPIO_5	Reserved GPIO 3.3V TTL level



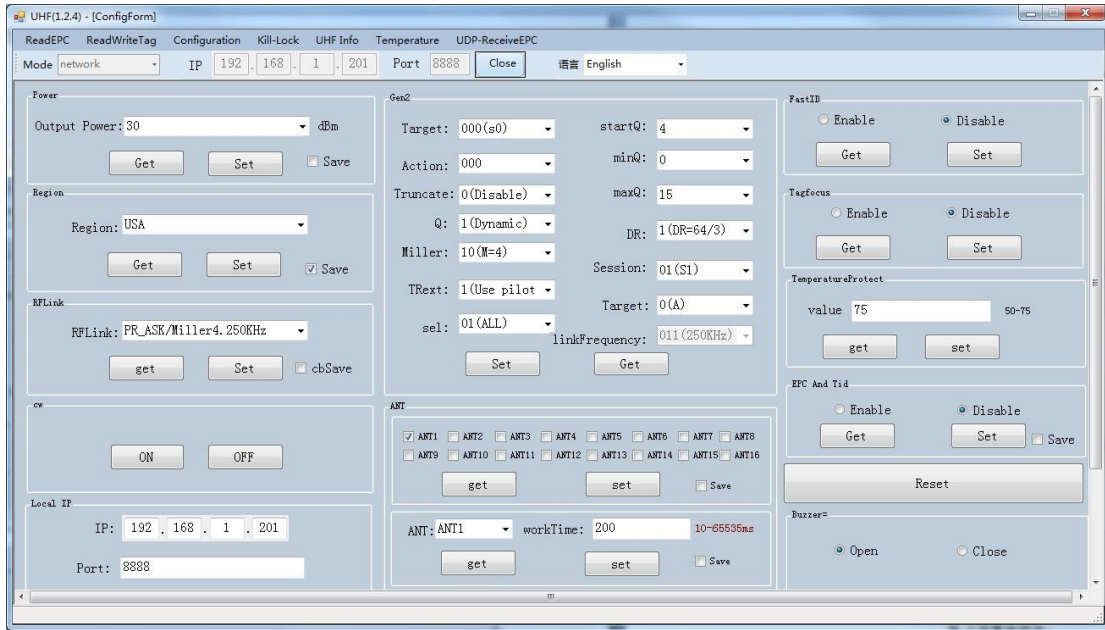
## 2.3 Parameter Setup

Double click UHFAPP.exe to enter software, and connect with device through serial port line. Select **Mode** to “SerialPort”, select COM to according serial port on PC. Click “Open” to connect with device, initiation page is as follows:



If RJ45 has been used as connection, communication **Mode** needs to be selected as “network” and input IP address and port number (default IP address is 192.168.99.202, Port is 8888.) Then click “Open” to connect PC and device. After PC and device have been connected, the status page is as follows:

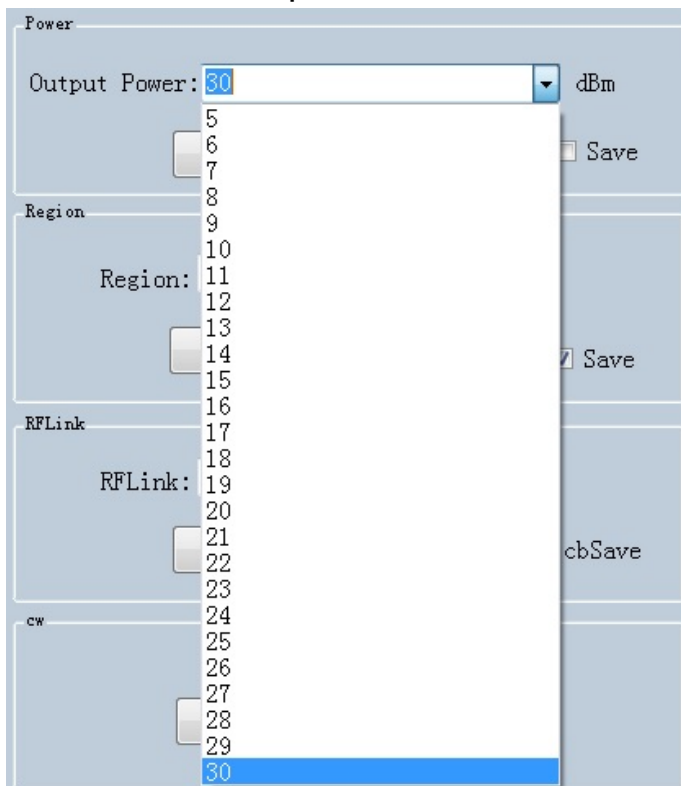




After device has connected with PC, the parameters on interface will be empty. Click “Get” on each option to collect device parameters.

Click “Set” on the page, user can adjust necessary parameters, some parameters are default values.

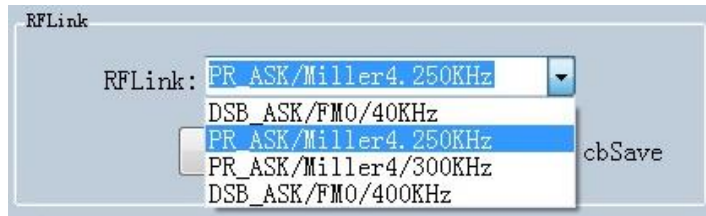
Output power can be set in range of 5 dBm to 30 dBm as following picture, after select value, click “Set” button. If “Save” has been selected, current parameters will be saved after power off device.



Set regions:



## Set RFLink:



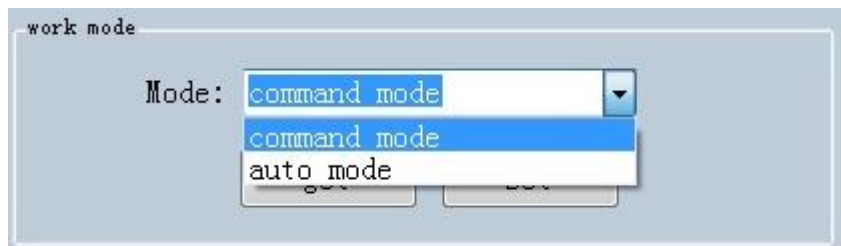
## Set continuous wave:



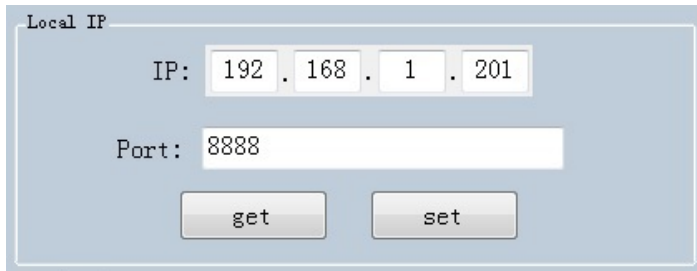
There are two work modes can be selected, "command mode" and "auto mode".

Under "command mode", user could collect tag data in "Read EPC" page, click "Start" to send command to device on PC, click "Stop" to stop collecting tag data.

Under "auto mode", user could collect tag data in "UDP-ReceiveEPC" page, click "Start" to receive data, click "Stop" to stop receiving data. After selecting "auto mode", the device needs to be restarted.



Set IP address and make sure PC and device have used in same segment. For example, if IP address of PC is 192.168.1.109, mask is 255.255.255.0, the device IP address can be set to 192.168.1.201, port number doesn't need to be changed.



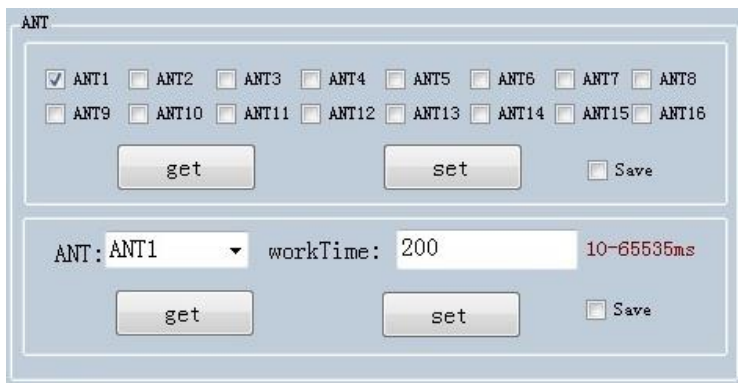
Local IP

IP: 192 . 168 . 1 . 201

Port: 8888

get set

Set antenna connection, there are 4 I/O ports on device and have been marked as ANT1, ANT2, ANT3, ANT4. User needs to select antenna which has been connected and click "set".



ANT

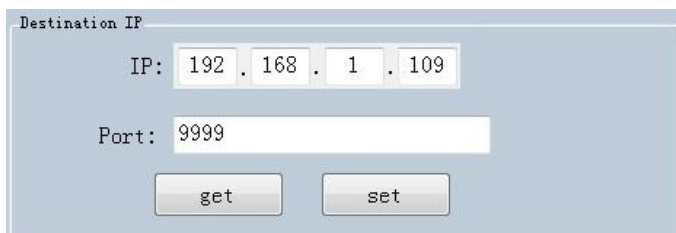
ANT1  ANT2  ANT3  ANT4  ANT5  ANT6  ANT7  ANT8  
 ANT9  ANT10  ANT11  ANT12  ANT13  ANT14  ANT15  ANT16

get set Save

ANT: ANT1 workTime: 200 10-65535ms

get set Save

Set destination IP address and port number, destination IP address is the IP address which used for reading tag data under "auto mode".



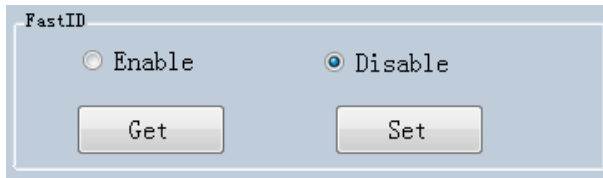
Destination IP

IP: 192 . 168 . 1 . 109

Port: 9999

get set

### Set FastID:



FastID

Enable  Disable

Get Set

### Set TagFocus:



Tagfocus

Enable  Disable

Get Set

Set protective temp. It means to setup highest operating temperature of UHF module:




TemperatureProtect

value 75 50-75

get set

### Set EPC and TID:



EPC And Tid

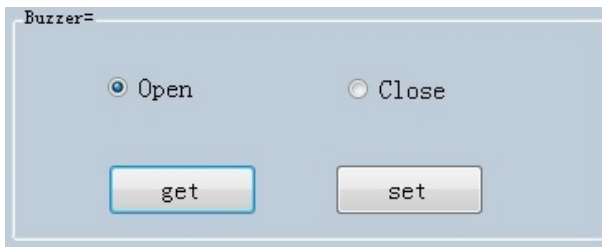
Enable  Disable

Get Set  Save

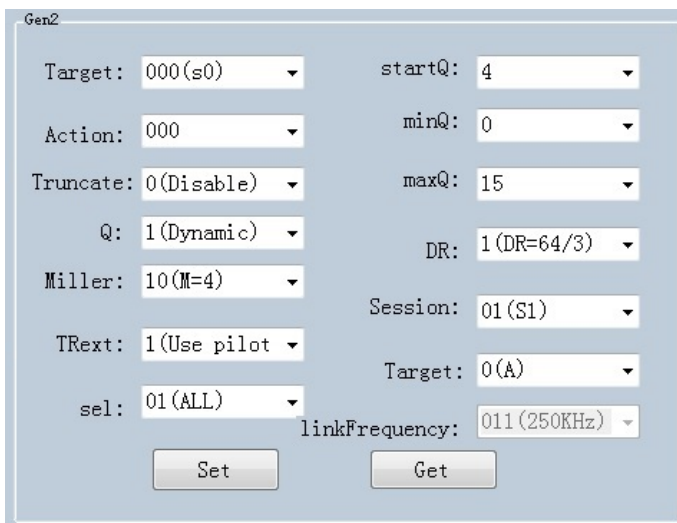
Reset, click “Reset” button to restore device to default value. After reset, user needs to click “Close” and “Open” to reconnect the device.



Set Buzzer, click “Open” to switch on buzzer function, device will play notification sound when reading tags.



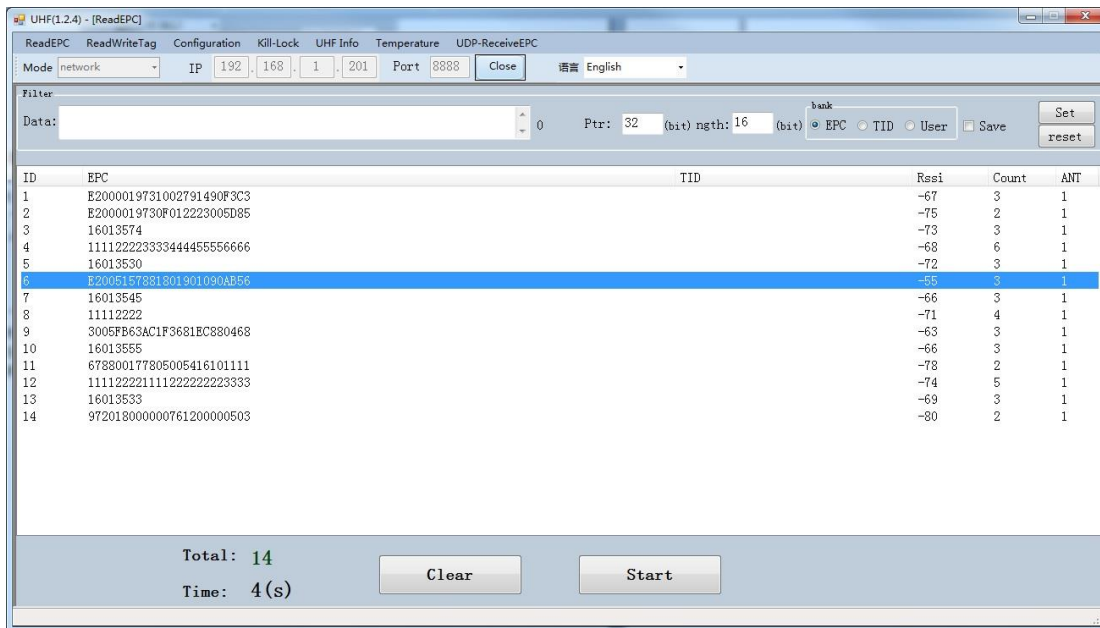
Set Gen2, this parameter needs to be adjusted by actual requirements.



# Chapter 3 Read and Write EPC

## 3.1 Read EPC

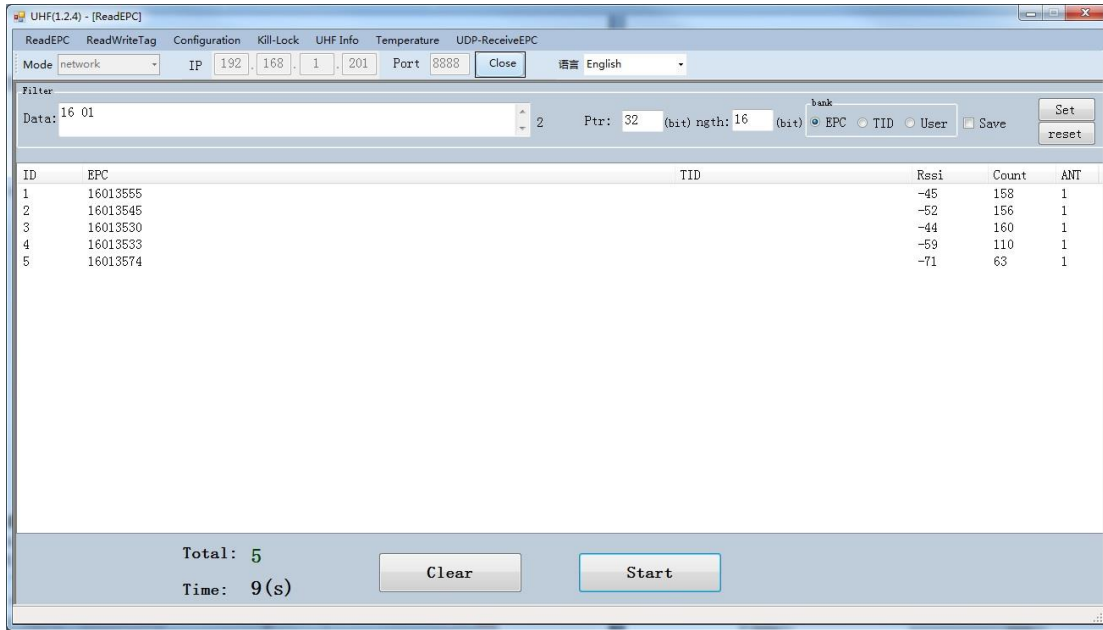
Click “ReadEPC” in menu to enter EPC page, click “Start” to read tags, click “Stop” to stop reading. The EPC, RSSI, Count number and ANT number (antenna channel) will be recorded in window as following pic:



User could enter data in “Filter” to filter EPC of special tags, the maximum filter DL is 96 bits. User needs to setup data, initial address, data length and click “Set”. After filtered data has been set, the device will read and search for the tag which has been filtered.

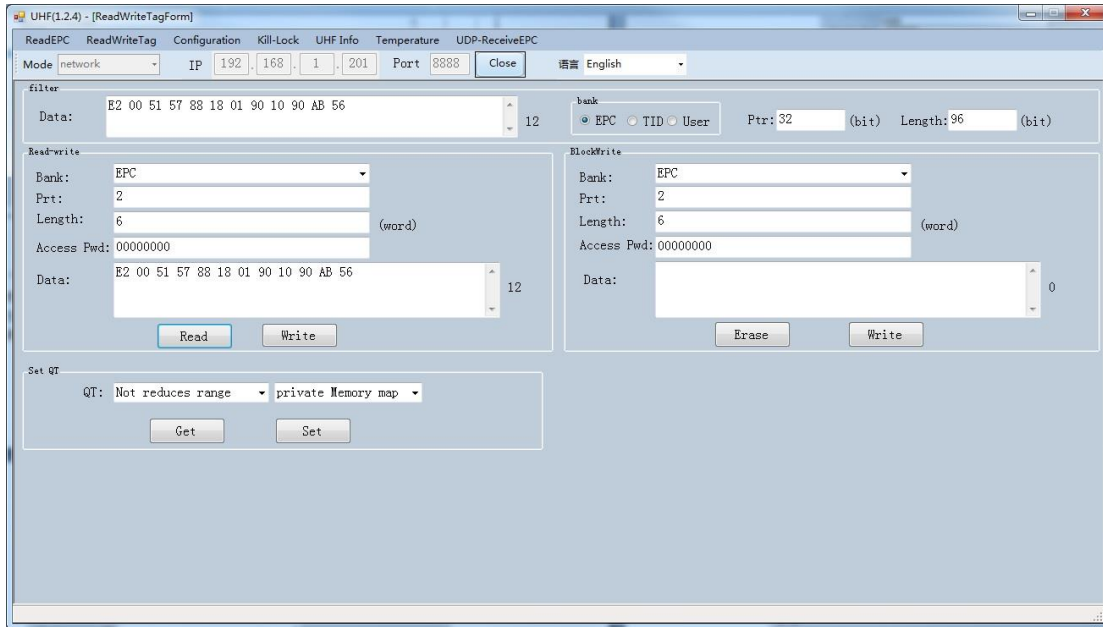
For example: enter 16 01 in “Data”, initial address data length is 32(bit), length is 16(bit), select EPC in “bank”, click “Set” and click “Start” to start scanning tags which the address start at 16 01:





## 3.2 Read & Write Tags

Click “ReadWriteTag” to enter its page, TID area can be read only, RESERVED, EPC and USER areas can be read and written.



filter

Data: E2 00 51 57 88 18 01 90 10 90 AB 56 12

Read-write

Bank: EPC

Prt: RESERVED

Length: EPC (word)

Access Pwd: 00000000

Data: 0

Read Write

Click one option in “Read-write” window to enter tag reading mode, EPC will be automatically copied into “Data” block in filter, default option is EPC reading, click “Read” to read 12 bytes of EPC area.

filter

Data: E2 00 51 57 88 18 01 90 10 90 AB 56 12

Read-write

Bank: EPC

Prt: 2

Length: 6 (word)

Access Pwd: 00000000

Data: E2 00 51 57 88 18 01 90 10 90 AB 56 12

Read Write

For “RESERVED” area, user could read 4 words at maximum, previous 2 words are password of KILL function, last 2 words are access passwords:

filter

Data: E2 00 51 57 88 18 01 90 10 90 AB 56 12

Read-write

Bank: RESERVED

Prt: 0

Length: 4 (word)

Access Pwd: 00000000

Data: 20 18 20 18 20 18 20 18 8

Read Write

Read TID area:

filter

Data: E2 00 51 57 88 18 01 90 10 90 AB 56 12

Read-write

Bank: TID

Prt: 0

Length: 6 (word)

Access Pwd: 00000000

Data: E2 00 34 12 01 3C FA 00 09 AC AB 56 12

Read Write

## Read USER area:

The screenshot shows a software interface with two main sections: "filter" and "Read-write".

**filter section:**

- Label: Data:
- Text input: E2 00 51 57 88 18 01 90 10 90 AB 56
- Vertical scrollbar on the right with the number 12.

**Read-write section:**

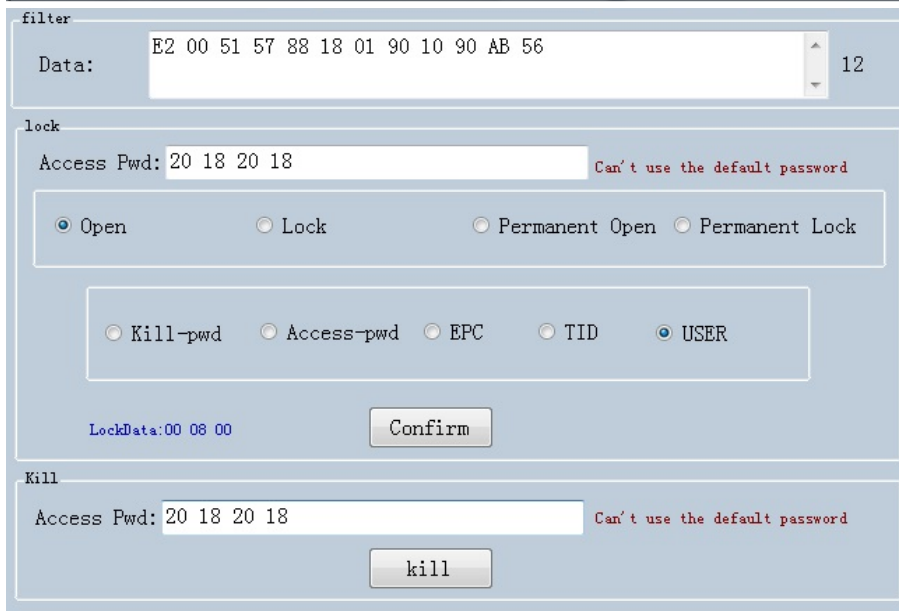
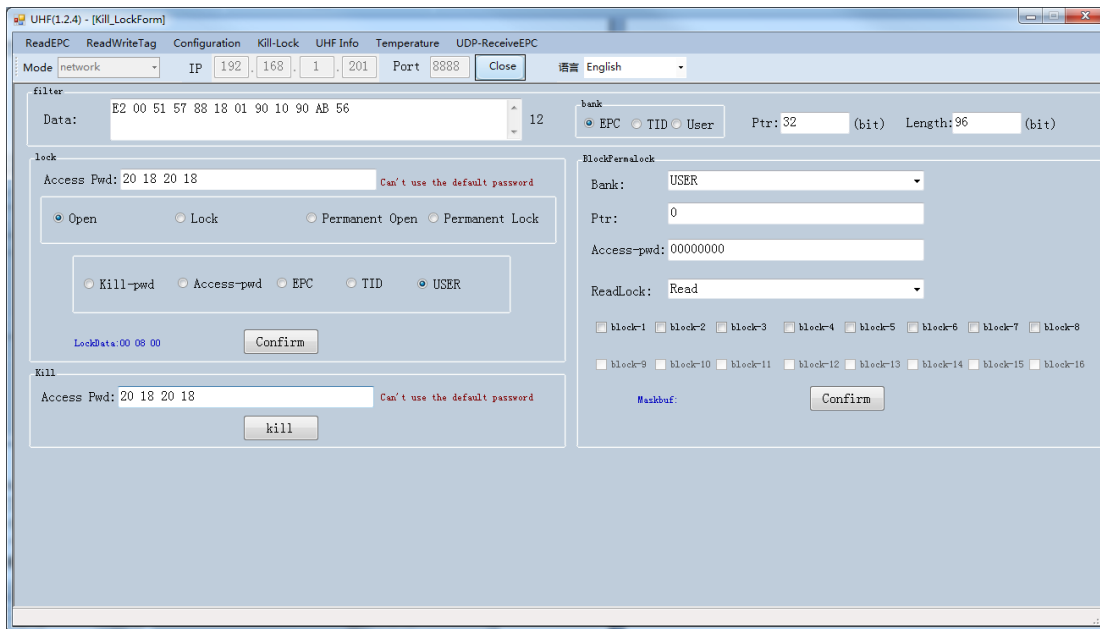
- Bank: USER (dropdown menu)
- Prt: 0 (text input)
- Length: 4 (text input) with the label "(word)" to its right.
- Access Pwd: 00000000 (text input)
- Data: 12 34 12 34 12 34 12 34 (text input)
- Vertical scrollbar on the right with the number 8.

At the bottom of the "Read-write" section, there are two buttons: "Read" and "Write".

Data could be written in EPC, RESERVED and USER areas, select according areas and input initial address, length, input data into "Data" window and click "Write" to write data into according areas.

### 3.3 Lock UHF Tag

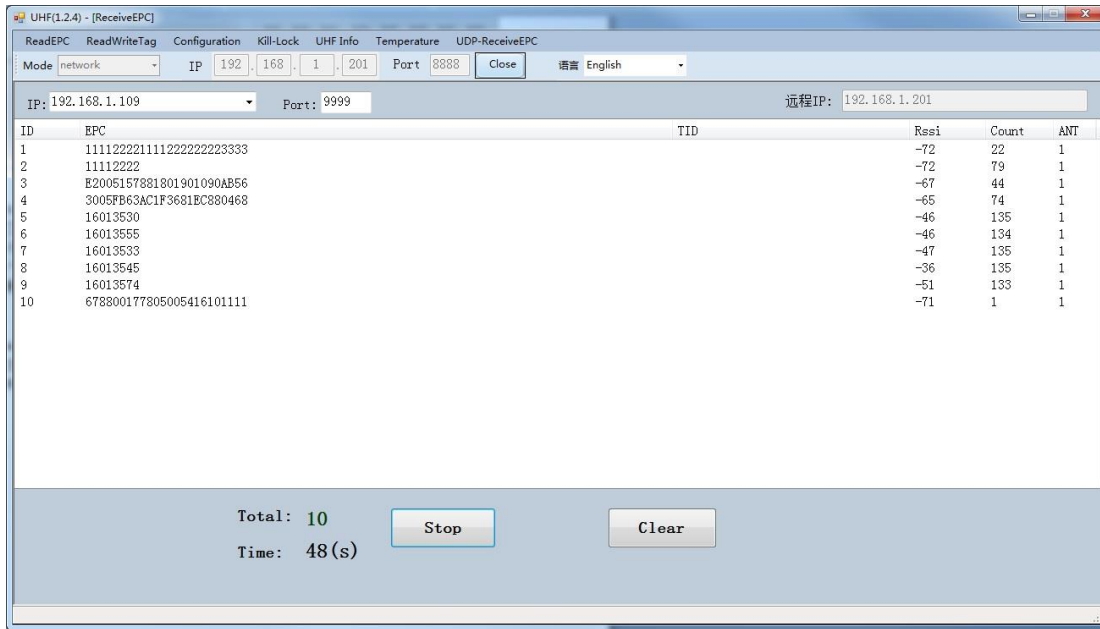
Click “Kill-Lock” in main menu to enter Tag locking function. For this function, user could execute “Lock”, “Kill”, “Open”, “Permanent Open” and “Permanent Lock”, to execute “Lock” function, password is needed. If user wants to kill UHF tag, need to enter password and tag will be wasted permanently.



### 3.4 UDP-ReceiveEPC

After auto mode has been selected, restart device and select UDP-ReceiveEPC, click “Open” to connect device and select IP address of PC in address column, click “Stop” to stop receiving UHF tag data.

If user needs to escape auto work mode, “command mode” needs to be selected in work mode.



## 3.5 Others

Click “UHF information” in main menu to read hardware version and firmware version, click “Temperature” to read current temperature value of UHF module.

### **FCC Caution.**

§ 15.19 Labeling requirements.

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 undesired operation.

§ 15.21 Information to user.

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

§ 15.105 Information to the user.

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.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.