

SHENZHEN CHAINWAY INFORMATION TECHNOLOGY CO., LTD

# UR1A Integrated UHF Reader

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## Statement

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Chainway UR1A is a high-performance fixed UHF reader. Chipset can be integrated with either Impinj R2000 or Impinj E710. It has high integration, excellent performance, stability and reliability. It has superior electromagnetic interference resistance, heat dissipation and performance, and can meet the installation and use needs of various indoor and outdoor environments. It is suitable for warehousing, archives management, book management, banks, footwear, jewelry, watches, industrial laundry and production line management, medical instrument cabinet, unmanned retail and other challenging application environments with high requirements for RFID reading performance.

## 1. Overview

The UR1A uses DC 12V/2A power supply, integrates UHF, feeder and antenna, also integrates RS232 and RJ45 interfaces, provides C# demo.

## 2. Device List

- (1) UR1A fixed UHF all-in-one device; 12V 2A power adapter.
- (2) PC and software management, where UHFAPP.exe is an executable file, as shown in Pic 1.

名称	修改日期	大小	类型	总大小	可用空间
ipConfig.txt	2018/12/20 14:41	1 KB	文本文档		
UHFAPI.dll	2018/11/8 15:15	204 KB	应用程序扩展		
<u>UHFAPP.exe</u>	2018/11/14 17:59	197 KB	应用程序		
WindowsFormsControlLibrary1.dll	2018/7/20 10:11	9 KB	应用程序扩展		

Pic.1

## 3. Connect Device

The connection of fixed reader is shown in Pic 2. PC can connect equipment through serial cable, with a speed of 115200bps; Or the RJ45 network cable is connected to the device (default IP: 192.168.99.202, port: 8888). The IP addresses of the PC and the device are set in the same network segment. The PC can connect multiple readers and writers through network devices such as switches.



Pic.2

1: RJ45

2: Power supply

3: GPIO

4: Serial port

#### 4. Parameter Setup

Click UHFAPP in the management software folder, connects equipment through serial cable, and connection mode

select "Serial port", COM selects the serial port number of the computer connecting device, click "Open" button to connect the device, and the initial interface is configuration

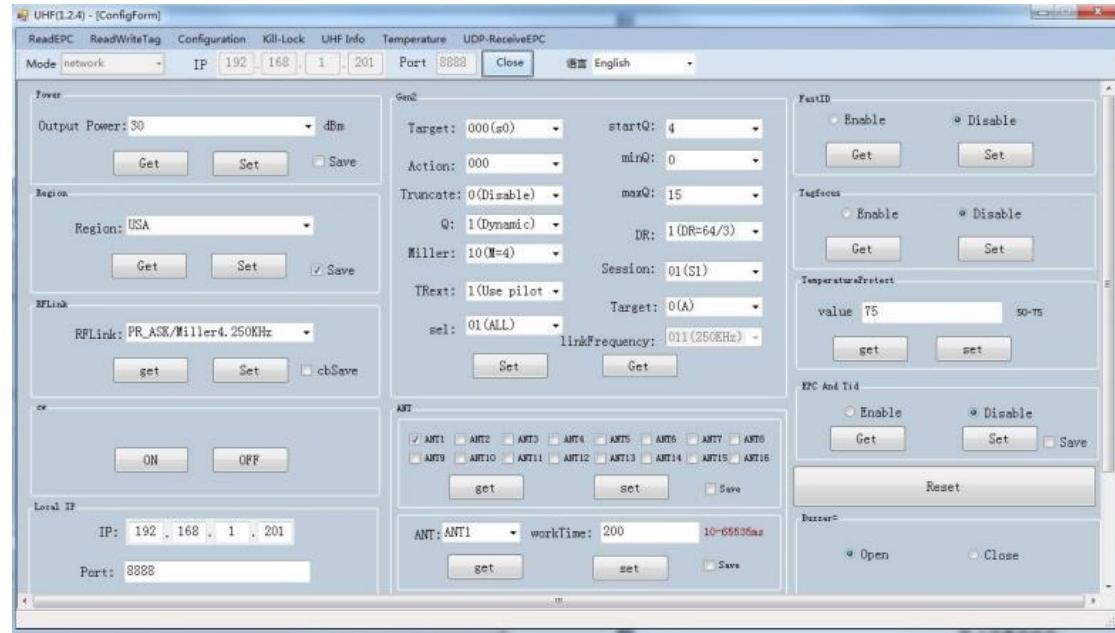
Interface, as shown in Pic 3.



Pic.3

Connect via RJ45 network cable, select "Network" as the communication mode, enter the device IP address and port number in the IP input box (factory default IP: 192.168.99.202, port: 8888; the IP address of the PC should be set in the same network segment), click the "Open" button, and the interface after connecting the PC and the device is as shown in Pic. 4. Click

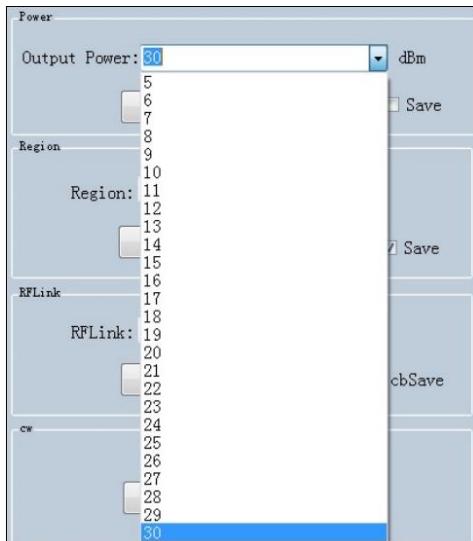
the "Close" button to disconnect.



Pic.4

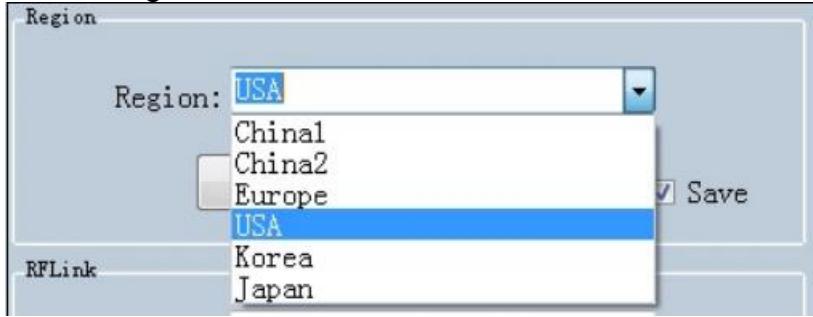
When the device is connected, the parameters in the configuration interface are empty. Click the "Get" button under each parameter to obtain the device parameters. You can click the "Setting" button in the main menu to enter the configuration interface. The following parameters can be set, and most parameters are set by default.

Set the output power. The output power setting range is 1~30dBm. If you want to change the output power, select the power value in the pull-down option, as shown in Pic 5, and click the "Set" button. If the "Save" button is checked in advance, the set parameters will be saved until the equipment is shut down; If the "Save" button is not checked in advance, the parameters set after shutdown will not be saved. This is true for other parameter items with "Save" or "Save".

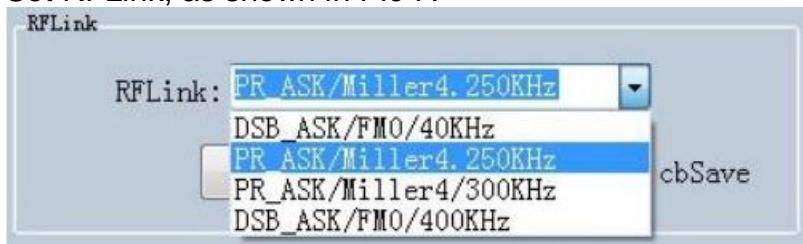


Pic.5

Set the region, as shown in Pic 6.



Set RFLink, as shown in Pic 7.



Set continuous wave, as shown in Pic.8



Set the working mode. There are two working modes: "command mode" and "auto mode".

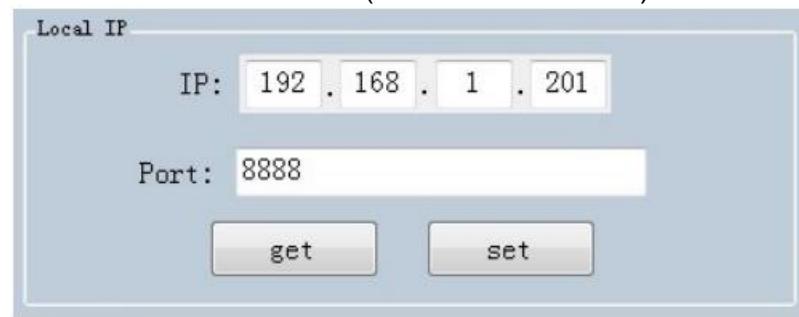
Under the command working mode, receive the tag data in the "Inventory EPC" window, click the "Start" button, the PC sends the command to the equipment, the equipment inventory tag, the PC receives the inventory data, and click the "Stop" button to stop the equipment inventory.

In automatic working mode, in "UDP ReceiveEPC", the window receives tag data, click "Start" to receive data, and click "Stop" to stop receiving data. After the automatic working mode is set, the device must be restarted to take effect, as shown in Pic 9.



Pic.9

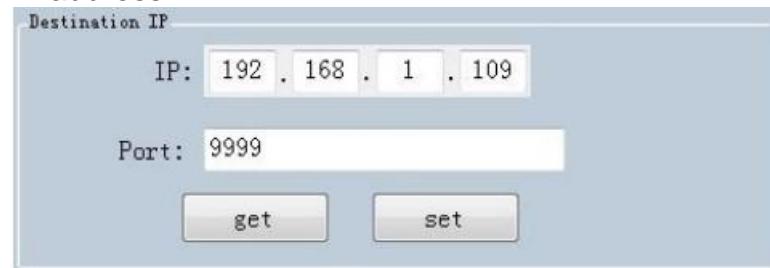
Set the IP address of the device. The IP address of the device and the IP address of the PC are in the same network segment. For example, the IP address of the PC is 192.168.1.109, and the mask is 255.255.255.0. You can set the IP address of the device to 192.168.1.201, and the port number does not need to be modified. (as shown in Pic 10).



Pic.10

Set the target IP address and port number. The target IP address is the IP address of the PC receiving the inventory data under the automatic working mode of the device.

IP address:



Set FastID:



Set TagFocus:

Tagfocus

Enable  Disable



Set protection temp. of UHF module:

TemperatureProtect

value 75 50-75



### Set EPC and TID:



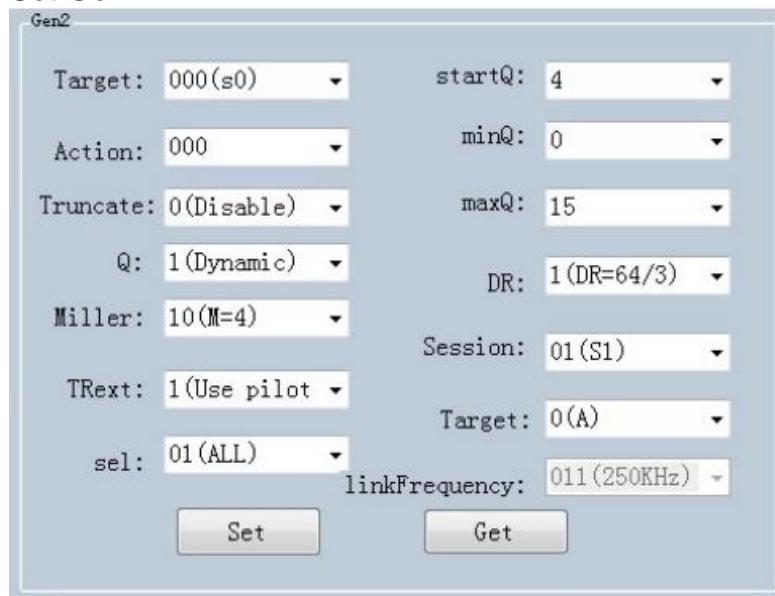
To reset the software, click the "Reset" button to reset the device. After the reset, click the "Close" button, and then click the "Open" button to reconnect the device.



Set the buzzer, turn on the buzzer, and the device will emit a prompt tone when reading tags. Turn off the buzzer, and the device will not emit a prompt tone when reading the tag.



### Set Gen2:

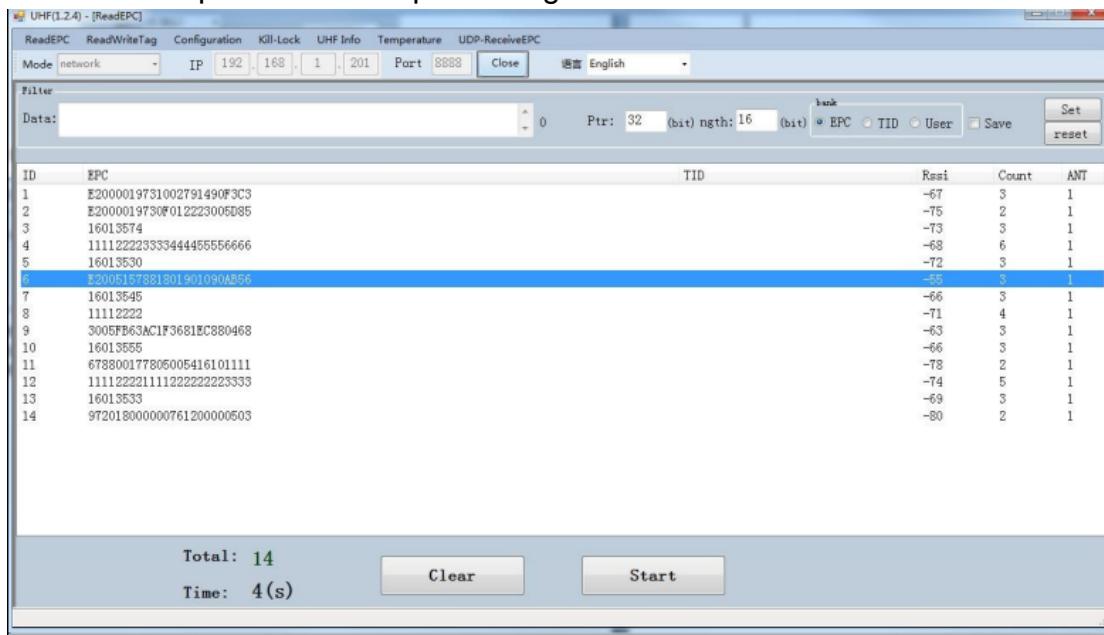


## 5. Inventory

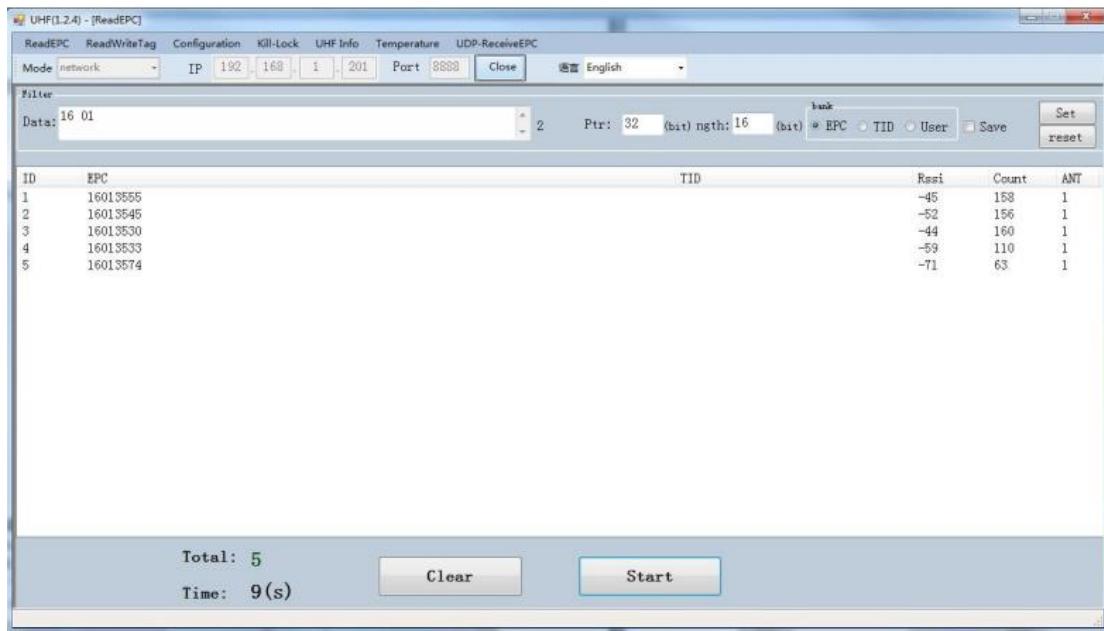
### 5.1 Tag Inventory

Click the "Inventory EPC" button in the main menu to enter the inventory EPC interface, and click the "Start" button to start the inventory tag.

Click the "Stop" button to stop counting.

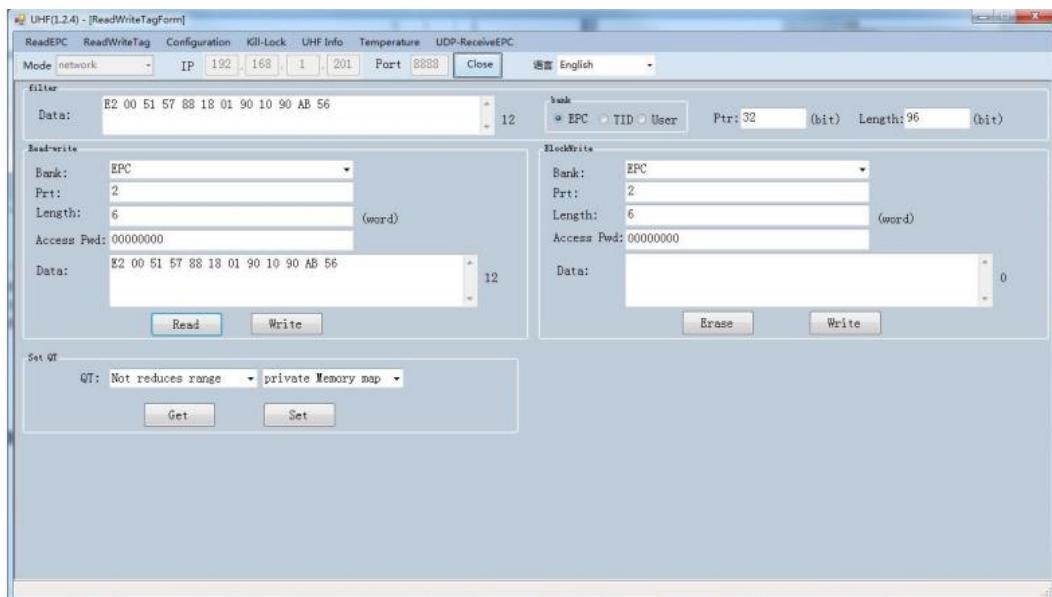


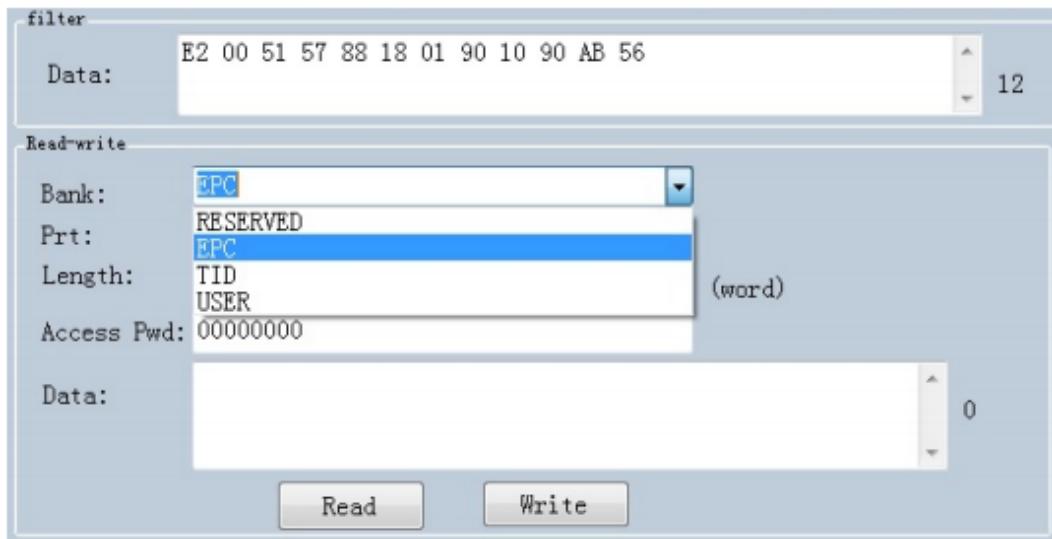
User can enter the filter data in the "Filter" input box. The EPC filter data can be up to 12 bytes (96bit). To set the filter data, starting address, and length, click the "Set" button. After setting the filter data, only the tags that meet the filter conditions are counted. For example, in the filter input box, enter 16 01, starting address 32 (bit), length 16 (bit), select EPC for the bank, click the "Set" button, and then click the "Start" button to start counting. Only counting EPC is the tag of starting 16 01.



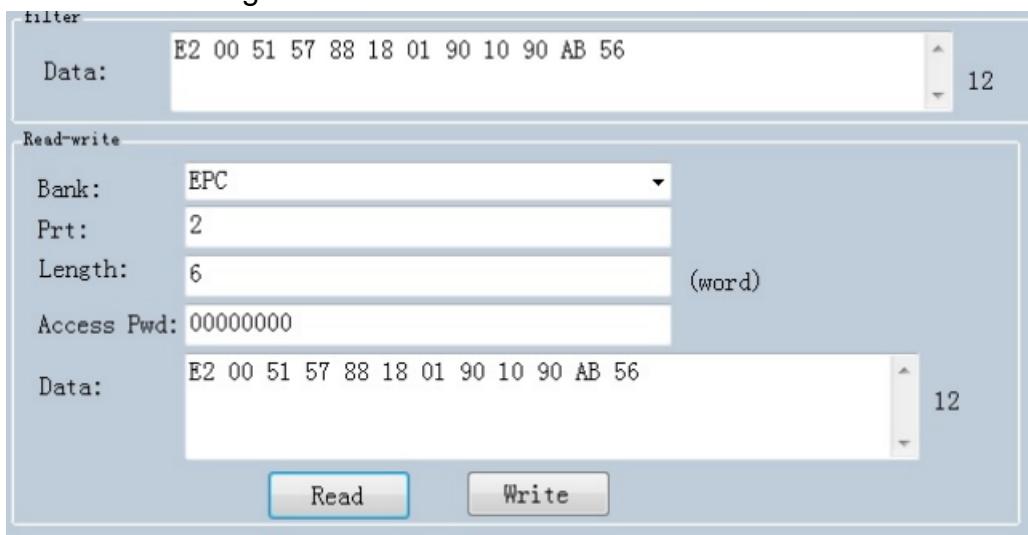
## 5.2 Read&Write Tag

Click the "Read Write Tag" button in the main menu to enter the read write tag interface. The tag readable storage area includes RESERVED, EPC, TID, USER, and the writable storage area includes RESERVED, EPC, USER.





Click a tag in the counting EPC window to enter the tag reading window, and the EPC data will be automatically copied to the filter input box, The default is to read the EPC storage area. Click "Read" to read 12 bytes of the EPC storage area.



Read the RESERVED area, and read 4 words at most. The first two words are the kill password, and the last two words are the access password:

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:

filter

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

Read-write

Bank: USER

Prt: 0

Length: 4 (word)

Access Pwd: 00000000

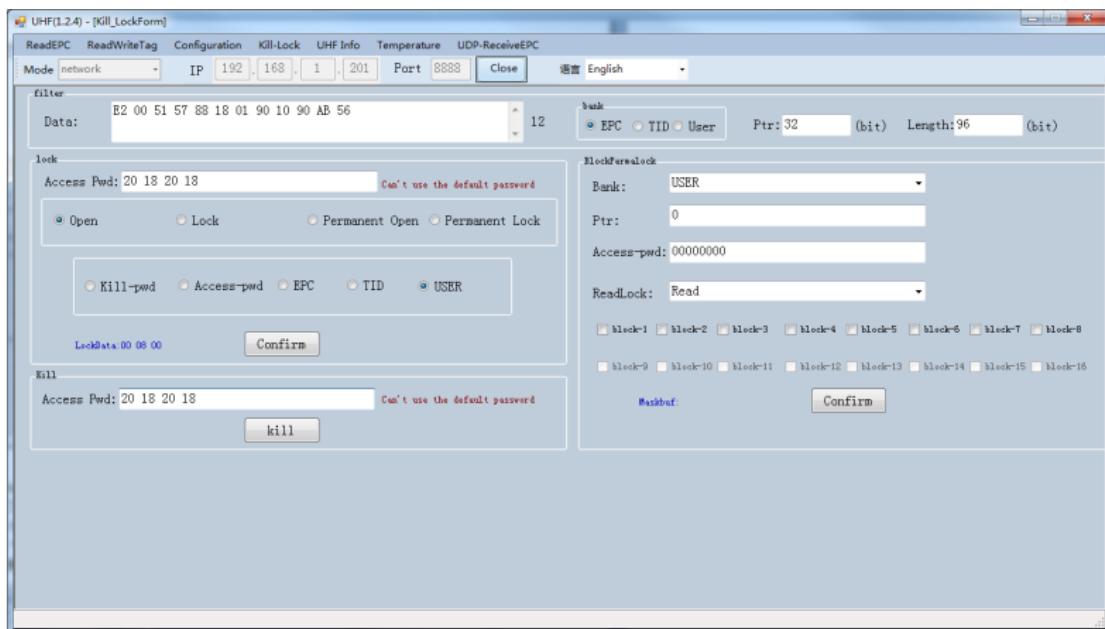
Data: 12 34 12 34 12 34 12 34 8

Read Write

EPC, RESERVED and USER areas can be used to write data. Select the corresponding area, enter the starting address and length, enter data in the "Data" input box, click "Write", and the "Write Successful" data will be written to the corresponding storage area.

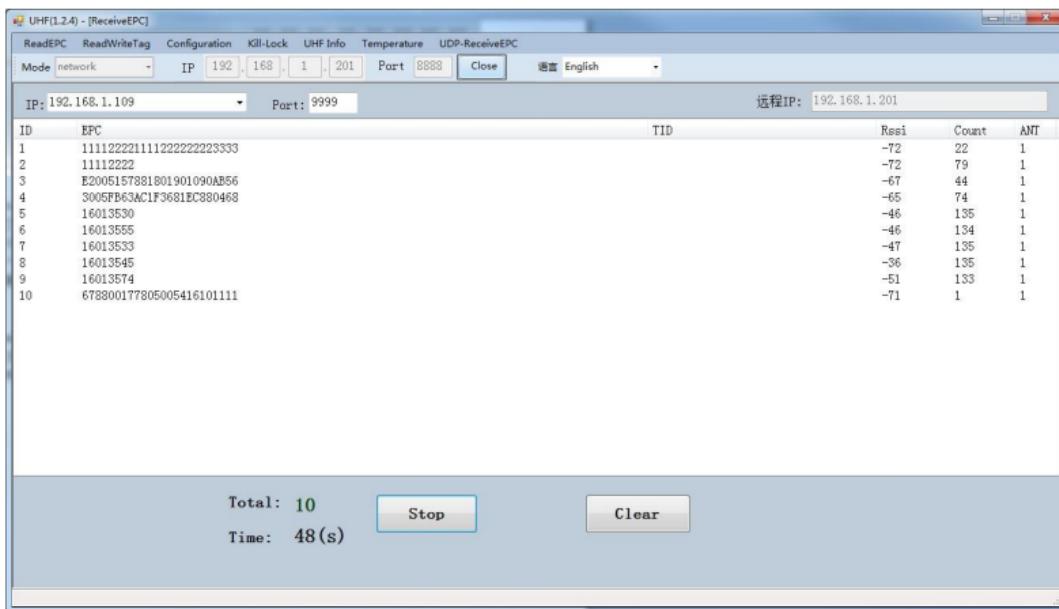
### 5.3 Lock

Click the "Lock Tag" button in the main menu to enter the lock tag interface, as shown in Figure 27. You can perform "Open", "Lock", "Permanently Open" and "Permanently Lock" operations on different areas of the tag. To perform lock tag operations, you need to enter the access password. The tag can be killed, and the kill password must be entered. After the kill operation, the tag is wasted.



### 5.4 UDP-ReceiveEPC

After setting the automatic working mode, restart the device, select UDP ReceiveEPC in the main menu, click the "Open" button to connect the device, select the IP address of the PC receiving the inventory tag in the IP address bar, click "Start" to start receiving the tag data of the equipment inventory, and click "Stop" to stop receiving the tag data of the equipment inventory. If you want to exit the automatic working mode, set the "Command Mode" in the work mode item of the configuration interface.



## 5.5 Others

Click the "UHF information" button in the main menu to read the device hardware version and firmware version number, and click the "Temperature" button in the main menu to read the module temperature.

Frequency Bands:

865.7~867.5 MHz

Modulation Mode: FSK

Antenna: Circular polarization Antenna

CE Maintenance

Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

The device complies with RF specifications when the device used at 20cm you're your body.

Declaration of Conformity

Shenzhen Chainway Information Technology Co., Ltd hereby declares that this Integrated RFID Reader is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU. In accordance with Article 10(2) and Article 10(10), This product is allowed to be used in all EU member states.



FCC Caution.

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.

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

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.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 30 cm between the radiator & your body.