Superisys RF-Useries UHF Reades Demo User manual

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1. Software introduction

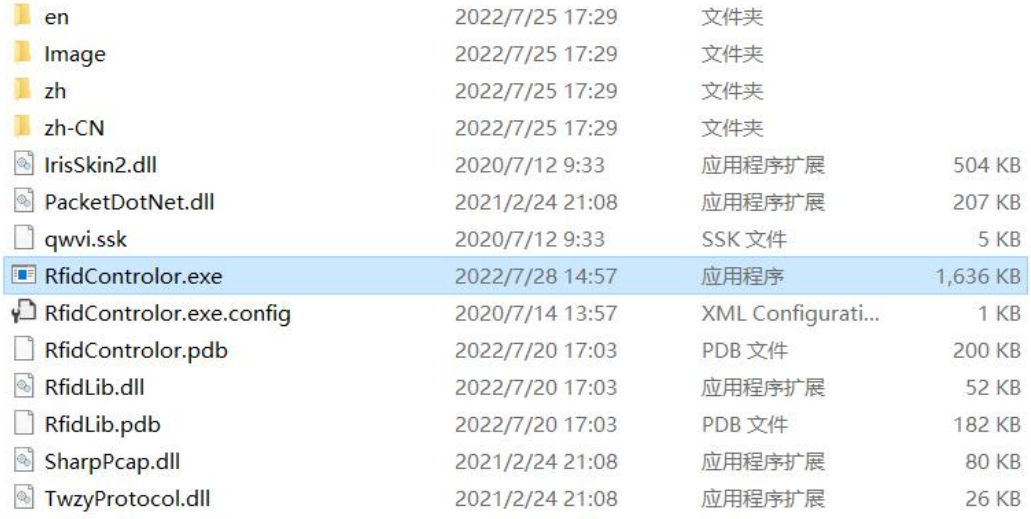
RFID Controlor is a PC test Demo software for RF-H/U series High/UHF integrated industrial RFID read/write head, including the Following functions:

- ✓ Communication connection and communication parameter Setting of read and write head
- ✓ Read and write head Read and write function tests and read and Write data monitoring
- ✓ Diagnostic function test of read and write headers
- ✓ Read and write head automatic cache function test and data Monitoring

This document describes how to use the UHF read/write head Demo.

2. Software use

Decompress the RFID Controlor Demo software, open the Corresponding folder, and go to the root directory as shown in the Following figure:



Double-click the "RfidControlor.exe" application to open the RFID Controlor Demo software interface.

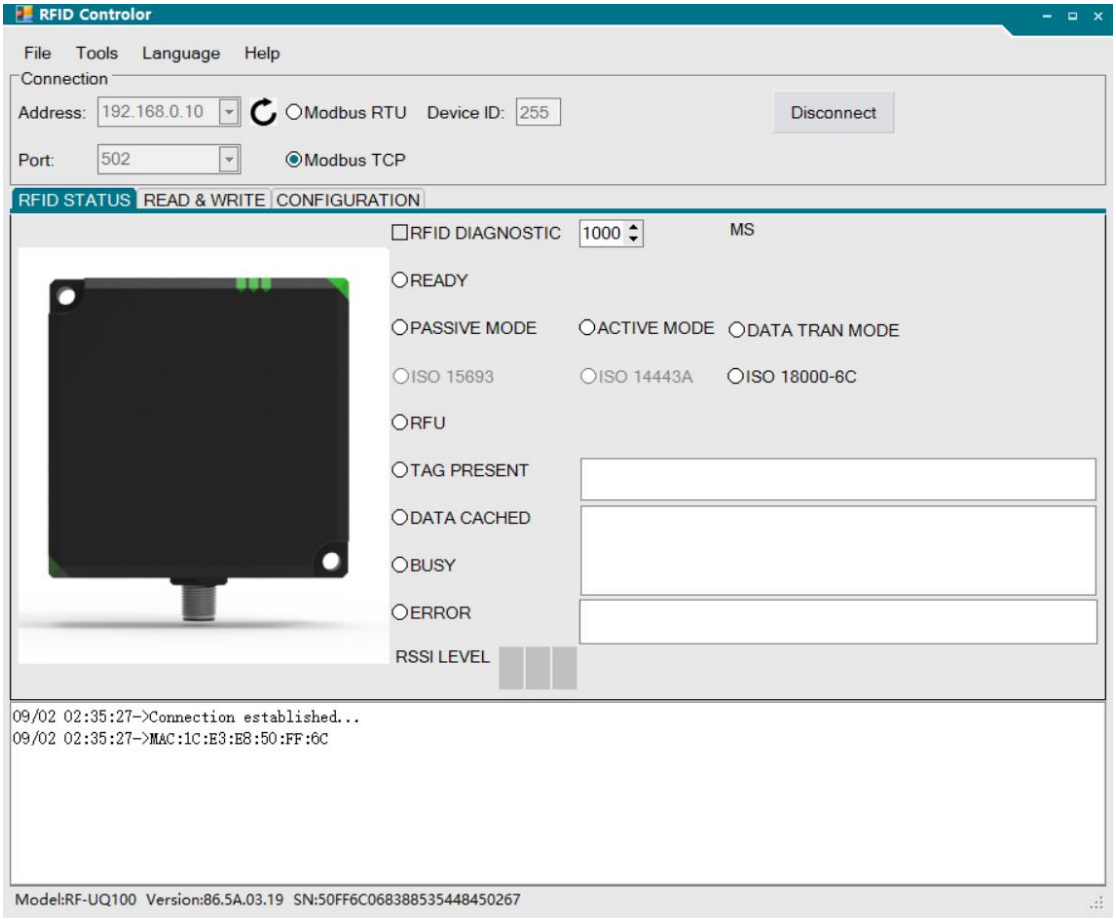
2.1 Read/write head communication connection

The RF-U series UHF read/write head supports both Modbus RTU Over serial port and Modbus TCP over Ethernet. The default Communication parameters are as follows:

Communication Type	communication protocol	Interface default parameter		
Serial port	Modbus RTU	COM □: COMxx	Baud Rate: 115200	ID：1
Ethernet	Modbus TCP	IPsite: 192.168.0.10	port Number: 502	ID: Broadcast Default is 255

This document uses the Modbus TCP communication as an example. The default IP address and port number of the Modbus TCP Communication are 192.168.0.10 and 502, as shown in the following Figure:

Click the "Connect" connection button on the upper right, and the Read-write head establishes a communication connection, as shown in The picture below:

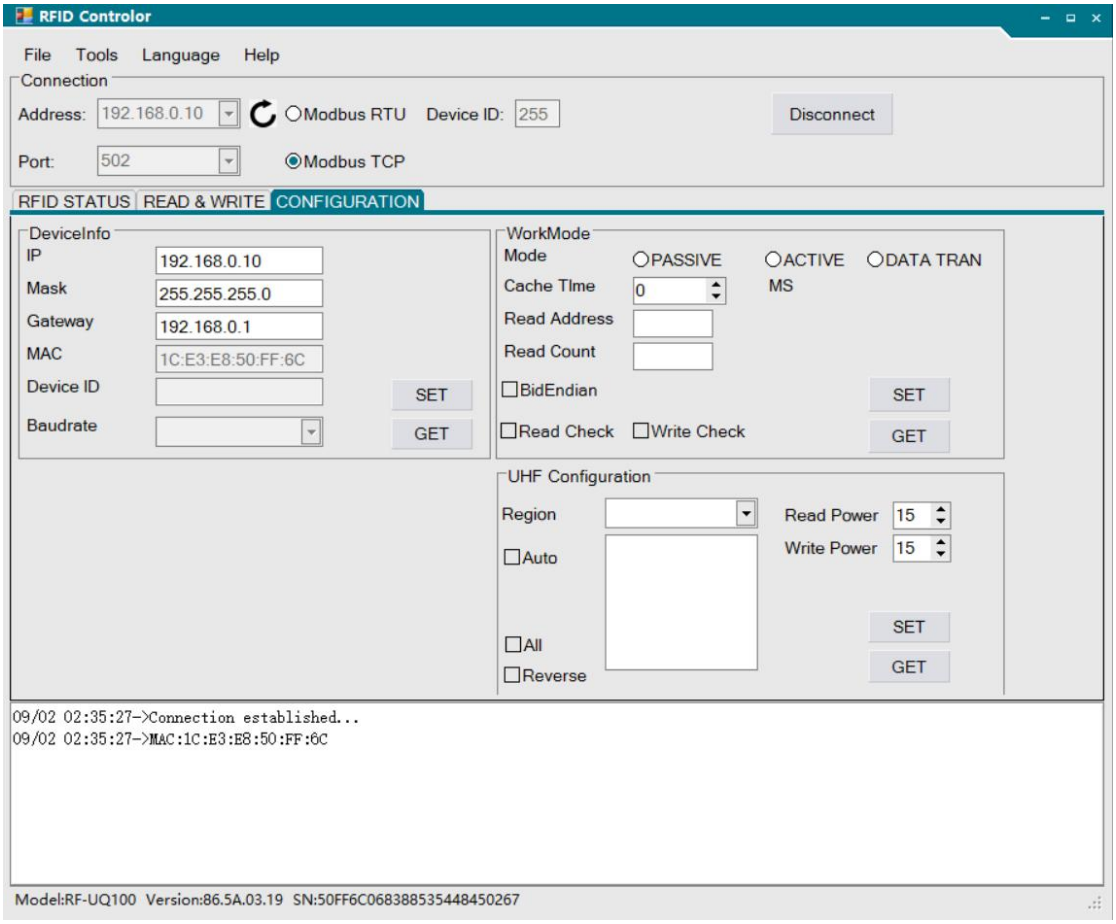


After the read-write header communication connection is successfully Established, the following information data monitoring bar is Automatically displayed:

- MAC address of the read/write header——MAC：XXXX；
- Type of the read/write head——Model：XXXX；
- Version number of the software——Version：86.5A.03.19；
- Serial number of the read/write head——SN:XXXX。

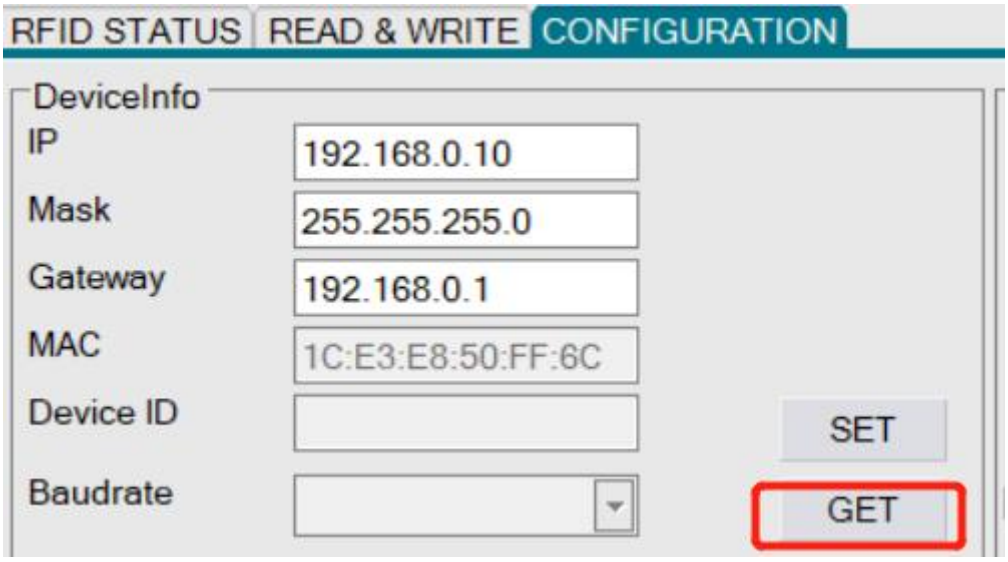
2.2 Set read/write header parameters

After the read/write header is successfully connected, click the "CONFIGURATION" parameter configuration bar interface, as shown in The following picture:



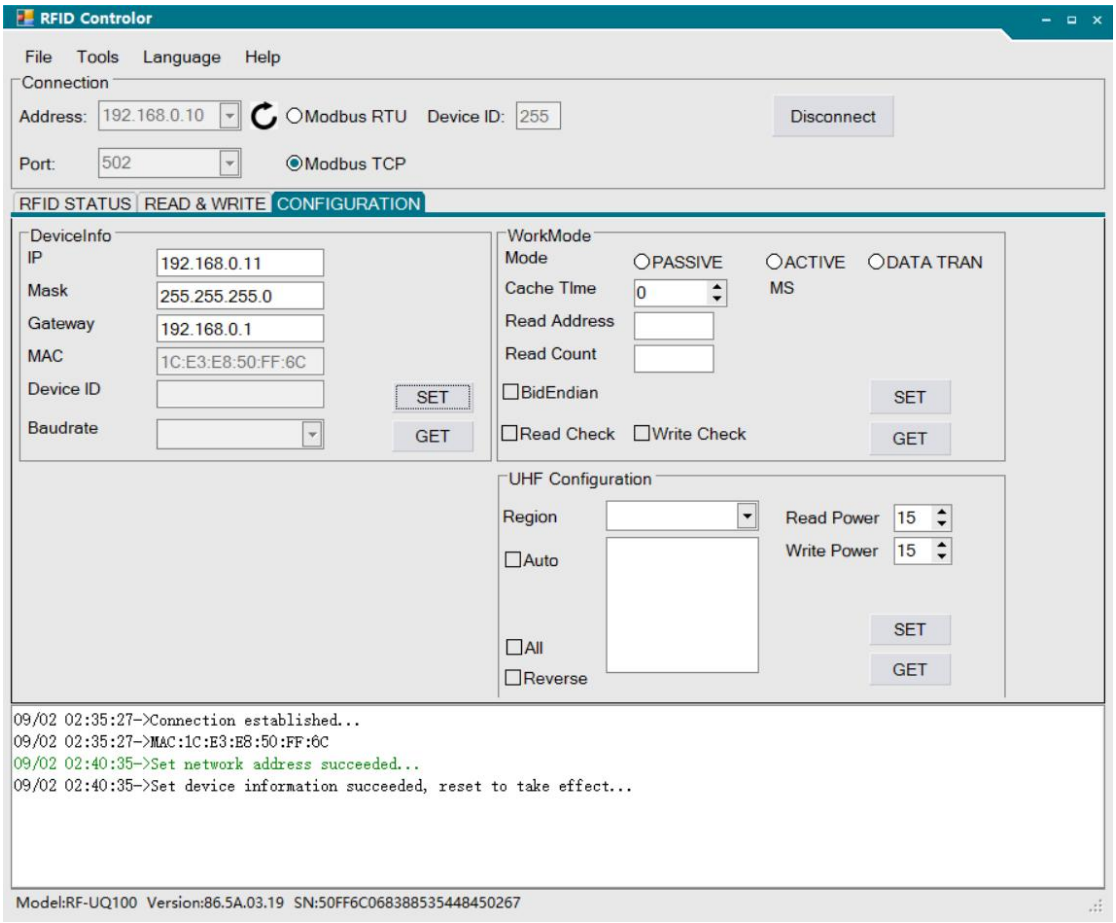
2.2.1 Communication parameter configuration

Click "GET" in the lower right corner of the communication Parameter configuration bar to obtain the communication parameters of The read/write head. The following figure shows the default Communication parameters of the read/write head:



Change the IP address of the read/write head to 192.168.0.11, click

"SET" to set the IP address of the read/write head, as shown in the Following picture:



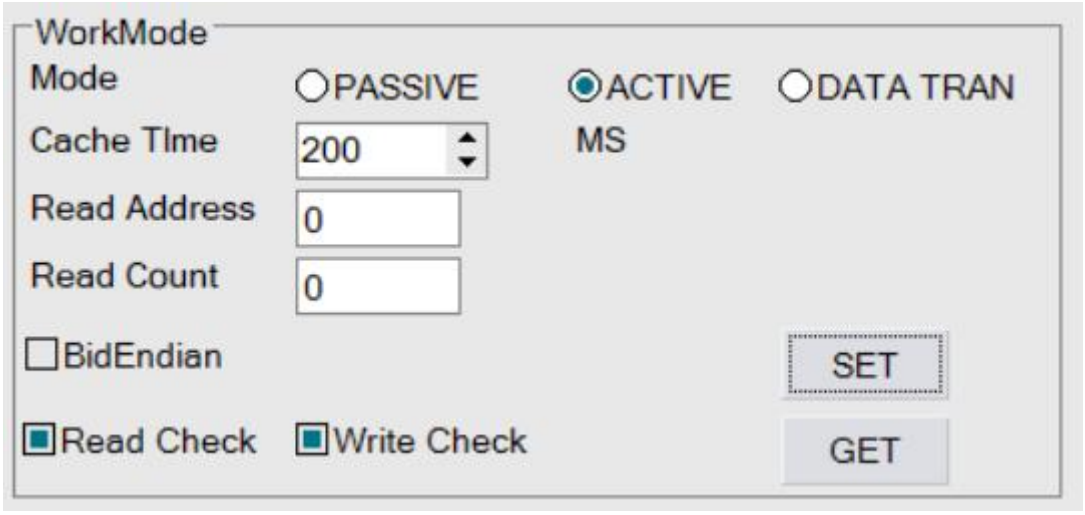
After the setting is successful, the Set network address succeeded Dialog box is displayed.

Note: After the IP address of the read/write header is changed, it Takes effect only after the power is powered off and the machine is Restarted.

2.2.2 Working mode configuration

The RF-U series UHF read/write head only supports the Automatic cache working mode configuration of EPC, and the Automatic cache function in the user area has not been developed.

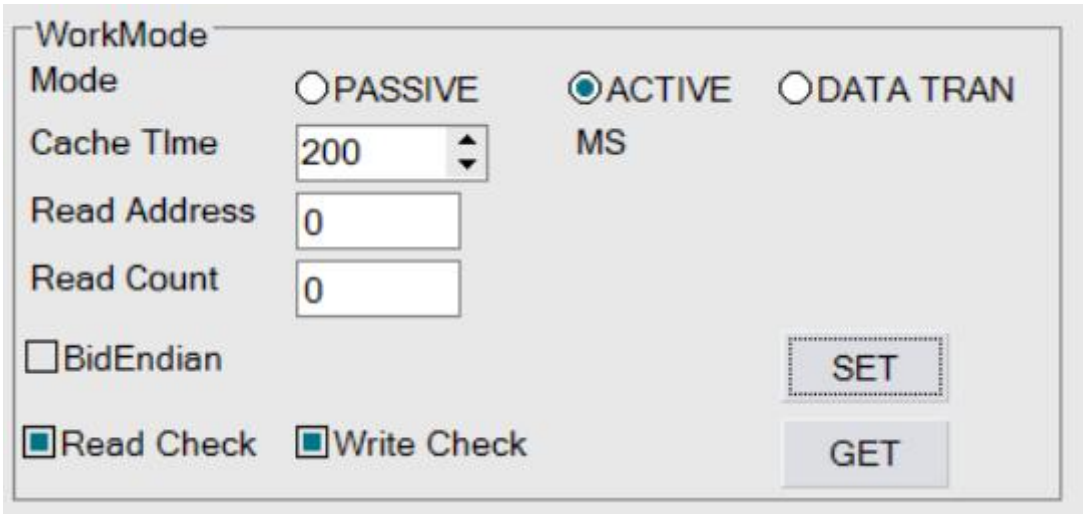
Select "ACTIVE" mode, SET "Cache Time", click "Set" to set the reader To Active mode.



After the active mode is set, the read and write head will automatically Cache the tag EPC data, and the tag EPC data can be automatically Obtained through the "self-diagnosis" function of the RFID diagnostic Interface.

2.2. Read and write check configuration

- Read Check——Read check function: The read data is repeated for Comparison check
- Write Check——Write verification: After data is written, the system Reads the written data for verification

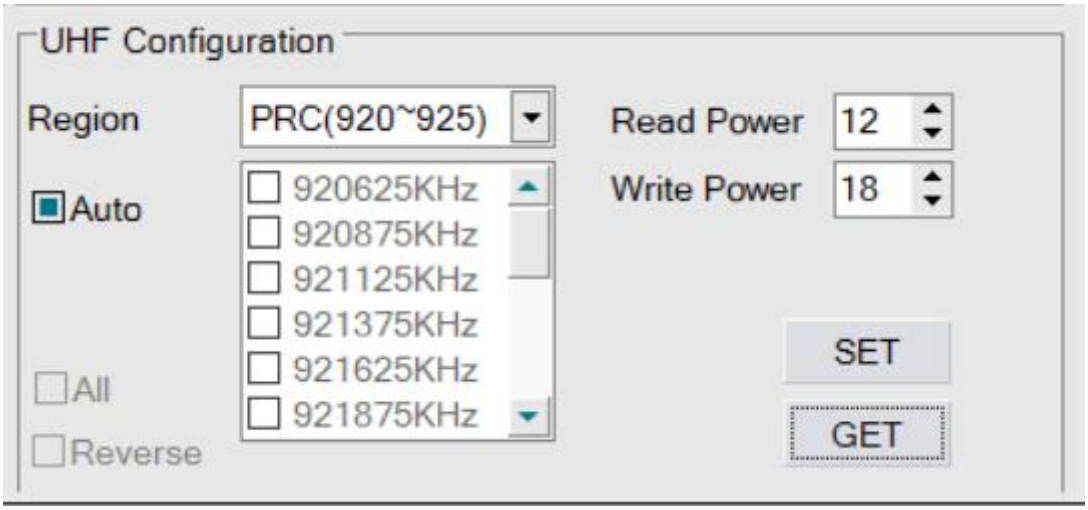


Note: The read and write check function increases the overall read and Write time. Read and write head Each frame of data has its own data

Verification when it reads and writes data.(In actual application, this Function does not require configuration.)

2.2.4 Set read/write header parameters

- Region——Frequency setting: Set different frequency points (multiple choices), which can be used when multiple read and write Heads are used at the same time, to prevent cross-read. Frequency point is divided into "PRC" China and "FCC" North America two standards, respectively, suitable for different label Models.
- Power——Power Settings: Set the read and write power. You can set The read and write power of the read and write head based on the Read and write distance. The read and write power ranges from 10 to 27.



2.3 Read/write head diagnosis function

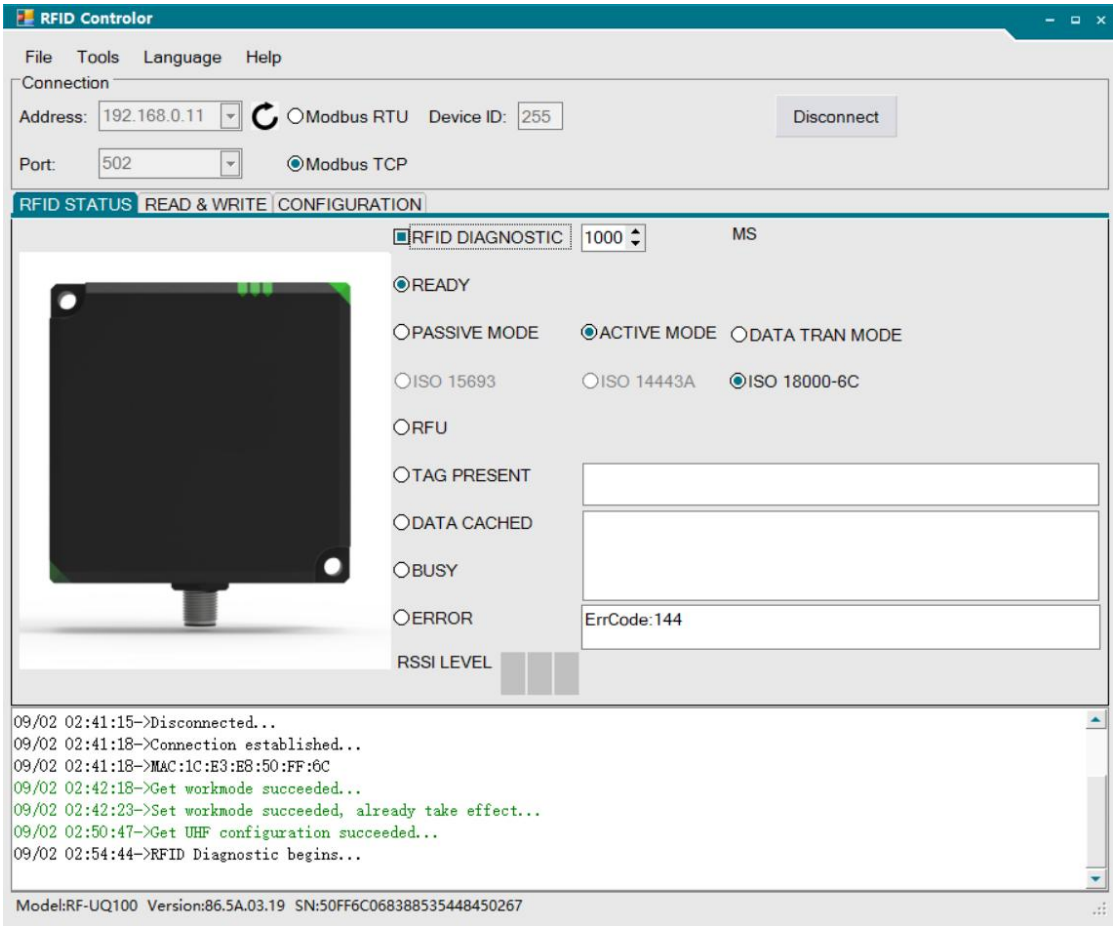
The diagnostic function of the read/write head is used to diagnose

Whether the read/write head has read/write faults, and to verify the Read/write head function and label signal strength.

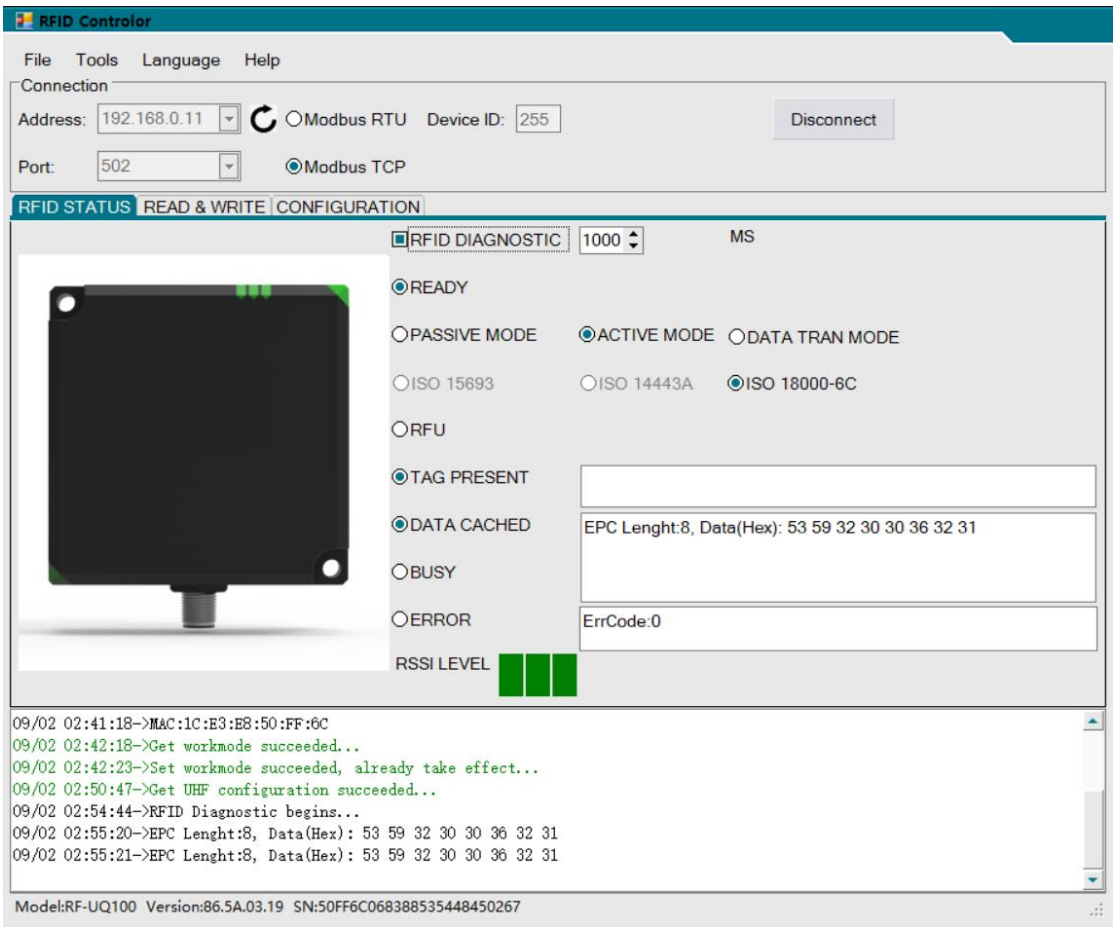
Check the "RFID DIAGNOSTIC" function under the "RFID STATUS" Item, as shown in the following figure, the information "RFID Diagnostic Begins" is displayed under the data monitoring bar below, indicating that The read and write head begins to perform automatic diagnosis:

Read/write head diagnosis structure In normal cases, the READY bar Is selected for display. The diagnosis information also includes WorkMode information configured in 2.2.2 (set to Active Mode in Advance).

If the read/write head does not detect the label, the ERROR code is 144 (16#90), indicating that no label is Detected.



When the read/write head detects the label, the diagnostic interface Will display the "EPC" data of the label and obtain the signal strength Information of the label, as shown in the following figure:



- TAG PRESENT——Sensing tag
- DATA CACHED——Automatically acquired EPC data
- RSSI LEVEL——Label signal strength: Level 3 (good).

2.4 Read and write head Read and write

Read and write header The read and write function of the read and write Header is used to read and write label memory data.

In this manual, the label memory area of UHF tags is defined as follows:

Storage area definition	Property	Characteristic
RESERVED	Reserve zone	

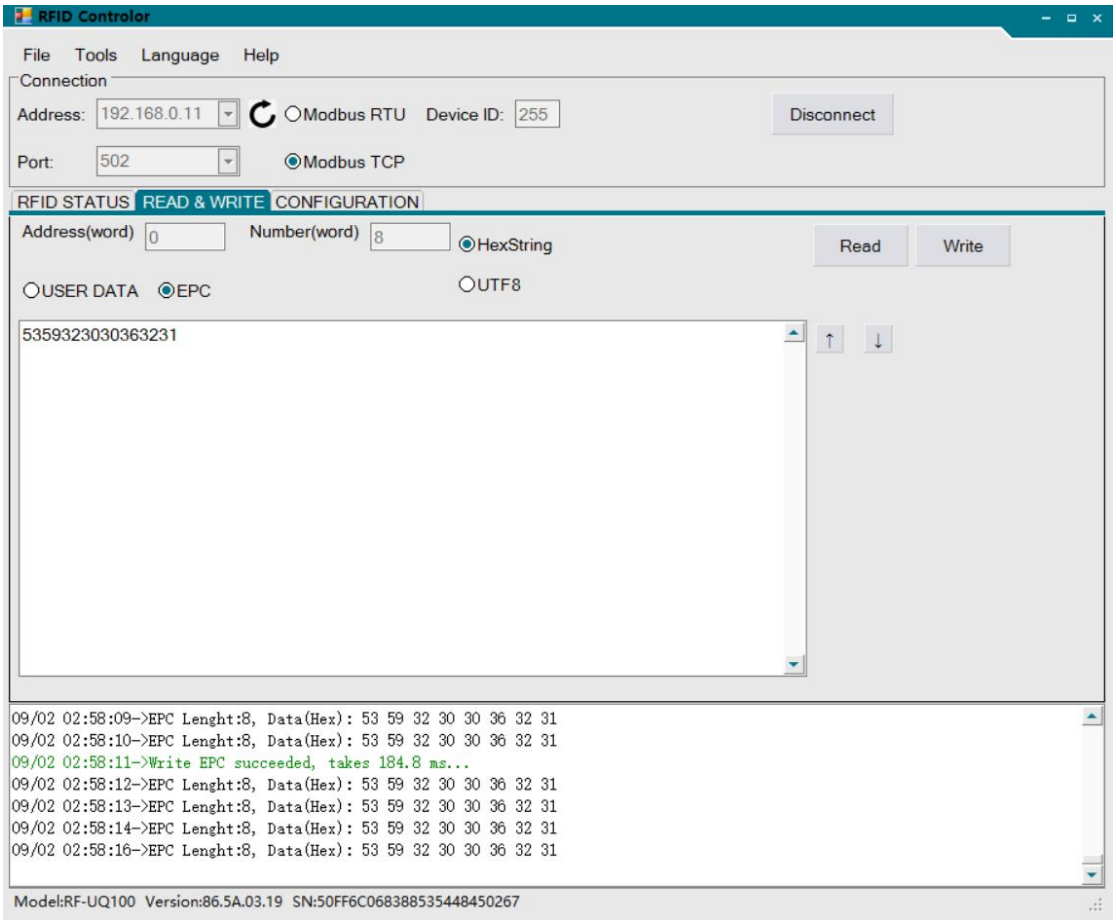
EPC	EPC district	Read-write, small memory
TID	TID district	Unique encoding, only readable (Demo Does not support TID area reading Function)
USER	User area	Read and write, large memory

Note: All 2.4 functions in this manual are read and write tested using the HexString data format.

2.4.1 Write function

- EPC zone write function

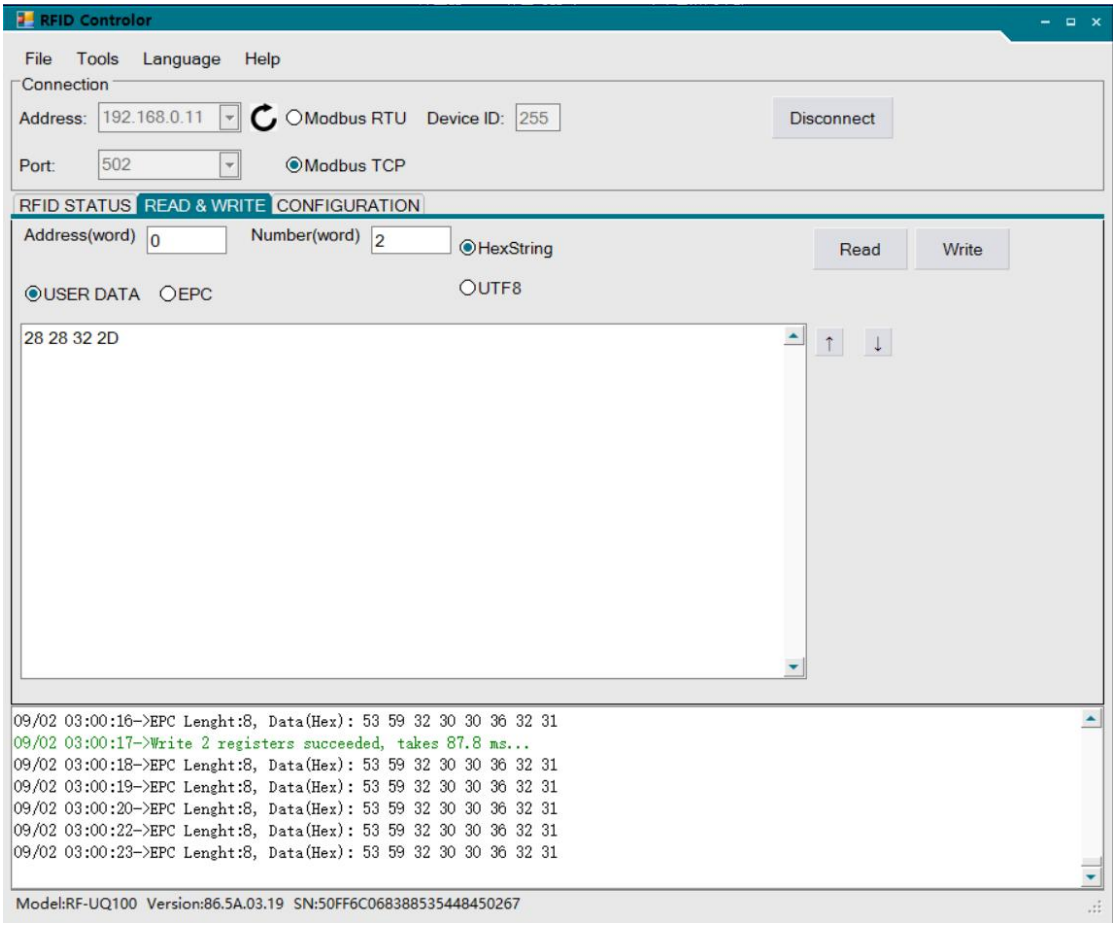
After setting the starting address and word length, select "HexString" data format, select "EPC" area, fill in the Hex data content of The corresponding length to be written in the text box below according To the label EPC length obtained in "2.3", and click "Write" button to Write, as shown in the following figure:



If Write EPC succeeded is displayed in the lower information bar, the Write duration is 184.8ms.

- USER area write function

After setting the starting address and word length, select "HexString" DATA format, select "USER DATA" area, fill in the Hex data Content to be written in the text box below, and click "Write" button To write, as shown in the following picture:



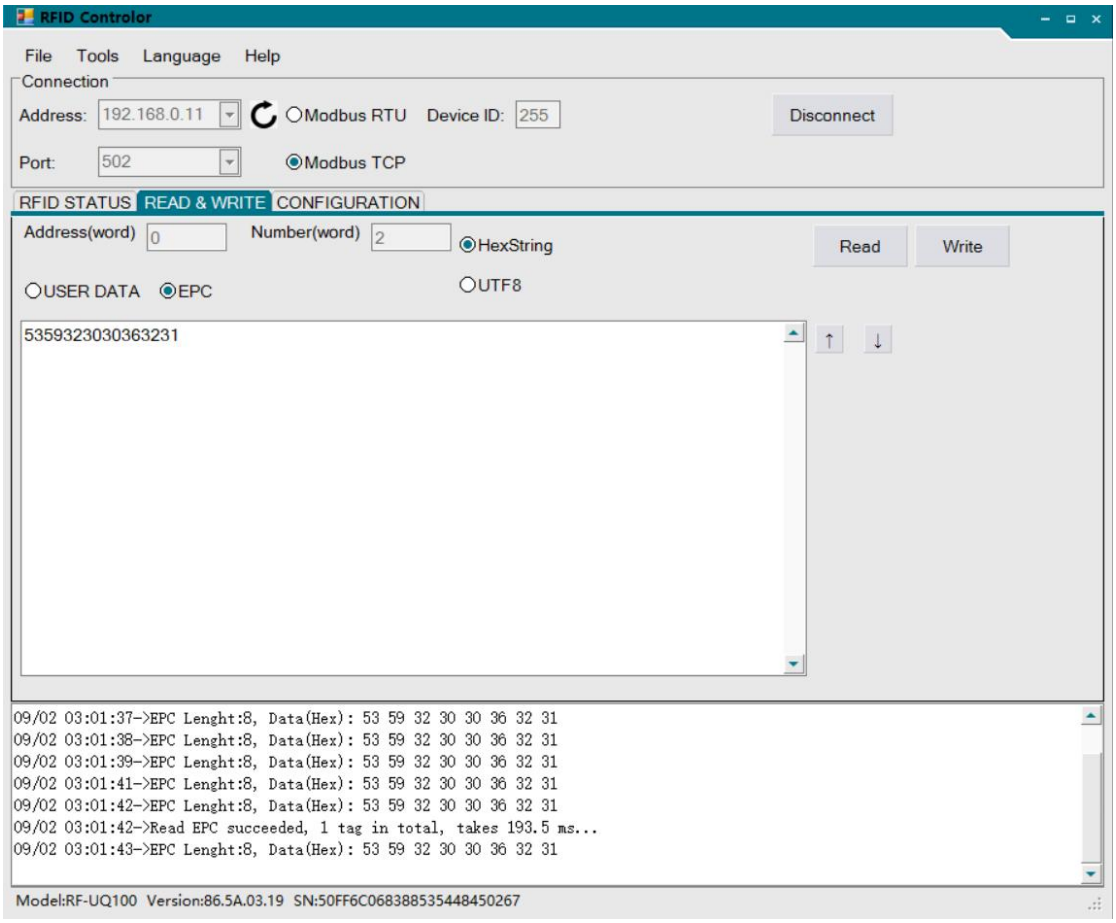
After the Write is successful, the lower information bar displays Write xx registers succeeded, and the write time is 87.8ms.

2.4.2 Read function

- EPC area read function

There is no need to set the starting address and word length for Reading EPC. Select "HexString" data format, select "EPC" area, and click

"Read" button for reading, as shown in the following figure:

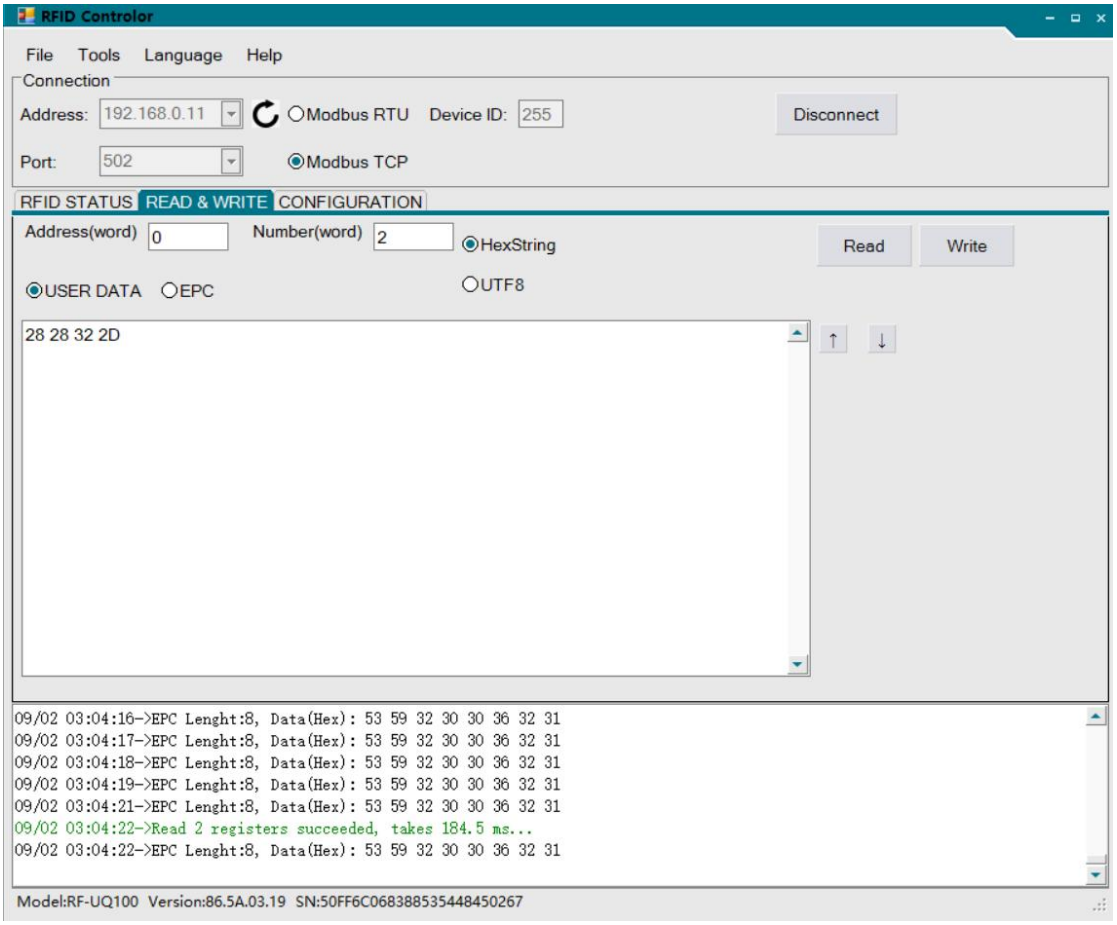


After the Read succeeds, Read EPC succeeded is displayed in the Information bar and the duration of this write is 193.5ms.

The read data text box displays the read data as XXXX. Compared With the written data in 2.4.1, you can see that the read and write data of The read and write head is normal.

- USER reads data

  Set the starting address and word length of the DATA Read by The USER area, select the "HexString" data format, select the "USER DATA" area, and click the "read" button for reading, as shown in the Following figure:



After the Read succeeds, the information bar displays Read 4 register Succeeded and the write duration is 184.5ms.

The read data text box displays the read data as XXXX. Compared With the written data in 2.4.1, you can see that the read and write Data of the read and write head is normal.

Note: Under the RF-U series read/write head Modbus communication protocol, the maximum number of one-time read/write registers is 120.

3. Software expansion function

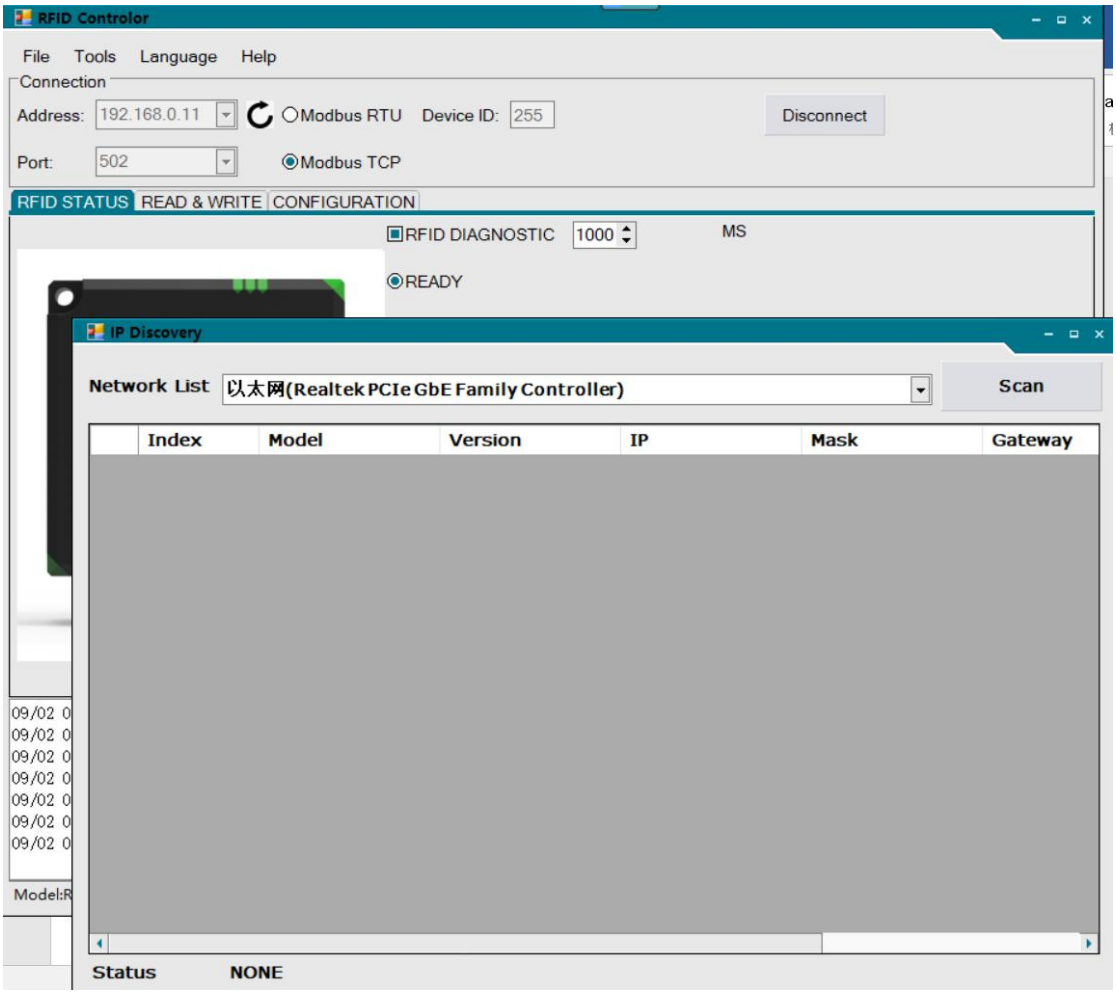
In addition to the basic test function, RFID Controlor Demo software Also includes extended debugging functions.

3.1Read/write header search function

Click the "Tools" toolbar, select the "RFID Search" tool, in the pop-up

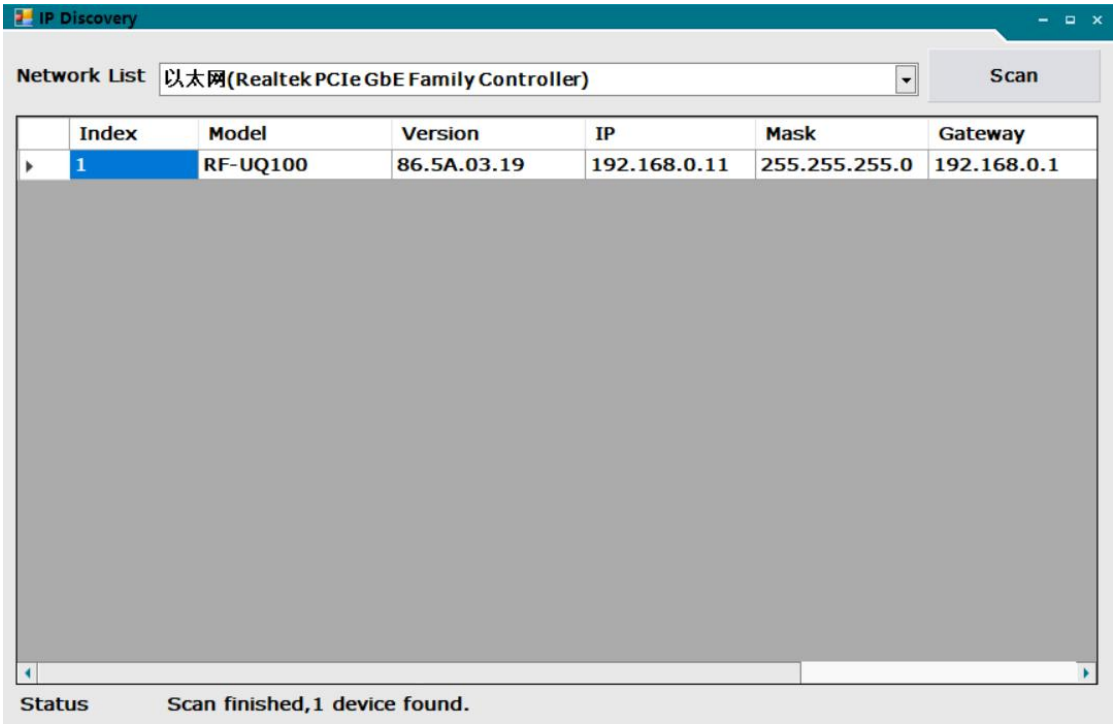
"IP Discovery" dialog boxSelect an Ethernet card，Click Search to search

The IP address of the read/write head, as shown in the figure below:



After the search is complete, the number of read and write heads

And the corresponding IP address information are displayed as follows:

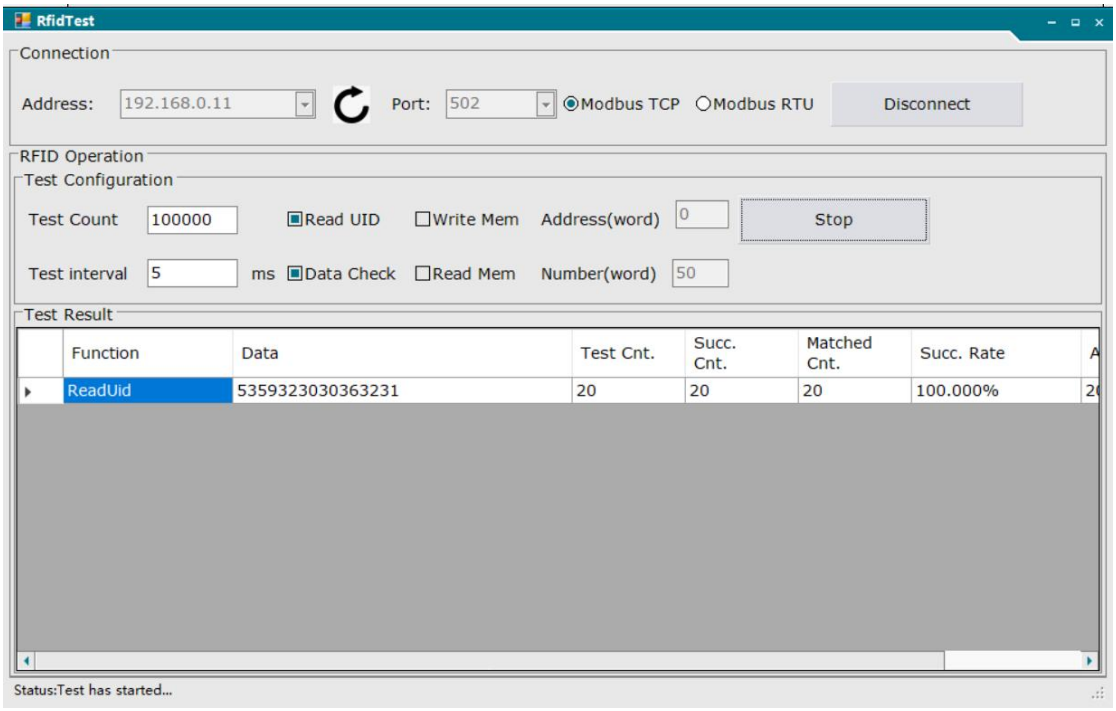


3.2Read/write head test function

Click the "Tools" toolbar and select the "RFID Tester" tool. In the pop-up "RfidTest" dialog box, enter the IP address of the read and write Head and the port number one by one, and click "Connect" to connect. After the connection is successful, under the "RFID Operation" column, Click "Connect". Set the corresponding total test times, test interval, Start Address of test read and write data, and word length parameters of test Read and write data. Click "Start" button to start the test.

3.2.1 Read UID (EPC) functional tests

Under the "Test Configuration" bar, Check the "Read UID" (actually Reading EPC Data) and the "Data Check" option (Data Check data Verification option can be selected according to the actual situation), and Click the "Start" button to start the automatic test. As shown in the Picture below:



The following information is displayed in the Test Result column:

- Function——Function: Read UID (EPC);
- Data——EPC data：XXXX;
- Test Cnt——Number of tests performed：20;
- Succ Cnt——Number of successful tests：20;
- Matched Cnt——Number of Data Check matches: 20 (this counter is Valid only after "data check" is checked);
- Succ Rate——The test success rate is 100%;
- Average Time——xxx.xxms

3.2.2Read and write user area function test

Demo does not support the RF-U series UHF read/write head user area Read/write function test.

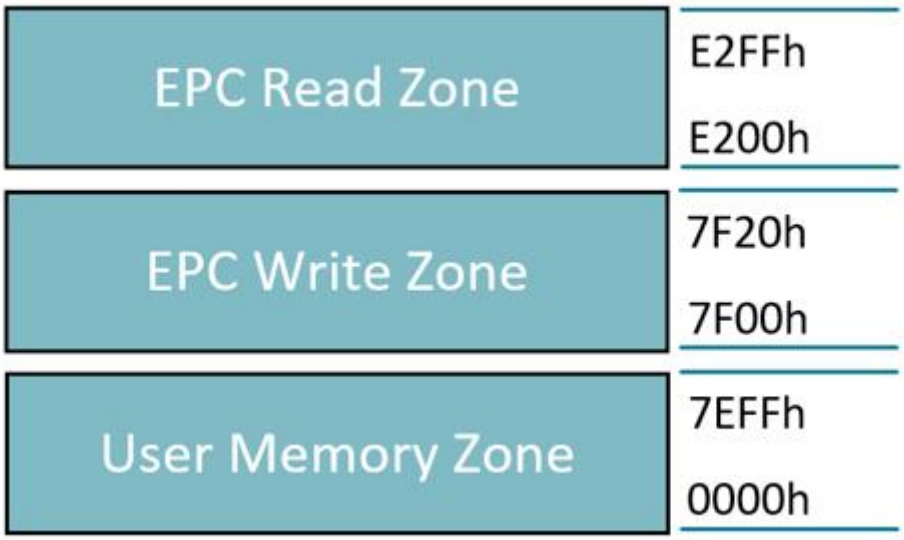
3.3Automatic card reading monitoring function

Demo does not support the automatic card reading test of the RF-U Series UHF read/write head.

3.4 MODBUStest function

Click the Tools toolbar and choose ModbusDebug. In the ModbusDebug dialog box that is displayed, enter the IP address of the Read/write header and the port number one by one, and click Connect to Connect the device. After the connection is successful, enter test parameters corresponding to Modbus to start the monitoring test.

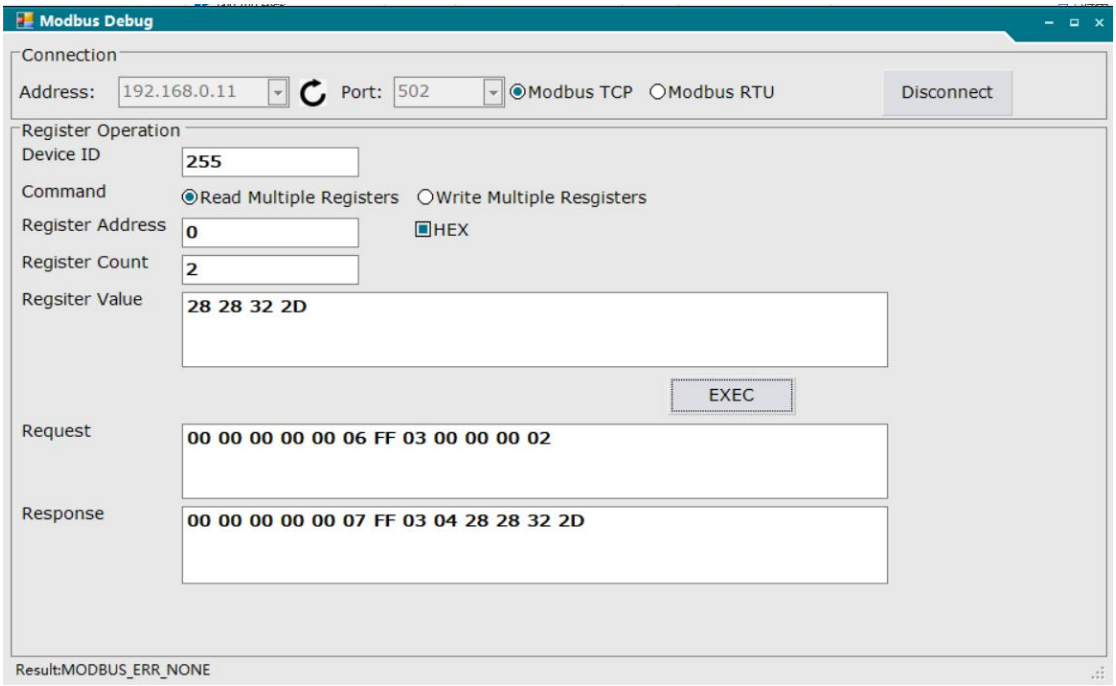
Label memory is defined as follows:



3.4.1 ModbusRead register function

- USER DATA area read register function

In the "Register Operation" column, set read/write head ID "Device ID", Register start Address "Register Address" and register number "Register Count" respectively, and click "EXEC" to execute the register Read test. As shown in the picture below:



- Device ID——Read/write head ID: 255. (Under Modbus TCP, this ID is optional and the default value is 255. Under Modbus RTU, it is the Slave station ID of the read/write head, and the default value is 1.)

- Register Address——Register start address: 0;
- Register Count——Number of registers: 2;
- Register Value——Read the register value: XXXX;
- Request——Request data frame: XXXX;
- Response—— response data frame: XXXX;

➢ EPC area read register function

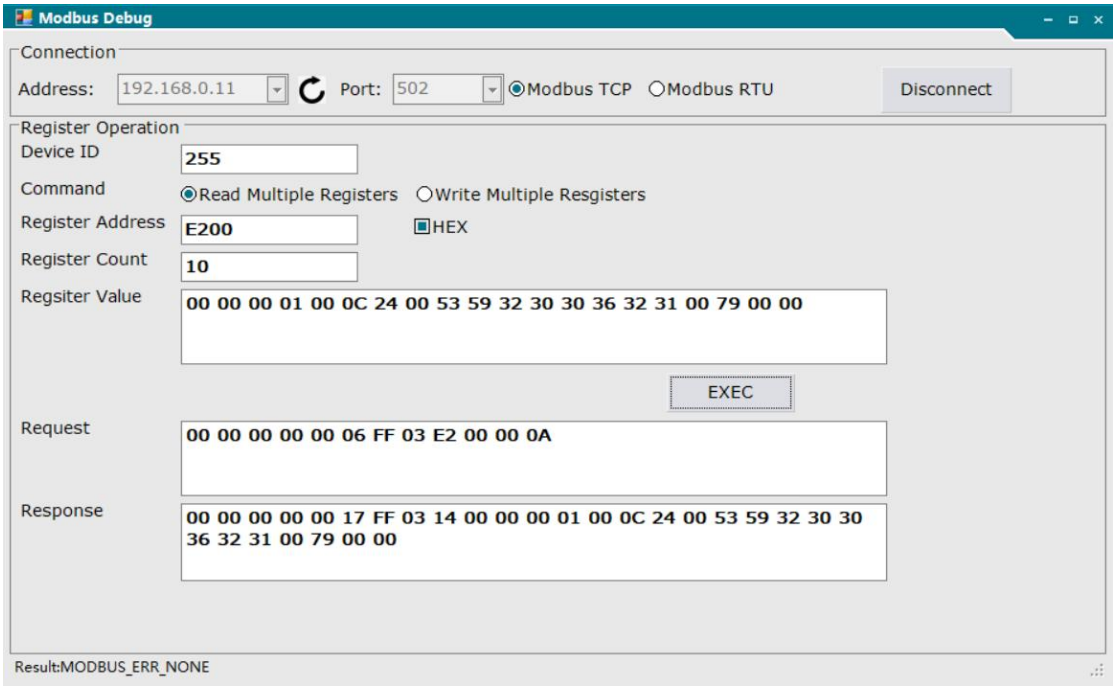
EPC Read area

The EPC read area is a mapping of the label EPC read result. This area is read-only. The specific mapping relationship is as follows:

Initial Address	End address	Number of Registers	operation Type	Explain
E200 H	E200 H	1	R①	Read trigger②
E201 H	E201 H	1	R	Number of labels
E202 H	E202 H	1	R	The total number of bytes for all tags
E203 H	E203 H	1	R	The first TAB, PC
E204 H	E204+x1	x1	R	The first tag, EPC, is the actual EPC length Of the tag
E205+x1	E205+x1	1	R	The first label, RSSI③
E206+x1	E206+x1	1	R	The second TAB, PC
E207+x1	E207+x1+x2	x2	R	The second label, EPC, is the actual EPC length of the label
E208+x1+x2	E208+x1+x2	1	R	The second label, RSSI
……				And so on, up to 32 labels can be stored

In the "Register Operation" column, set read/write head ID "Device ID", Register start Address "Register Address" and register number "Register Count" respectively, and click "EXEC" to execute the register read test. As Shown in the picture

Below:



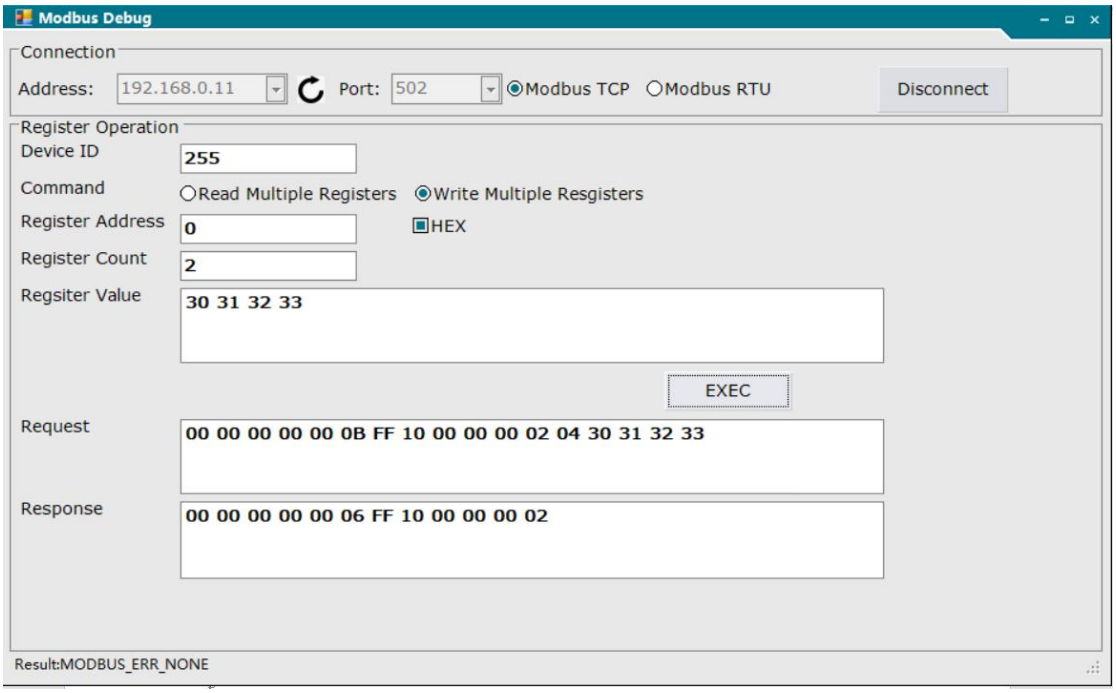
- Device ID——Read/write head ID: 255 (under Modbus TCP, this ID is Not required, and the default ID is 255. Under Modbus RTU, it is the ID of the read/write head slave station, and the default is 1).
- Register Address——Register start address (16#E200 is the start Address of EPC memory area);
- Register Count——Number of registers: 10;
- Register Value——Read the register value: XXXX;
- Request——Request data frame: XXXX;
- Response——Response data frame: XXXX;

3.4.2 Modbus write register function

- USER DATA write test

In Register Operation, set read/write header ID Device ID, start Register Address Register Address, and Register Count. Then fill in the "Register Value" field to write the register value, click the "EXEC" Execution button, you can carry out the register write test, as shown in the picture

Below:



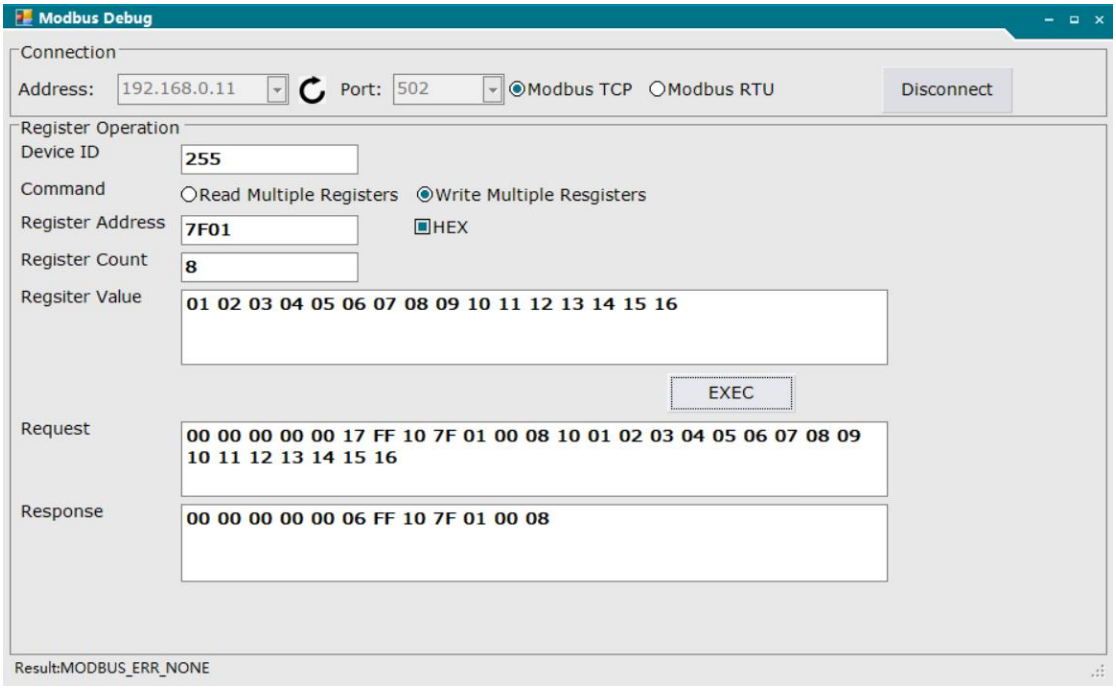
- Device ID——Read/write head ID: 255 (under Modbus TCP, this ID is Not required, the default is 255; under Modbus RTU, it is the ID of the Read/write head slave station, the default is 1).
- Register Address——register start address: 0;
- Register Count——Number of registers: 2;
- Register Value——Write register value: XXXX;
- Request——Request data frame: XXXX;
- Response——Response data frame: XXXX;

- EPC area data write test

In Register Operation, set read/write header ID Device ID, start Register Address Register Address, and Register Count. Then fill in the "Register Value" field to write the register value, click the "EXEC" execution button, You can carry out the register write test, as shown in the picture Below:

Initial Address	End address	Number Of Registers	Operation Type	Explain

7F00 H	7F00 H	1	W	PC①
7F01 H	7F20 H	32	W	EPC



Based on the label EPC length 8 automatically obtained in 2.3, the EPC data of 8 characters length is fixed to be written for testing.

- Device ID——Read/write head ID: 255. (Under Modbus TCP, this ID is Optional and the default value is 255. Under Modbus RTU, it is the Slave station ID of the read/write head, and the default value is 1.)
- Register Address——register start address: 16#7F01;
- Register Count——Number of registers: 8;
- Register Value——Write register value: XXXX;
- Request——Request data frame: XXXX;
- Response——Response data frame: XXXX;

3.5Read/write header upgrade function

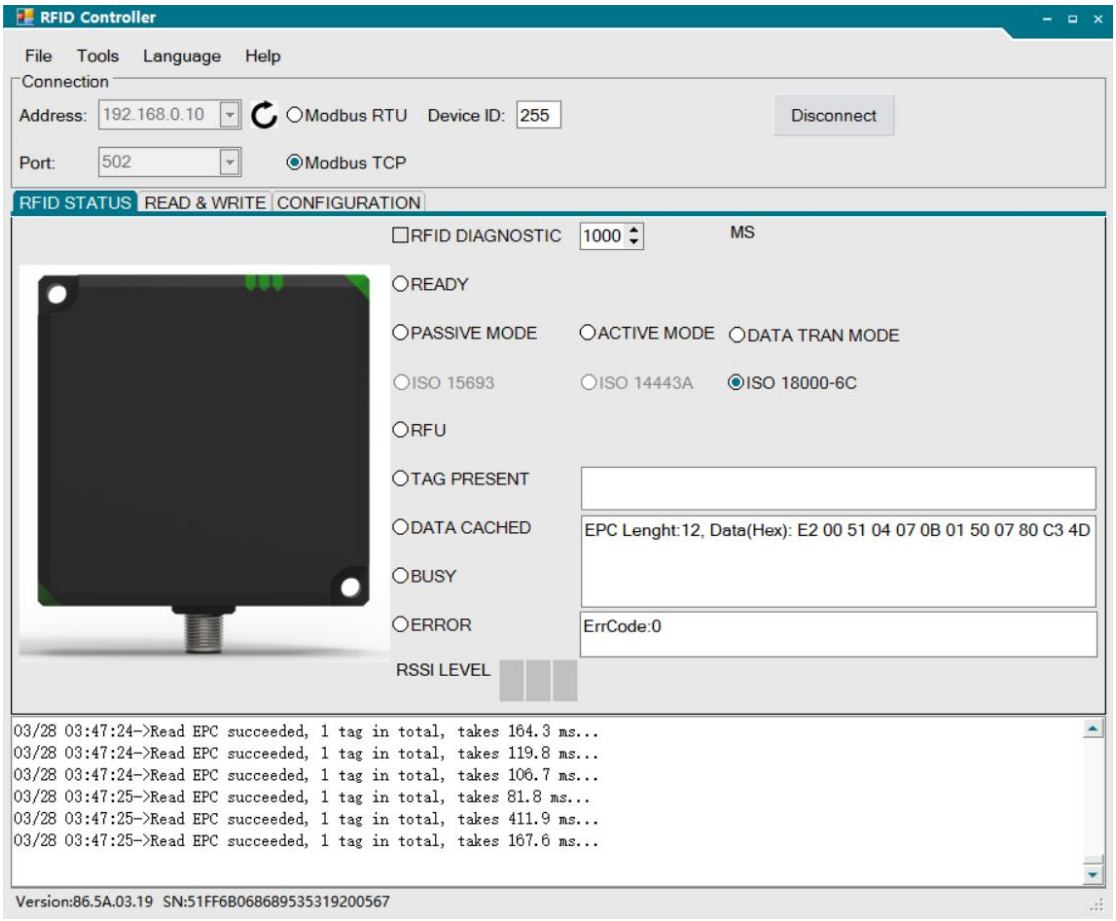
This feature is a developer option and is not available to customers.

3.6Language switching function

Click the "Language" bar and select "Chinese" under its option bar to

Switch the RFID Controlor Demo software to Chinese

Mode.



3.7 Help

Click the "Help" bar and select "About" under its option bar to view

The API and software version details of the RFID Controlor Demo

Software, as shown in the following picture:

