

**ID Access 1000 V2 / R-EA-WR-ET-HF-V2
13.56 MHz RFID Device
Installation and Test Operation Manual**

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1 Introduction

1.1 Overview

The ID Access 1000 is an embedded RFID network module, which can be made up of one network system without stand-alone wire connection by using existing computer networks.

It is available with multiple mode of TCP/IP network and enables reader response immediately and timely when there is any card operation on remote computer, and realizing remote control and build up one system combining local system and different areas.

1.2 Key Features

- Plug and play networking
- TTL to TCP/IP embedding network module
- Support mode of TCP server, TCP client, UDP appointed, UDP normal , etc
- Compliant with ISO14443A/B, ISO15693
- Low power consumption, no heat cooler needed

1.3 Typical Application

- Industry control
- Access control
- Building automation system
- Remote control
- Network control system

1.4 Available Versions

- | | | |
|---|-------------------|------------------|
| • Device with housing for wall mounting | ID Access 1000 V2 | R-EA-WR-ET-HF-V2 |
| • Module without housing | ID Modul 1000-V2 | R-OEM-ET-HF-V2 |

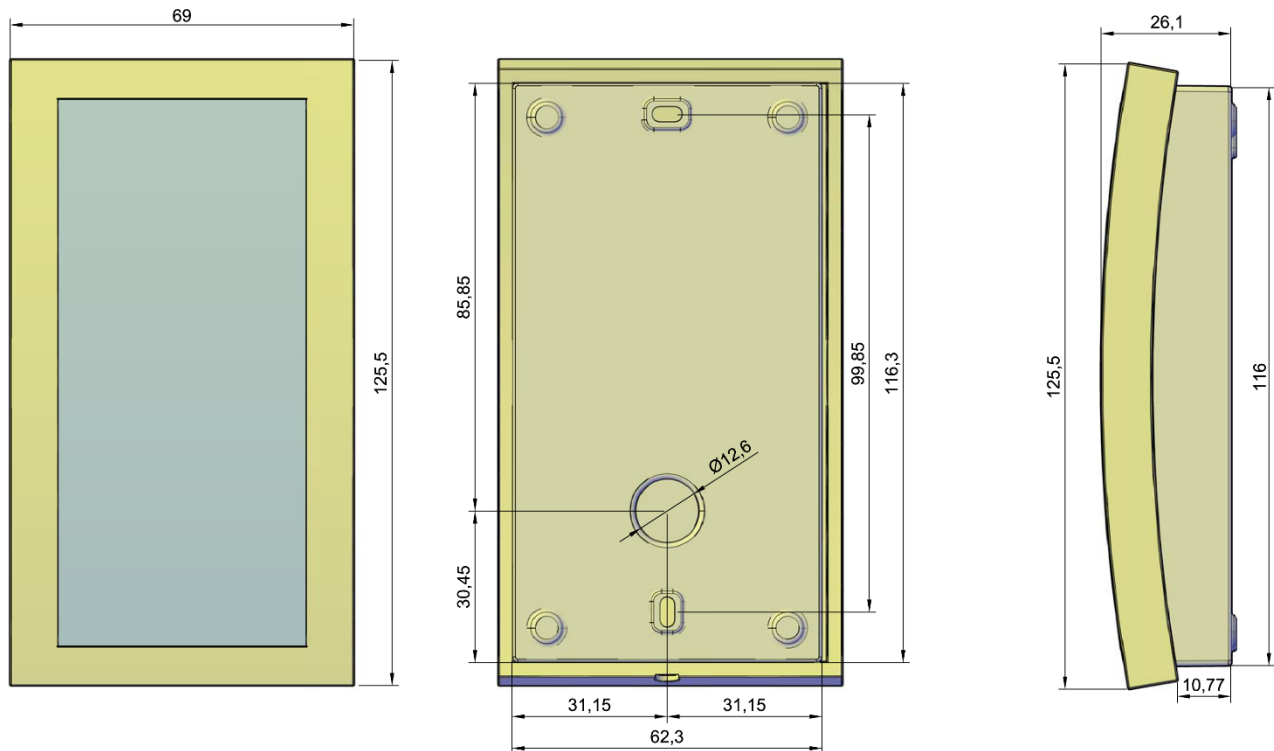
1.5 The Test Software »RFID Reader«

This DEMO is just for testing used, other specific app or request on function button, please refer to API documents, demo code and other second development files for your own program, or contact our sales for customization.

2 Housing

2.1 Dimensional Drawing

Table housing, drawing with dimensions and mounting holes.



2.2 Open the Housing

Access the pin from below:



Remote it completely:



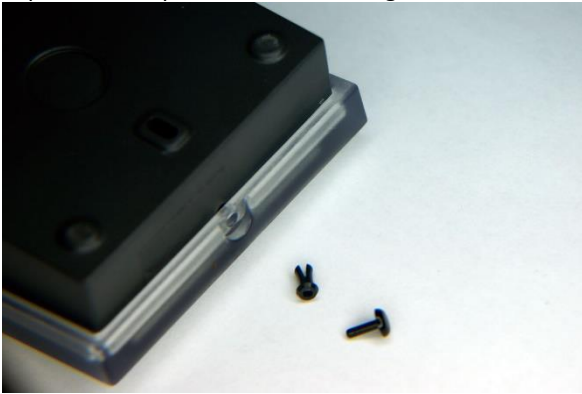
Pull out the pinhead with your finger:



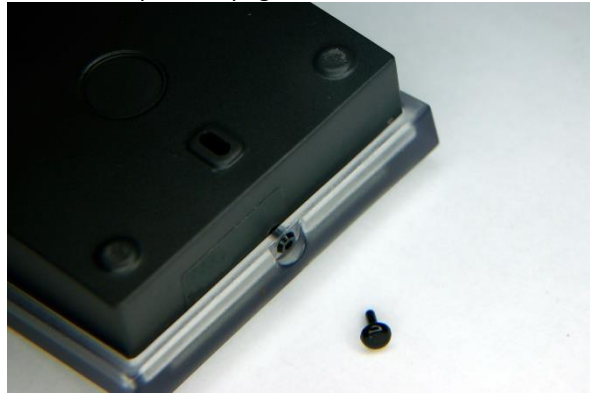
Now you can lift off the cover.

2.3 Close the Housing

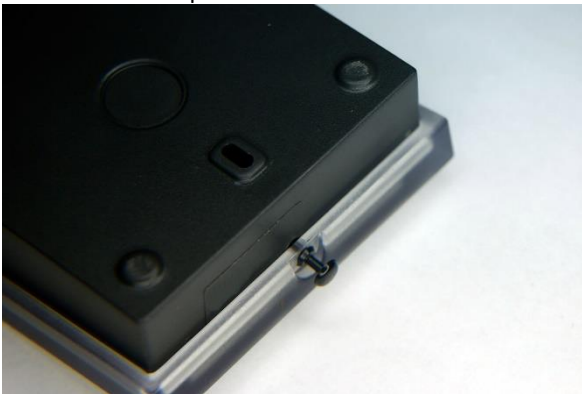
Separate both parts before re-fitting:



Re-fit the expansion peg first:



Put in the center pin:

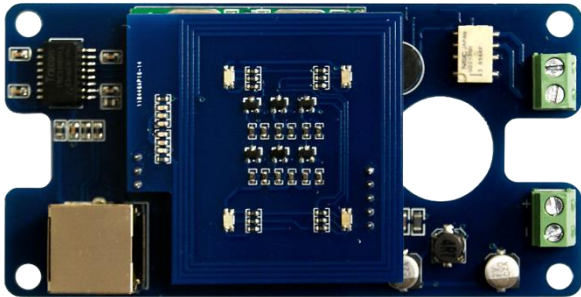


Press down the center pin completely:



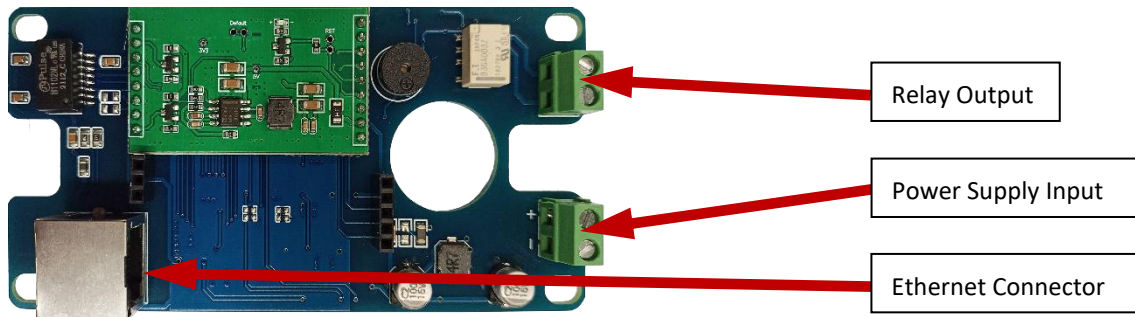
3 Electrical Connection

3.1 Preparation



Remove the top PCB to gain an easy access to the Ethernet connector below.

3.2 Position of Ports



The relay is a closing contact (NO).

4 Ethernet Connection

Factory default IP address is: 192.168.1.10
Factory default Port is: 8000

Important Note

Do not connect any device to your network before it has been configured. Before connecting it your network, check that the desired IP address has been set. A device may have any factory-set IP address. A device with the wrong settings may impede the functioning of your network.

4.1 Connecting with The Device

HF READER V4.0
 SYSTEM MODE SELECT HELP EXIT
 SYSTEM ISO14443A ULTRALIGHT CPU ISO14443A

CONNECTIVITY
 CONNECTION ☐ COMPORT ☒ TCP IP
 COMPORT COM1 BAUDRATE 9600
 DEVICE ADDR 00
 IP 192.168.1.10
 Port 8000
 SEARCH BAUD
 SEARCH IP
 IP MODIFY
 CONNECT

INFORMATION
 SW VERSION: HF DEMO-V4.0
 HW VERSION: IDT527E-V5.0
 DEVICE S/N: FF FF FF FF FF FF FF FF

Checkmark TCP IP first.

In case you don't know the IP address of the device, use the [search] function. This will take some time, so please be patient. This will only work in the same subnet, so set your service PC according in the suitable network address range.

If the IP address is known, simply type it in.

Tipp: Use copy & paste to reuse IP addresses from a text file.

When the IP address is shown press [connect]. Now the software should connect to the device and show a brief version information gathered from the device:

4.2 Network Settings

Use [IP Modify] to open this dialog. Change the values as desired for your application.

IP MODIFY

NETWORK SETTINGS
☒ Use the Following IP address
☐ Get IP address from DHCP Server
 IP Address 192.168.1.10
 Subnet Mask 255.255.255.0
 Gateway 192.168.1.1
 DNS Server 208.67.222.222
 Socket Type TCP Server
 Remote Host 192.168.1.201
 Remote Port 8234
 Local Port 8000
 Apply Settings

4.3 Using "S2E ConfigTool_V1.4"

Tab "Basic Settings"

S2E ConfigTool (V1.4)

192.168.10.99 **1** Search **2** Apply Settings Upload Firmware Reset Exit

Serial to Ethernet

3 IP: 192.168.10.61 Name: FS100S

Basic Settings Port1

Product Information

Device Type: FS100S

Serial Number: 20200721-EC9F0D400B58

Firmware Version: V1.3

Firmware Status: Normal

Network Settings

4 ☐ Use the Follow IP Address

☒ Get IP Address from DHCP Server

IP Address: 192.168.10.61

Subnet Mask: 255.255.255.0

Gateway: 192.168.10.10

DNS Server: 217.151.144.10

Other Settings

5 MAC Address: EC:9F:0D:40:0B:58

Device Name: FS100S

User Name: admin

Password: *****

HTTP Port: 80

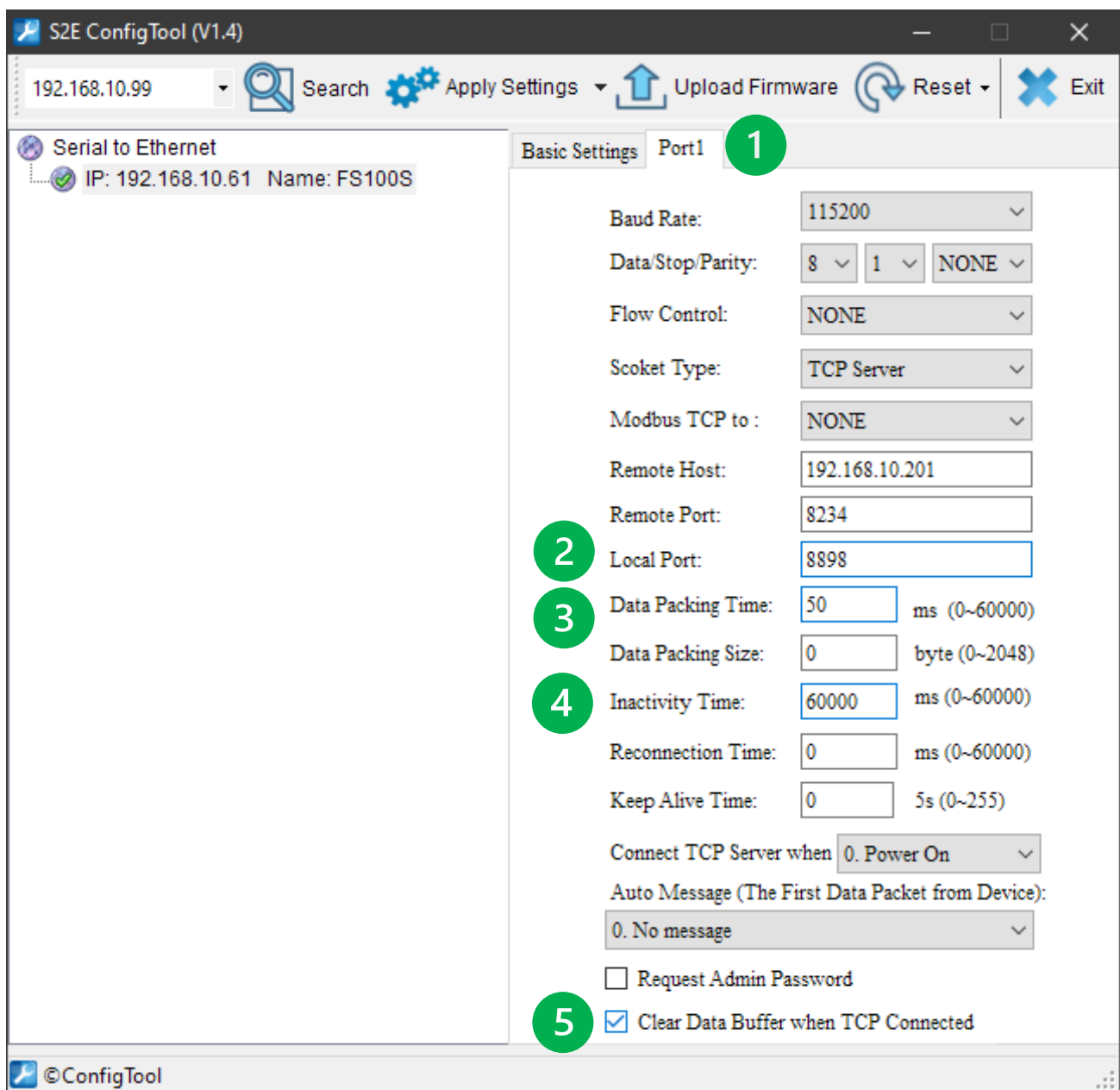
☐ Echo In AT Mode

☐ Show Debug Messages

© ConfigTool

- 1: Select the desired network interface of your PC from the drop-down menu.
- 2: Click on [Search], now the device you want to set should be listed.
- 3: Select the desired device to set.
- 4: Leave the device set to DHCP or set the desired Ethernet parameters of the device.
- 5: Device Name: Here you can give the device a name that is helpful to you.
User Name/Password: this is the user name and password for access via the web interface. You can use this to block access. In addition, you can disguise access to the web interface with an HTTP port that differs from the standard.
- 6: Please do not forget to save changed settings with [Apply Settings].

Tab "Port 1"



The screenshot shows factory settings. Normally you should not need to change anything here.

In case you need to change settings, please do not forget to save changed settings with [Apply Settings].

Important Note!

Please do not change the values "Baud Rate", "Data/Stop/Parity", "Flow Control", "Socket Type", "Modbus TCP to".

4.4 Using the Web Interface

Die Weboberfläche ist unter der gleichen IP-Adresse erreichbar, wie sie im „S2E ConfigTool_V1.4“ sichtbar ist.

4.4.1 LogIn Information

By factory default user and password is: admin

4.4.2 Menu “Device View”

This gives an overview of the current settings. The settings cannot be changed here.

| Firmwar Version: 1.4 | | |
|----------------------|--------------------------------------|---|
| Device View | Product Information | Help |
| Basic Settings | Device Name: DES-R845-SMP-V2 | <ul style="list-style-type: none"> • Run time: run time means the minutes since latest reboot. • TX/RX Count: TX/RX count give us a calculation of the total byte we have been. |
| Advanced Options | Device Type: FS100S | |
| Management | Serial Number: 20210125-EC9F0D4018B1 | |
| | Run Time: 180 seconds | |
| | Serial Rx: 0 | |
| | Serial Tx: 0 | |
| | Network Information | |
| | DHCP: ON | |
| | IP Address: 192.168.10.102 | |
| | Subnet Mask: 255.255.255.0 | |
| | Gateway: 192.168.10.10 | |
| | DNS Server: 217.151.144.10 | |
| | Socket Information | |
| | Mode: TCP Server | |
| | Local Port: 8898 | |
| | Remote Host: 192.168.1.201 | |
| | Remote Port: 8234 | |
| | UART Information | |
| | Baud Rate: 115200 | |
| | Date Bit: 8 | |
| | Parity: NONE | |
| | Stop Bit: 1 | |
| | Flow Control: NONE | |

4.4.3 Menu “Basic Settings”

| Firmwar Version: 1.4 | | |
|----------------------|--|--|
| Device View | Network Setting | Help <ul style="list-style-type: none"> • RIP type: StaticIP or DHCP. • IP Address: Module's IP. • Subnet Mask: Usually 255.255.255.0 • Gateway: Usually router's ip address • Load Port: 1~65535. when TCP Client, set this to 0 means use random local port. • Remote Port: 1~65535 |
| Basic Settings | MAC Address: EC:9F:0D:40:18:B1 1 Use DHCP: <input checked="" type="checkbox"/> IP Address: 192.168.10.102 Subnet Mask: 255.255.255.0 Gateway: 192.168.10.10 DNS Server: 217.151.144.10 | |
| Advanced Options | Socket Setting | |
| Management | Socket Type: TCP Server Remote Host: 192.168.1.201 Remote Port: 8234 2 Local Port: 8898 Modbus TCP to: NONE | |
| | UART Setting | |
| | Baud Rate: 115200 Date Bit: 8 Parity: NONE Stop Bit: 1 Flow Control: NONE | |
| | 3 Save Settings Reset | |

Note

The factory settings are framed in green. Normally you should not need to change anything here.

- 1: Keep DHCP or set the desired IP address for the device.
- 2: Set „Local Port“ to the desired listening port number.
- 3: Make sure to press [Save Settings] to save the settings permanently.

Important hint!

Do not change the settings „Socket Type“, „Modbus TCP to“ in scction „Socket Setting“.
Do not change the settings in section „UART Setting“.

4.4.4 Menu “Advanced Options”

| Firmwar Version: 1.4 | | |
|----------------------|--|--|
| Device View | Parameter Setting | Help |
| Basic Settings | <div>1</div> Device Name: <input type="text" value="DES-R845-SMP-V2"/> | <ul style="list-style-type: none"> • Device Name: max length is 15 char. |
| Advanced Options | User Name: <input type="text" value="admin"/> <div>2</div> | <ul style="list-style-type: none"> • User Name: max length is 5 char. |
| Management | HTTP Port: <input type="text" value="80"/> | <ul style="list-style-type: none"> • HTTP Port: Default 80. |
| | Data Packing Size(byte): <input type="text" value="0"/> | <ul style="list-style-type: none"> • Reset: Click to make your config take effect. |
| | Data Packing Time(ms): <input type="text" value="50"/> | <ul style="list-style-type: none"> • Data packing size Default 0(0~2048). |
| | Reconnection Time(ms): <input type="text" value="0"/> | <ul style="list-style-type: none"> • Data packing time Default 0(0~60000). |
| | Inactivity Time(ms): <input type="text" value="60000"/> | <ul style="list-style-type: none"> • Reconnection time: Default 0 (0~60000). |
| | Keep Alive Time(5s): <input type="text" value="0"/> | <ul style="list-style-type: none"> • Inactivity time: Default 0 (0~60000). |
| | Verify the Connection: <input type="text" value="No"/> | |
| | Send Hello Message: <input type="text" value="None"/> | |
| | Connection Condition: <input type="text" value="Connect Socket after Power On"/> | |
| | Clear Buffer if Connect: <input checked="" type="checkbox"/> | |
| | Debug Message Enable: <input type="checkbox"/> | |
| | AT Echo Enable: <input type="checkbox"/> | |
| | <div>3</div> <input type="button" value="Save Settings"/> <input type="button" value="Reset"/> | |

Note

The factory settings are framed in green. Normally you should not need to change anything here.

- 1: When useful put a „Device Name“ for your own interest.
- 2: „User Name“ is the user name for the web interface.
The password settings are done in the site „Management“.
You can change the web server port to any other port.
- 3: Make sure to press [Save Settings] to save the settings permanently.

Important hint!

Do not change any other settings here.

4.4.5 Menu "Management"

| Firmwar Version: 1.4 | | |
|---|---|--|
| Device View | Password Setting Old Password: <input type="text"/> New Password: <input type="text"/> Confirm Password: <input type="text"/> <input type="button" value="Set"/> | Help <ul style="list-style-type: none"> • Password: Max length is 5 char. • Logout: Click to make quit the web page. • Reset: Click to make restart the module. • Default: Click to make module restore factory setting. |
| Basic Settings Advanced Options Management | Management Logout: <input type="button" value="Logout"/> Reset Device: <input type="button" value="Reset"/> Factory Default: <input type="button" value="Default"/> | |

- 1: You can change the current password to a new password. The factory default password is „admin“. To change the password type in your current password in „Old Password“ and type in the new password in „New Password“. Confirm the new password in the field „Confirm Password“.
Make sure to press [Save Settings] to save the new password permanently.
- 2: For security reasons you should logout after changing the password by pressing [Logout].

5 Test Operation

5.1 ISO14443 Type A operation

5.1.1 ISO14443A Search card

Please enter to “ISO14443A Type A” operation interface, and click “Search” to look for cards in the reading field. This command replies with the ATQ bytes and the length of the UID.

In order to get the UID you can perform a Read Block #00 command.

The screenshot shows the HF READER V4.0 software interface. The top menu bar includes SYSTEM, MODE SELECT, HELP, and EXIT. Below the menu, there are tabs for SYSTEM, ISO14443A, ULTRALIGHT, CPU, ISO14443B, and ISO15693. The main interface is divided into several sections:

- SEARCH / HALT**: Contains a **SEARCH CARD** section with checkboxes for **IDEL** (checked) and **Search Card**, and a **SEARCH** button. Below it is a **HALT** button.
- READ/WRITE**: Contains a **Read from RFID Card** section with checkboxes for **IDEL** (checked), **KEYA** (checked), **BLOCKS** (01), **KEY** (FF FF FF FF FF FF), **ALL** (unchecked), **KEYB** (unchecked), **ADDR** (10), and **AUTO** (unchecked). There is a **READ** button.
- WRITE**: Contains a **Write to RFID Card** section with checkboxes for **IDEL** (checked), **KEYA** (checked), **BLOCKS** (01), **KEY** (FF FF FF FF FF FF), **ALL** (unchecked), **KEYB** (unchecked), **ADDR** (10), and **AUTO** (unchecked). There is a **WRITE** button.
- E-WALLET**: Contains sections for **INITIALIZE**, **INCREMENT**, and **DECREMENT**. Each section has checkboxes for **IDEL** (checked), **KEYA** (checked), **SECTOR** (01), **KEY** (FF FF FF FF FF FF), **ALL** (unchecked), **KEYB** (unchecked), and **VALUE** (64 00 00 00). There are buttons for **INITIALIZE**, **INCREASE**, and **DECREASE**.
- MESSAGE**: A large text area for displaying messages. Below it is a **Log Window** section with the text "You can clear the messages here." and a **CLEAR** button.

5.1.2 Read data of card blocks

To operate card blocks information reading, card supporting types can be Mifare 1K, Mifare 4K, and the working mode optional with Idle mode and All mode.

Remark:

- Under idle mode, all cards in the IDLE state shall respond synchronously with ATQA
- Under All mode, all the card in the IDLE or HALT state shall respond synchronously with ATQA.

“Blocks” dialog box stands for the blocks number to be read in one time, and the “Addr” is the start address of this reading, the “KEY” default is FF FF FF FF FF.

If the reading block/blocks is/are encrypted, please get and input the special key, see following:

If successfully, then Message box will return right information about the operation; if failed, then feedback with wrong code, please refer to Wrong code list to know their definition.

The settings shown mean this:

- Read using Key A
- Read 01 Blocks
- Reader starting block 0x00
- The Key is FF FF FF FF FF FF (RFID chip default)

5.1.3 Write data into card blocks

To operate card blocks information writing, card supporting types can be Mifare 1K, Mifare 4K, and the working mode optional with Idle mode and All mode.

If successfully, then Message box will return right information about the operation; if failed, then feedback with wrong code, please refer to Wrong code list to know their definition.

Remark

The Key (A or B) is always needed read or write data. If the Key has not been set to a different value than the factory default, the standard FF FF FF FF FF FF is automatically added in the demo software.

5.2 Ultralight operation

5.2.1 Search Mifare Ultralight

This procedure is need before reading or writing any specific page, just Click the “Search”, then you will get the CardID displaying in Message box, shown as below:

The screenshot displays the HF READER V4.0 software interface. At the top, there is a menu bar with 'SYSTEM', 'MODE SELECT', 'HELP', and 'EXIT'. Below the menu bar, a tabbed interface shows 'SYSTEM', 'ISO14443A', 'ULTRALIGHT', 'CPU', 'ISO14443B', and 'ISO15693'. The 'ULTRALIGHT' tab is selected.

The main interface is divided into three sections, each highlighted with a green border:

- SEARCH / HALT:** This section contains a 'Search Card' title. It has two checkboxes: 'IDEL' (checked) and 'ALL' (unchecked). Below these is a 'CARD ID' field with a '+ Halt Card' button. To the right are 'SEARCH' and 'HALT' buttons.
- READ/WRITE:** This section contains a 'Read / Write Data' title. It has a 'PAGE ADDR' field with a dropdown menu showing '00'. To the right of the dropdown is a 'Select Page here' button. Below the dropdown is an empty text input field. To the right are 'READ' and 'WRITE' buttons.
- MESSAGE:** This section contains a 'Log Window' title. It is a large text area for displaying messages. At the bottom right is a 'CLEAR' button.

5.2.2 Read data from page

Please choose the page number in the drop-down list box, then click “Read”, then get the information of the paged chosen. You can only read one page at a time.

5.2.3 Write data to page

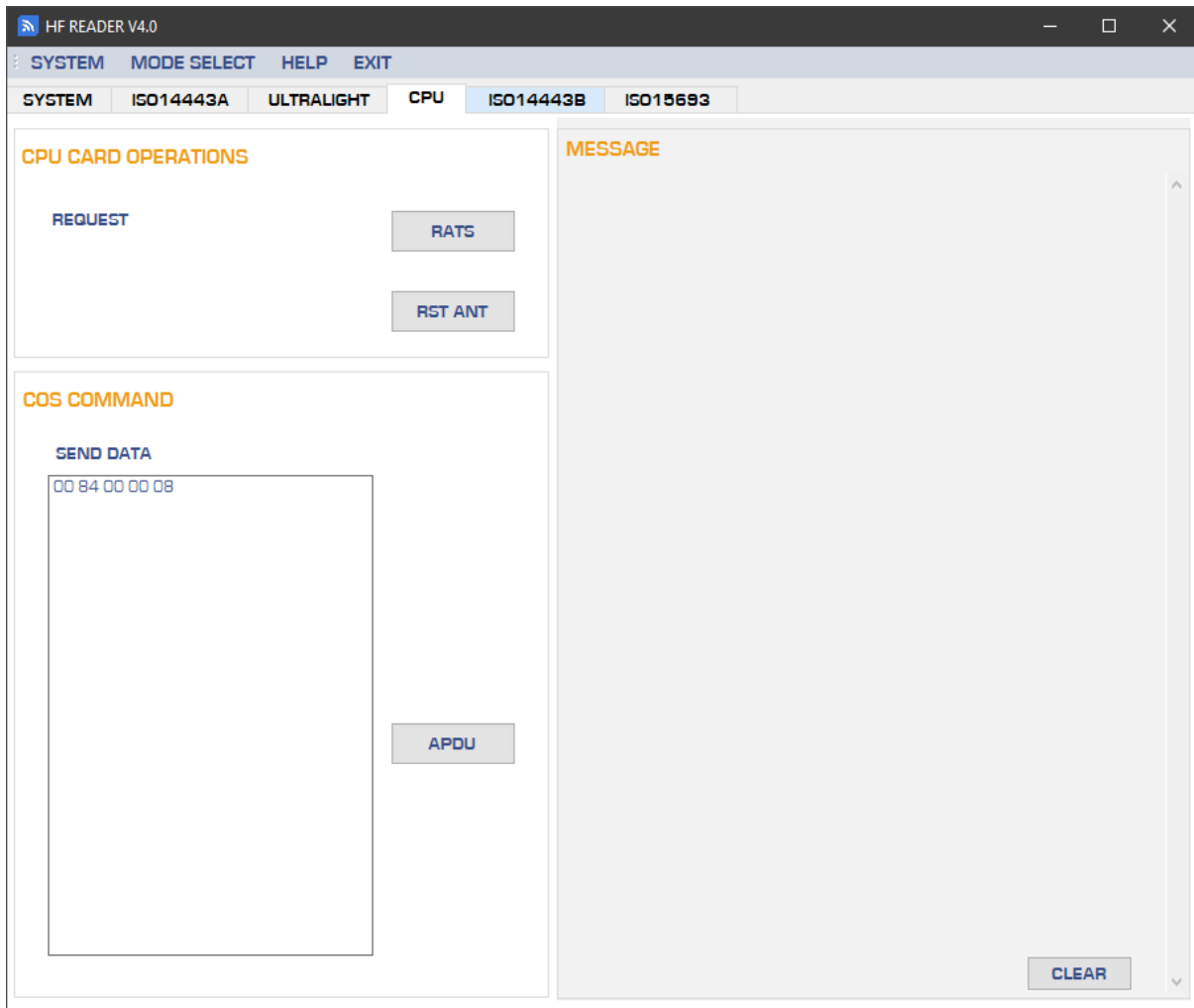
To write information to the page, select the page number to be written under drop-down list box, input data need to be written into (4 bytes), then click “Write”.

To check out if the writing success, you could see the information return in the Message box, also you could operate to read the page just wrote.

5.3 CPU card operation

This interface is used for contactless CPU cards compliant with ISO 14443A standard, here we provide three function button, including RATS (Request for Answer to Select), RST ANT (Reset Antenna) and Send APDU.

These three functions are fit for all common types of contactless CPU card.



5.4 ISO15693 Operation

HF READER V4.0

SYSTEM MODE SELECT HELP EXIT

SYSTEM ISO14443A ULTRALIGHT CPU ISO14443B **ISO15693**

ISO15693 COMMAND

SEARCH CARD ☐ AUTO **INVENTORY**

READ/WRITE

READ

FLAG: 02 ADDR: 01 BLOCKS: 05 **READBLOCK**

UID:

WRITE

FLAG: 02 ADDR: 05 BLOCKS: 01 **WRITEBLOCK**

UID: DATA: 11 11 11 11

LOCK

FLAG: 02 BLOCKS: 05 **LOCKBLOCK**

WRITE&LOCK(AFI/DSFID)

AFI

FLAG: 02 AFI: 06 **WRITE_AFI**

UID: **LOCK_AFI**

DSFID

FLAG: 02 DSFID: 08 **WRITE_DSFID**

UID: **LOCK_DSFID**

15693 GENERAL COMMANDS

FLAG: 02 UID: **STAY_QUIET**

SELECT

RSTToReady

SYSTEM INFO&SECURE INFO

SYSTEM INFO

FLAG: 02 UID: **GETSYSINFO**

SECURE INFO

FLAG: 02 ADDR: 00 BLOCKS: 05 **GETSECINFO**

UID:

TRANSMIT COMMAND

LENGTH: 02 DATA: 02 28 **DATATRANS**

MESSAGE

CLEAR

5.4.1 Inventory

To search the card or cards in the reading field.

13.56MHz RFID READER

System Mode Select Help

System ISO14443-TypeA UltraLight CPU ISO14443-TypeB **ISO15693**

ISO15693 Command

Search Card ☐ **Auto** **Inventory**

Read/Write

Read

Flag: 02 Addr: 01 Blocks: 05 **ReadBlock**

UID:

Write

Flag: 02 Addr: 05 Blocks: 01 **WriteBlock**

UID: Data: 11 11 11 11

Lock

Flag: 02 Block: 05 **LockBlock**

Write & Lock (AFI / DSFID)

AFI

Flag: 02 UID: AFI: 06 **Write_AFI**

Flag: 02 UID: **Lock_AFI**

System Info & Secure Info

System Info

Flag: 02 UID: **GetSysInfo**

Secure Info

Flag: 02 Addr: 00 Blocks: 05 **GetSecInfo**

UID:

Transmit Command

Length: 02 Data: 02 28 **DataTransmit**

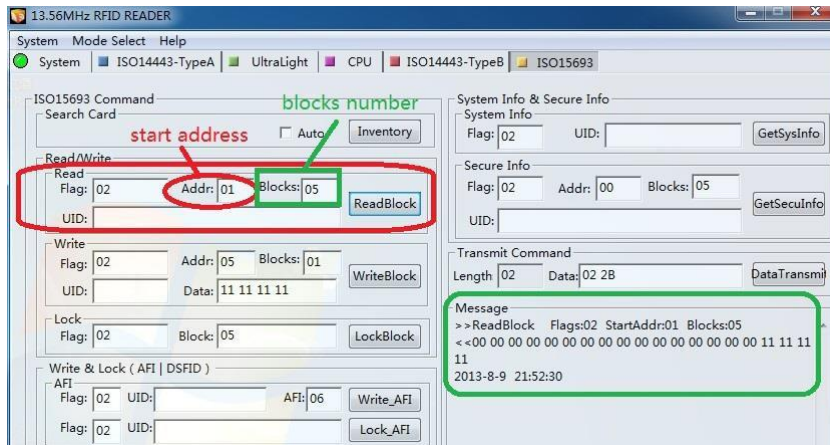
Message

>>Inventory
<<UID1:E0 04 01 00 7B 24 EB CE
1 card be detected
2013-7-30 10:17:15

5.4.2 Read block from block

Please refer to user manual of different chip cards, to get the Flag value, then input the right one, and chose the start address and blocks number to be read.

Following is the example for the I CODE SLI chip cards, the Flag value is 02, as following:

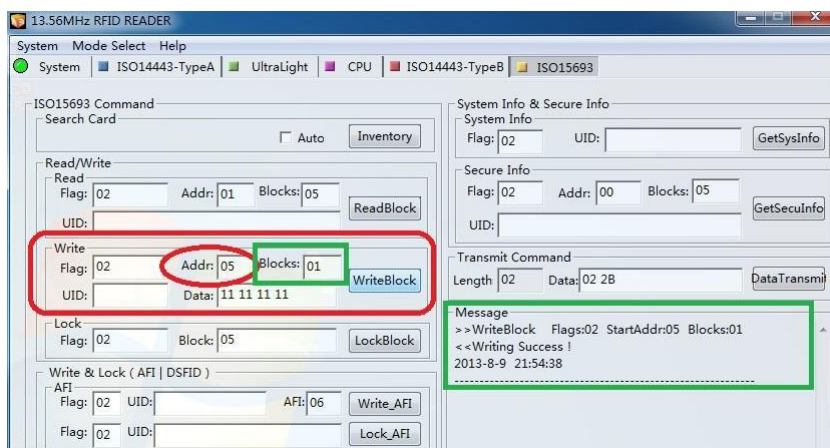


5.4.3 Write data to block

Please refer to user manual of different chip cards, to get the Flag value, then input the right one, and chose the start address and blocks number to be written.

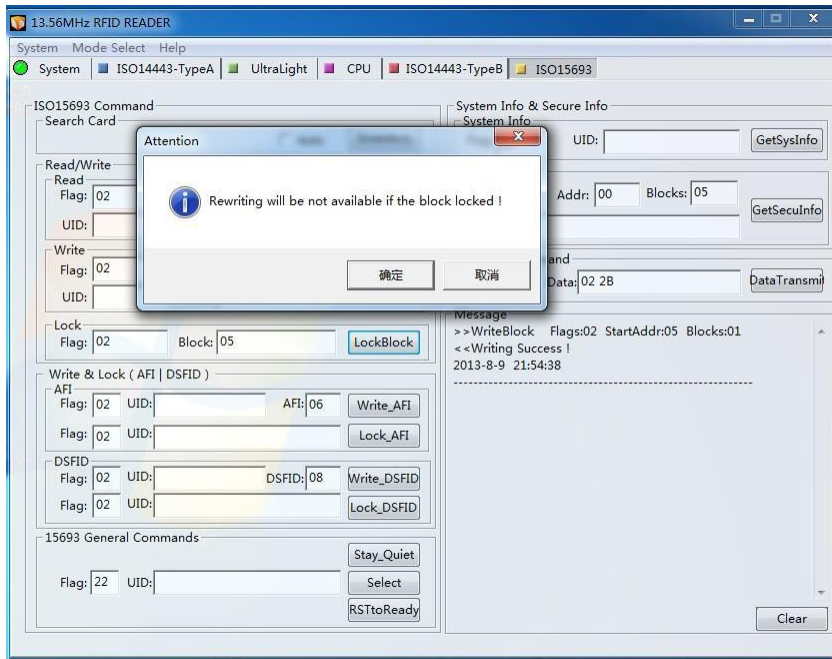
Following is the example for the I CODE SLI chip cards, the Flag value is 0x02*

- Flag value 0x02 = non-addressed mode, every card shall react to this command
- Flag value 0x20 = addressed mode, the card must be addressed with its UID



5.4.4 Lock block

Here needed to input the right Flag of the using card and choose the blocks number to be locked. Attention: if the block locked, rewriting for these blocks will be not available any more.



5.4.5 Write & Lock (AFI/DSFID)

Please refer to the ISO15693 standard.

5.4.6 ISO15693 General Commands

- Stay_Quiet: To make the card to be slept
- Select To select the single card on the reading field
- RST to Ready To wake-up the single card

5.4.7 System info & Secure info

This is to get the system & secure information of the card, here this testing demo is available with three buttons of "GetSysInfo", "GetSecurInfo" and "Data Transmit".

6 Technical Specifications

Mechanical Specifications

Dimensions: 110 × 56 × 18 mm (without cabling, without housing)

Electrical Specifications

Power Supply: 12 Vdc (±5 % regulated)

Power Consumption: < 180 mA (RFID active, relay ON)

Antenna: internal

Interface: Ethernet TCP/IP

Signals: Buzzer, LEDs,

Output: Relay

Max. switching power: 30W/37.5VA

Max. switching voltage: 220Vdc/250Vac

Max. switching current: 1A

Max. carrying current: 1A

Initial contact resistance: Maximum 100 mΩ (initial)

Contact material: Silver alloy with gold overlay

Supported Standards / Tags

- ISO 14443 A/B, ISO 15693
- NXP MIFARE Ultralight® / Ultralight® C
- MIFARE® Classic Mini / 1K / 4K
- MIFARE® DESFire, SmartMX
- NXP I-Code SLI, TI Tag-it HF-I, EM4135
- STM SRI-X 4K

Environmental Conditions

Operating Temperature: -10 °C ... +70 °C

Storage Temperature: -20 °C ... + 80 °C

Humidity: 5 % to 95 %