

## **OEM-LF1S RFID Module Series Demo Software Manual**

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## 1 Operating the Demo Software

### 1.1 Introduction

This testing demo is offered for the basic functions available in the HITAGS series Modules and Reader products designed by CHIEK, and it supports of UART-TTL, RS232, RS485 and USB(COM) port products.

This demo is programmed basing on C# language and run under WINDOWS system.

Any other specific function not showing in this demo, can be realized by customize if there need, please contact our sales persons for details requesting.

### 1.2 Hardware Connection

For Modules series product, please firstly refer to datasheet of the specified Module using for their PIN definition and connect them with correspond mid-ware tool when testing with PC.

For Reader product with USB COM port, just plug USB connector to the PC side. Normally the USB drivers are automatically installed with Windows operating systems. If this does not work, you can download the latest drivers here:

<https://www.silabs.com/products/development-tools/software/usb-to-uart-bridge-vcp-drivers>

Then please check the COM port if be recognized in PC successfully, the way to check it is: Open Computer Manager--Device Manager--COM and LPT, as below:

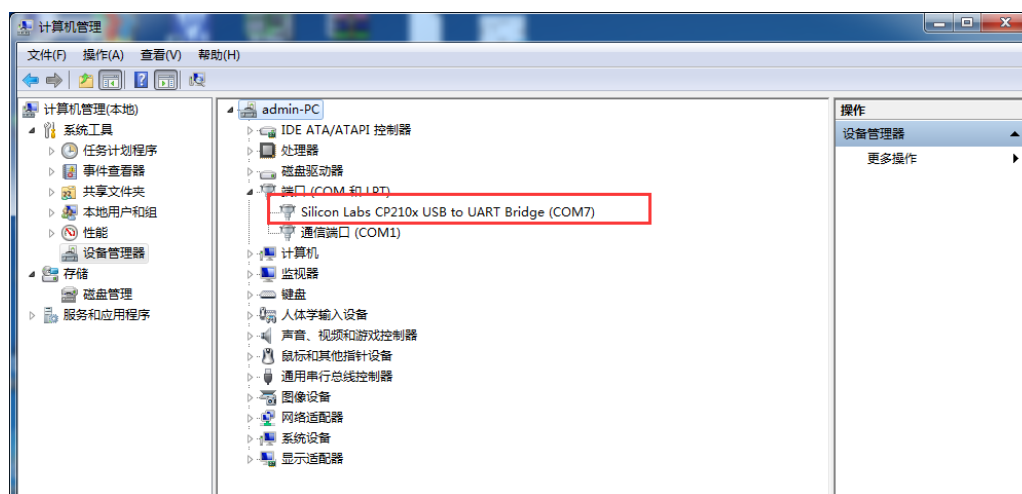


Figure 1 USB VCP in the Windows Device Manager

## 1.3 Functions Operation

### 1.3.1 Software connection

Firstly double click the Hitags.exe file to open demo software, and enter into connection interface as below:

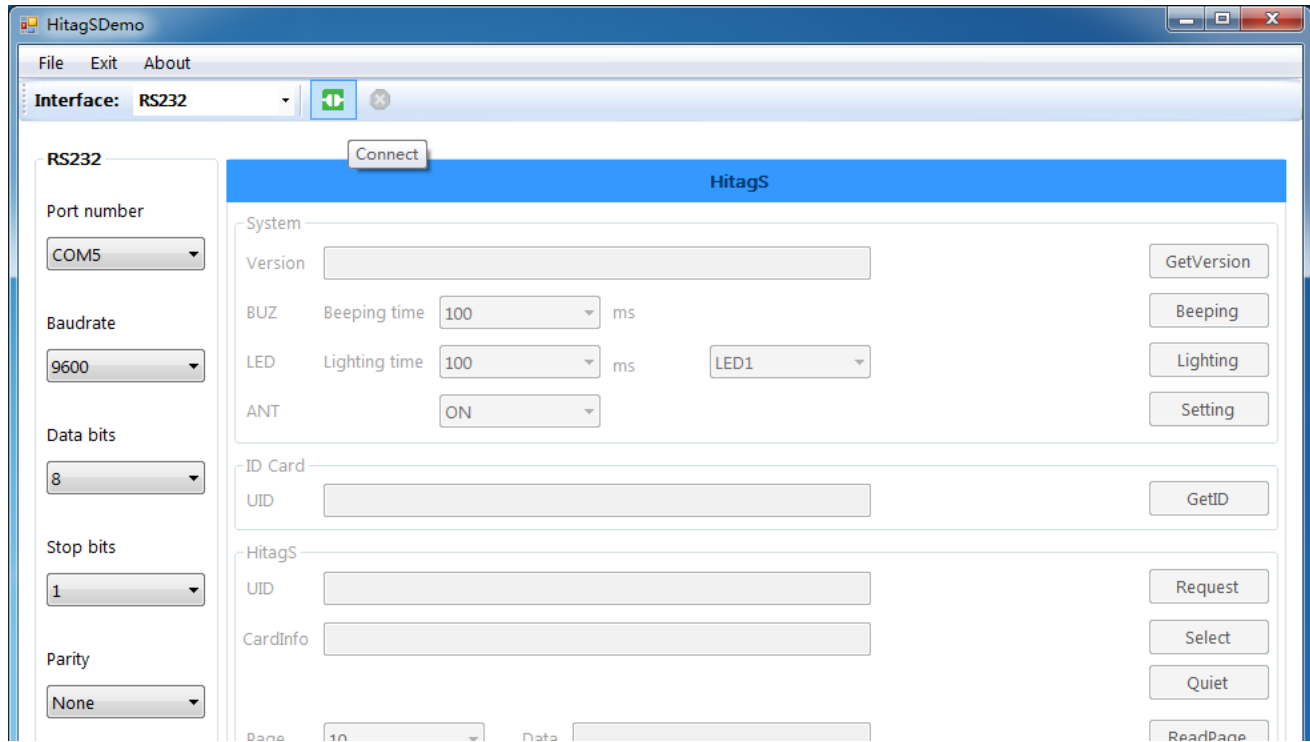


Figure 2 Set up of serial connection

#### Serial Connection Parameters

- Port number Refer to Device Manager--COM&LPT, which on listing
- Baudrate Available from 9600...115200 bps, default 9600 bps;
- Data bits 8
- Stop bits 1
- Parity none

Make sure above parameters in right, then click Connect button to enter functions interface:

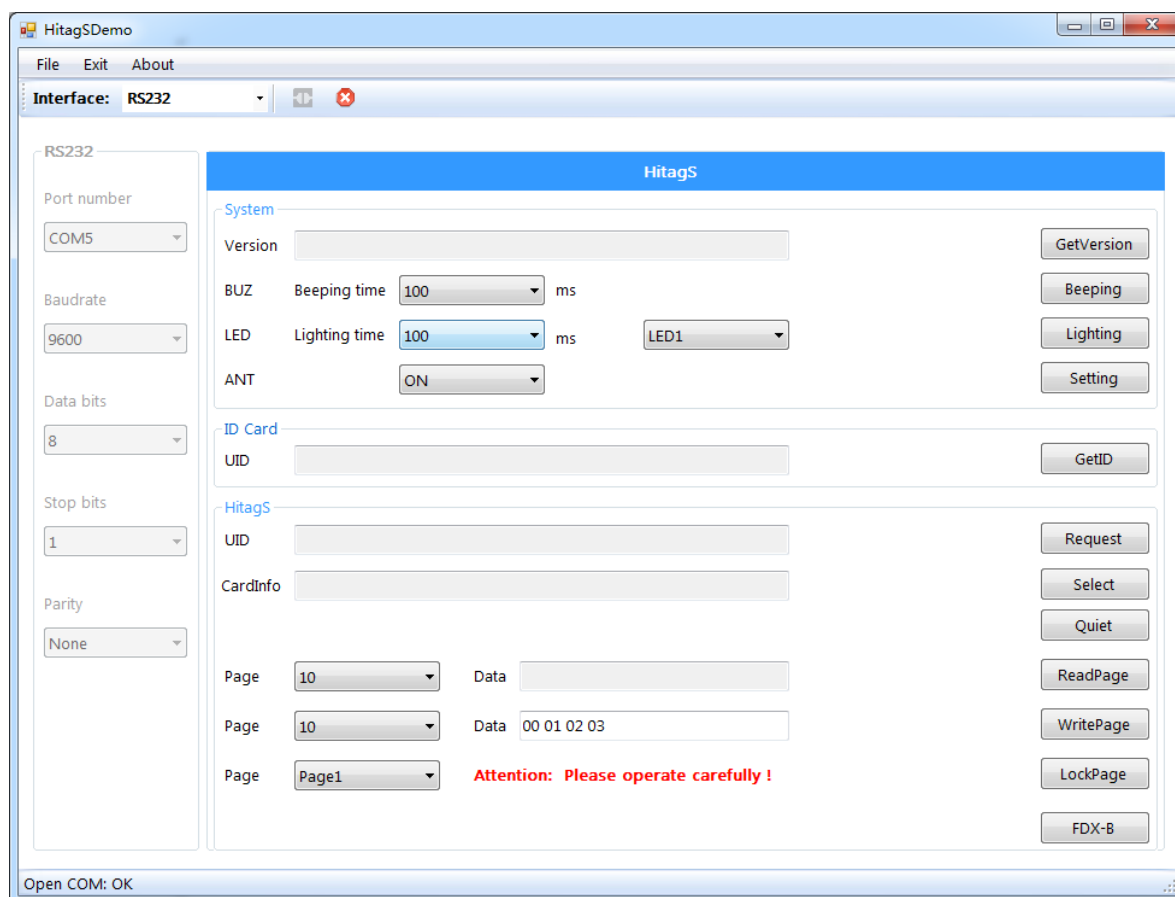


Figure 3 Demo software with connection established

### 1.3.2 System command

The commands open to operate BUZ, LED and ANT, which they can work of:

- BUZ: setup buzzer's beeping time;
- LED: setup LED's lighting time and which LED to be worked;
- ANT: ON or OFF antenna

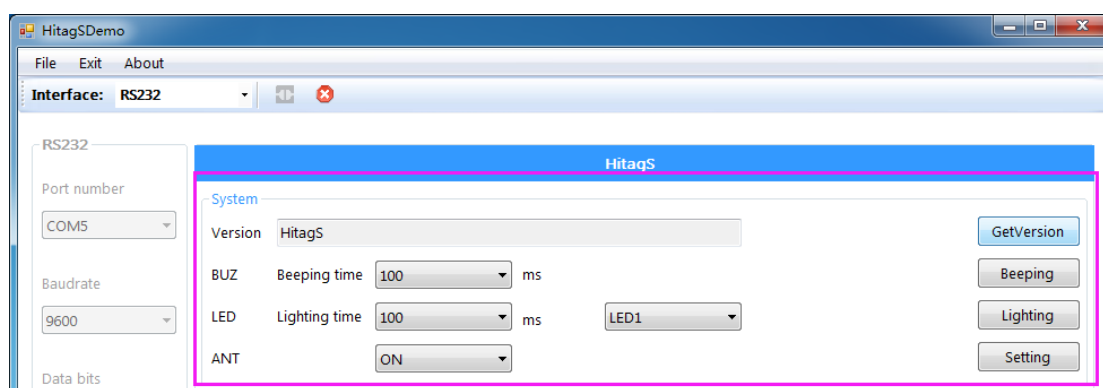


Figure 4 System commands (need extra hardware)

### 1.3.3 ID card--GetUID

This function is to get the UID of ID cards, which the card compatible with 125KHz EM 4100, EM4200, TK 4100, or any other cards be formatted 125KHz compatible.

The UID information will be shown on the Message box as below:

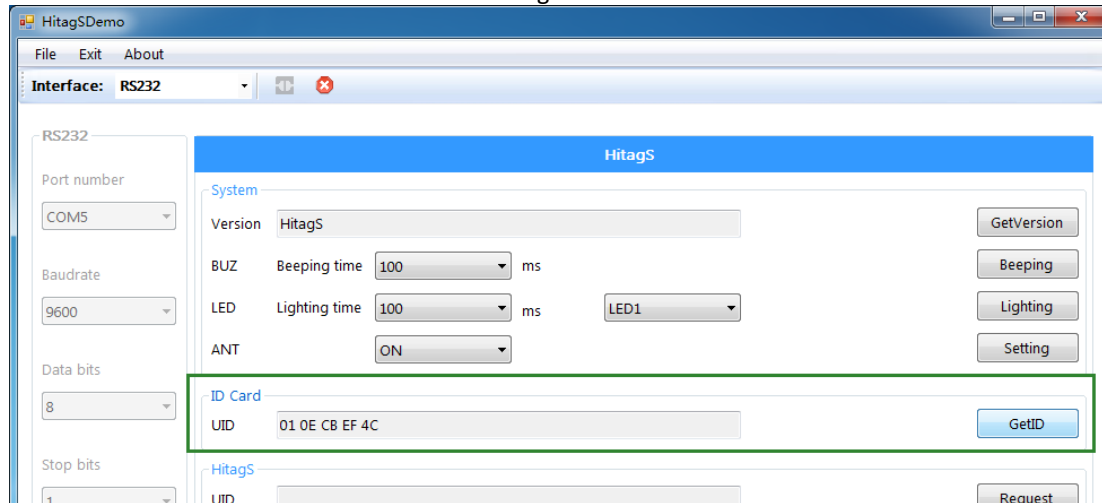


Figure 5 Read UID of read-only tag

### 1.3.4 Hitags card-Request

The Request button is to get UID of HITAGS series cards, which supports chipset of HITAGS 64, HITAGS 256, HITAGS 2048.

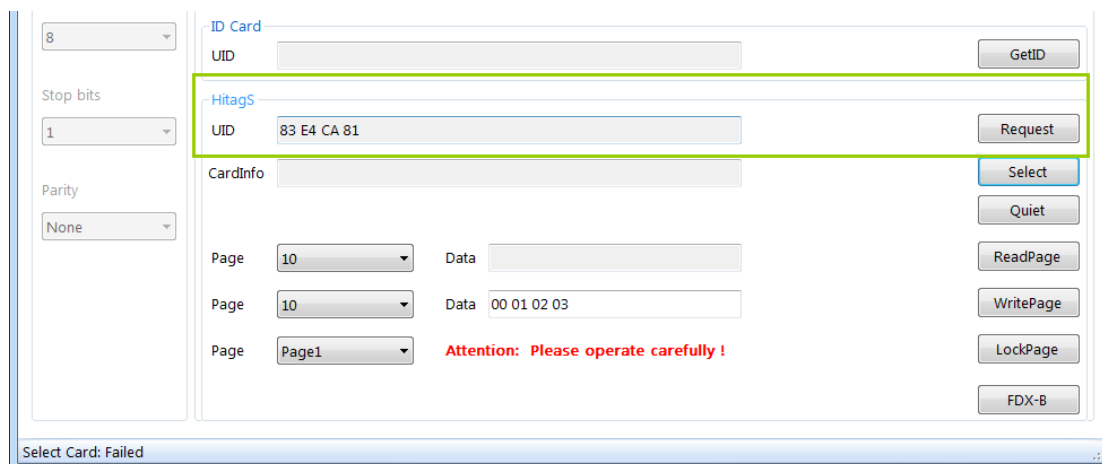


Figure 6 Read UID of Hitag-S tag

### 1.3.5 Hitags card-Select

This function is to select card before operating of Read/Write page of the card.

(Note: when operate this command, please make sure firstly to Request testing card and not remove it from detective area).

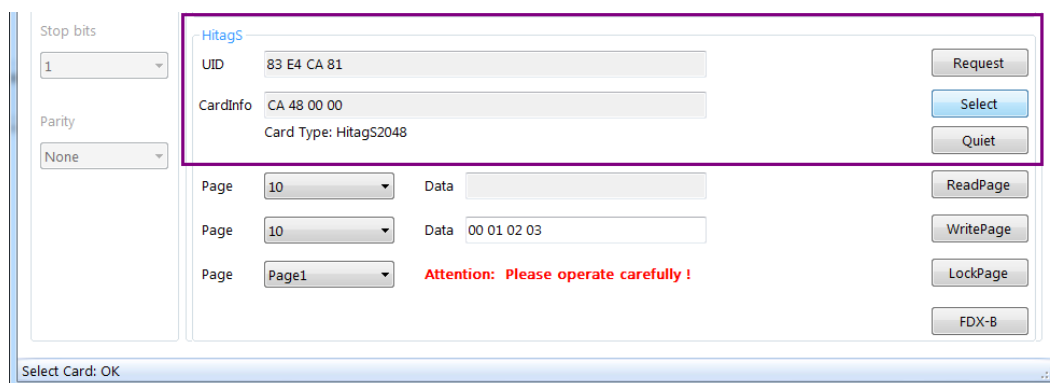


Figure 7 Get card info

### 1.3.6 Hitags card-Quiet

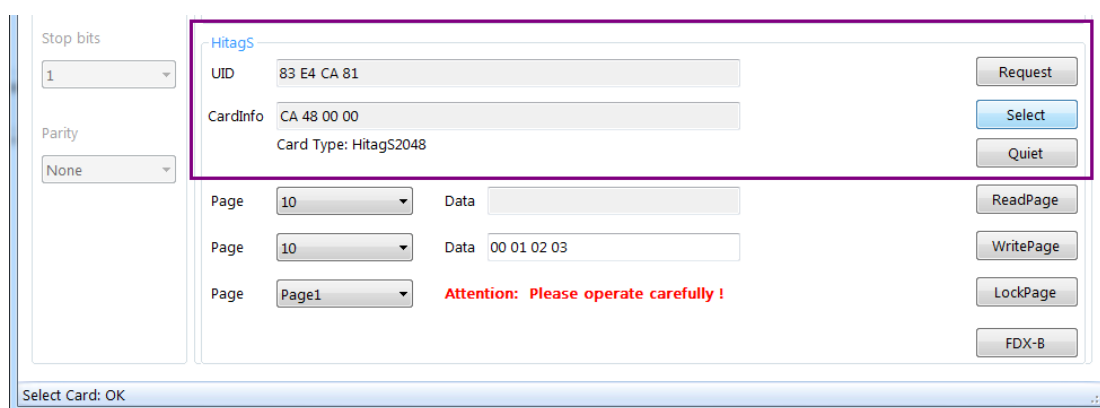


Figure 8 Quiet a tag

This function is to make card to be Quiet status, after enter into Quiet status, the card cannot be operated to Read or Write page.

### 1.3.7 Hitags card-ReadPage

This is to read the page data in the card, it can select which page to be read from drop-down menus, and cannot read multiple pages in one time, as following:

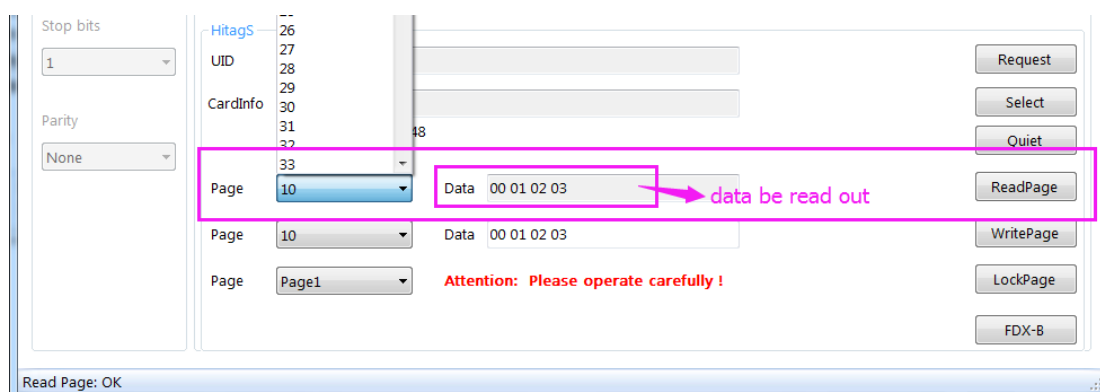


Figure 9 Read pages from the tag



### 1.3.8 Hitags card-WritePage

This is to write data into HITAGS card, it can select which page to be written from drop-down menus, and cannot write into multiple pages in one time, as below:

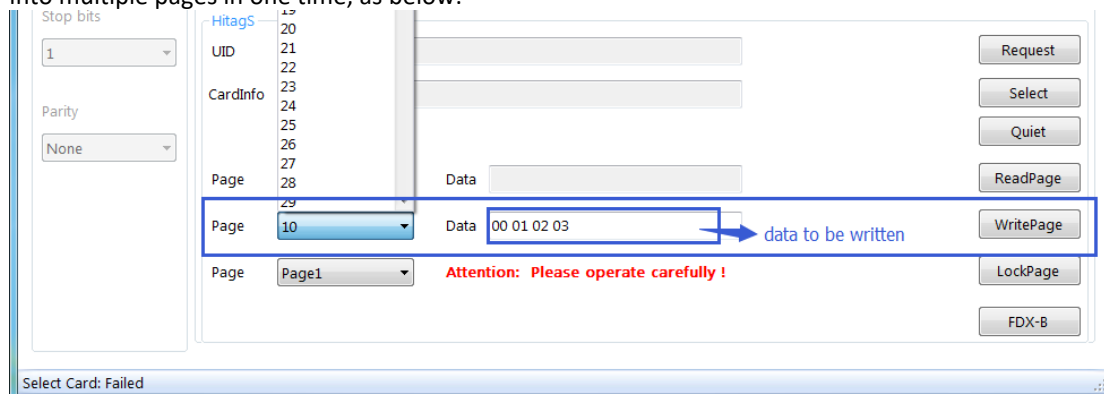


Figure 10 Write pages onto tag

NOTE: The data format to be written is in 4bytes HEX only.

### 1.3.9 Hitags card-LockPage

This is to Lock page of the HITAGS series card, it can select which page to be locked, and the page be locked cannot be written again. Please operate carefully.

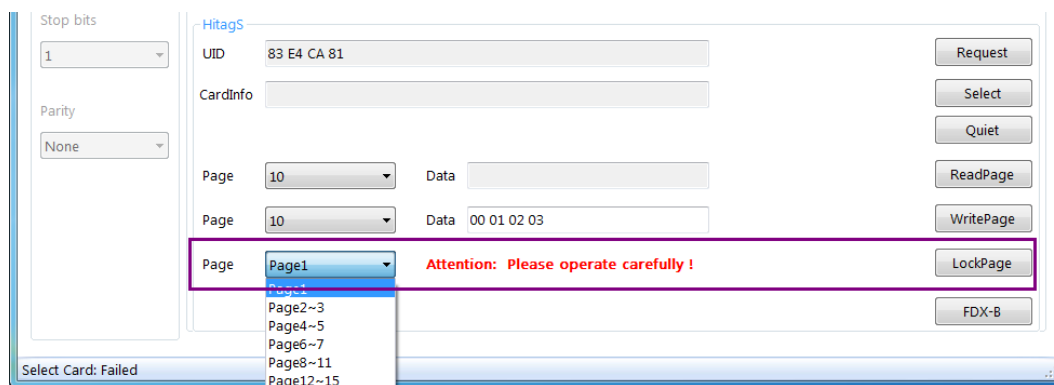


Figure 11 Lock pages on tag

### 1.3.10 FDX-B for Animal tag management

Please click button of FDX-B to enter detail operation interface:

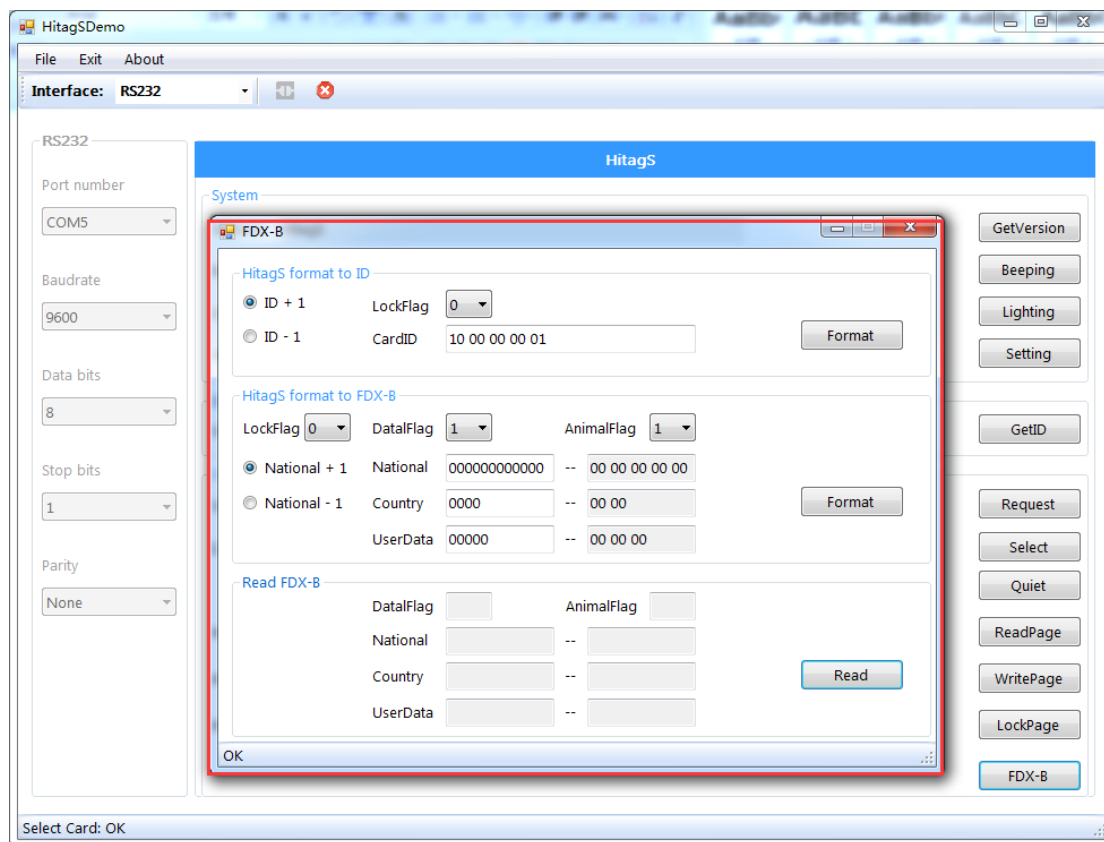


Figure 12 FDX-B dialog popup on software

### 1.3.11 Hitags format to ID card

This function is opened to format HITAGS series card to be ID card.

#### The functions include

- CardID Message box the data of UID to be formatted (5byte Decimal)
- ID + 1 the input data in the CardID message box plus 1 for next card formatting
- ID – 1 the input data in the CardID message box minus 1 for next card formatting
- LockFlag when it is 0, it is not to lock flag, then the card can be re-formatted again  
when it's 1, it is to lock flag, then the card cannot be re-formatted again

The screenshot shows a software window titled "FDX-B". It contains three main sections:

- HitagS format to ID:** This section is highlighted with a purple border. It includes radio buttons for "ID + 1" (selected) and "ID - 1". There is a "LockFlag" dropdown set to "0" and a "CardID" text box containing "10 00 00 00 01". A "Format" button is on the right.
- HitagS format to FDX-B:** This section includes dropdowns for "LockFlag" (0), "DataFlag" (1), and "AnimalFlag" (1). It has radio buttons for "National + 1" (selected) and "National - 1". Below these are text boxes for "National" (000000000000), "Country" (0000), and "UserData" (00000). Each has a corresponding output field separated by "--". A "Format" button is on the right.
- Read FDX-B:** This section has input fields for "DataFlag", "AnimalFlag", "National", "Country", and "UserData", each with a corresponding output field separated by "--". A "Read" button is on the right.

An "OK" button is at the bottom left of the window.

Figure 13 Format Hitag-S to ID

### 1.3.12 Hitags format to FDX-B

The following table offering how to set the basic functions of the HITAGS cards, and what data need to be operated when formatted HITAGS cards to be FDX format.

#### Among them:

- LockFlag:** When it's 0, means not to lock the flag, so that this card can be re-formatted again;  
When it's 1, means to lock the flag, then the flag will be fixed and cannot be re-formatted again.
- Dataflag:** this is for indicate that if there is additional data block or not  
When it's 0, means there is no data block  
When it's 1, means there exists additional data block.
- AnimalFlag:** this is to set the tag used for animal identification or not.  
When it's 0, for non-animal application;  
When it's 1, for animal application.
- National:** the National identification code, it's the unique number within a country. Data format: 12 numbers only.  
National + 1, it's the National code plus 1 based on the value inputted on the National message box;  
National -1, it's the National code minus 1 based on the value inputted on the National message box;
- Country:** ISO 3166 numeric-3 country code, range from 900 to 998 may be used to refer to individual manufacturers of transponders. Country code 999 is used to indicate that the transponder is a test transponder and need not contain a unique identification number.
- UserData:** data field for customer's own used, and the data set in this field will be not output when read this formatted FDX-B transponder in the common system application.

After input the correspond value in the left message box, then Click Format button to FDX-B (note: the right message box are only for HEX output indication of the formatting value in left side)

The screenshot shows a software window titled 'FDX-B'. It contains three main sections:

- HitagS format to ID:** Includes radio buttons for 'ID + 1' (selected) and 'ID - 1'. A 'LockFlag' dropdown is set to '0'. A 'CardID' text field contains '10 00 00 00 01'. A 'Format' button is present.
- HitagS format to FDX-B:** This section is highlighted with a green border. It includes dropdowns for 'LockFlag' (0), 'DataFlag' (1), and 'AnimalFlag' (1). It has two radio buttons: 'National + 1' (selected) and 'National - 1'. Below these are text fields for 'National' (000000000000), 'Country' (0000), and 'UserData' (00000). To the right of each field is a corresponding field with a double dash separator (e.g., '00 00 00 00 00'). A 'Format' button is on the right.
- Read FDX-B:** Includes text fields for 'DataFlag', 'AnimalFlag', 'National', 'Country', and 'UserData', each followed by a double dash separator and another empty field. A 'Read' button is on the right.

An 'OK' button is located at the bottom left of the window.

Figure 14 Format Hitag-S to FDX-B

**Remarks:**

1. The length of the national identification code was chosen to have enough combinations available for all animals in a large country. Moreover, the uniqueness of a code is expected to be maintained over thirty years.
2. It is a national responsibility to ensure the uniqueness of the national identification code. If necessary, number series may be allocated to species and/or manufacturers, but this will not be standardized. Ideally, every country should maintain a central database in which all issued codes are stored, together with a reference to the database where the information concerning the associated animal can be retrieved.

**1.3.13 ReadFDX-B**

This is to read data of the FDX-B transponder be formatted.

Just put the FDX-B formatted transponder under antenna detecting area, and Click Read to get the data, the result will be shown on the corresponding message box as below:

**FDX-B**

**HitagS format to ID**

☒ ID + 1      LockFlag

☐ ID - 1      CardID       **Format**

**HitagS format to FDX-B**

LockFlag       DataFlag       AnimalFlag

☒ National + 1      National  --

☐ National - 1      Country  --       **Format**

UserData  --

**Read FDX-B**

DataFlag       AnimalFlag

National  --

Country  --       **Read**

UserData  --

Get FDX-B: OK

Figure 15 Read data from RDX-B

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