



**OEM-LF1S RFID Module Series
NEO2**

Demo Software Manual

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1 Operating the Demo Software

1.1 Introduction

This testing demo offers the basic functions available in the HITAGS series Modules and Readers and supports products with UART-TTL, RS232, RS485 and USB(COM) port.

This demo is programmed using C# and can be run on Windows systems.

1.2 Hardware Connection

For individual modules, please first refer to the datasheet of the specified Module for their PIN definition and connect them with corresponding mid-ware tools when testing with a PC.

For Reader products with USB COM port, just plug-in the USB connector to the PC side. USB Drivers are no longer installed automatically by the Windows OS. Use the files in the folder “USB_Drivers” to install the drivers.

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

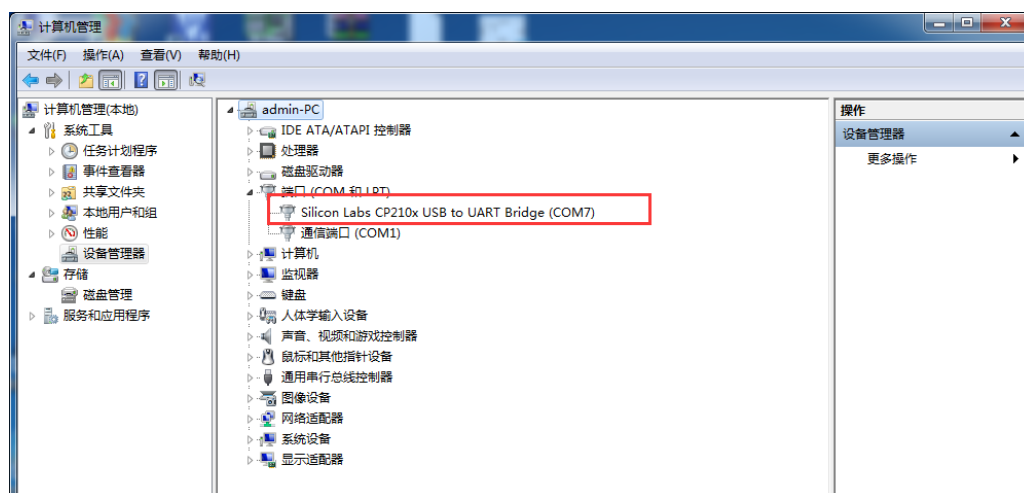


Figure 1 USB VCP in the Windows Device Manager

1.3 Functions Operation

1.3.1 Software connection

First, double click the “HitagSDemo.exe” file to open the demo software, and enter the connection interface as below:

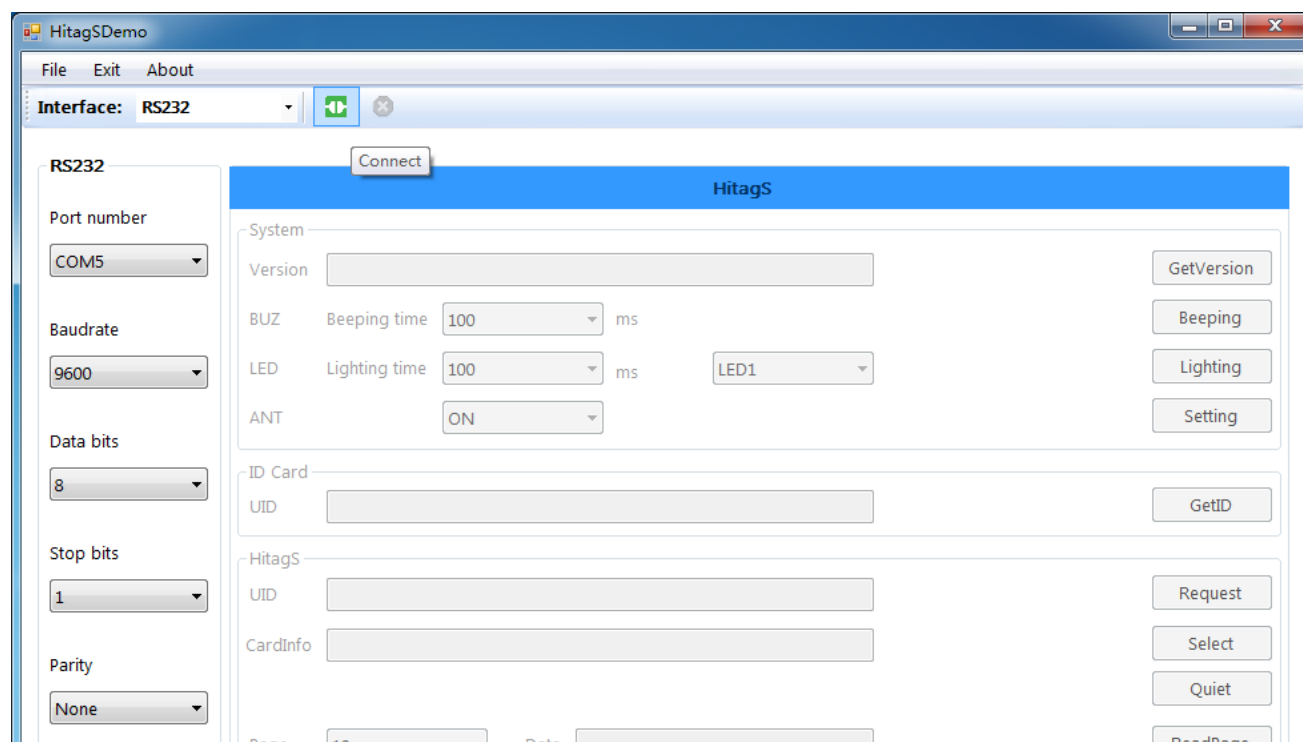


Figure 2 Set up of serial connection

Serial Connection Parameters

- Port number Refer to Device Manager--COM&LPT
- Baudrate Available from 9600...115200 bps, default 9600 bps;
as of firmware 2022-09-13 default is 115200 Baud
- Data bits 8
- Stop bits 1
- Parity none

Make sure the parameters above are set correctly, then click the Connect button to enter the functions interface:

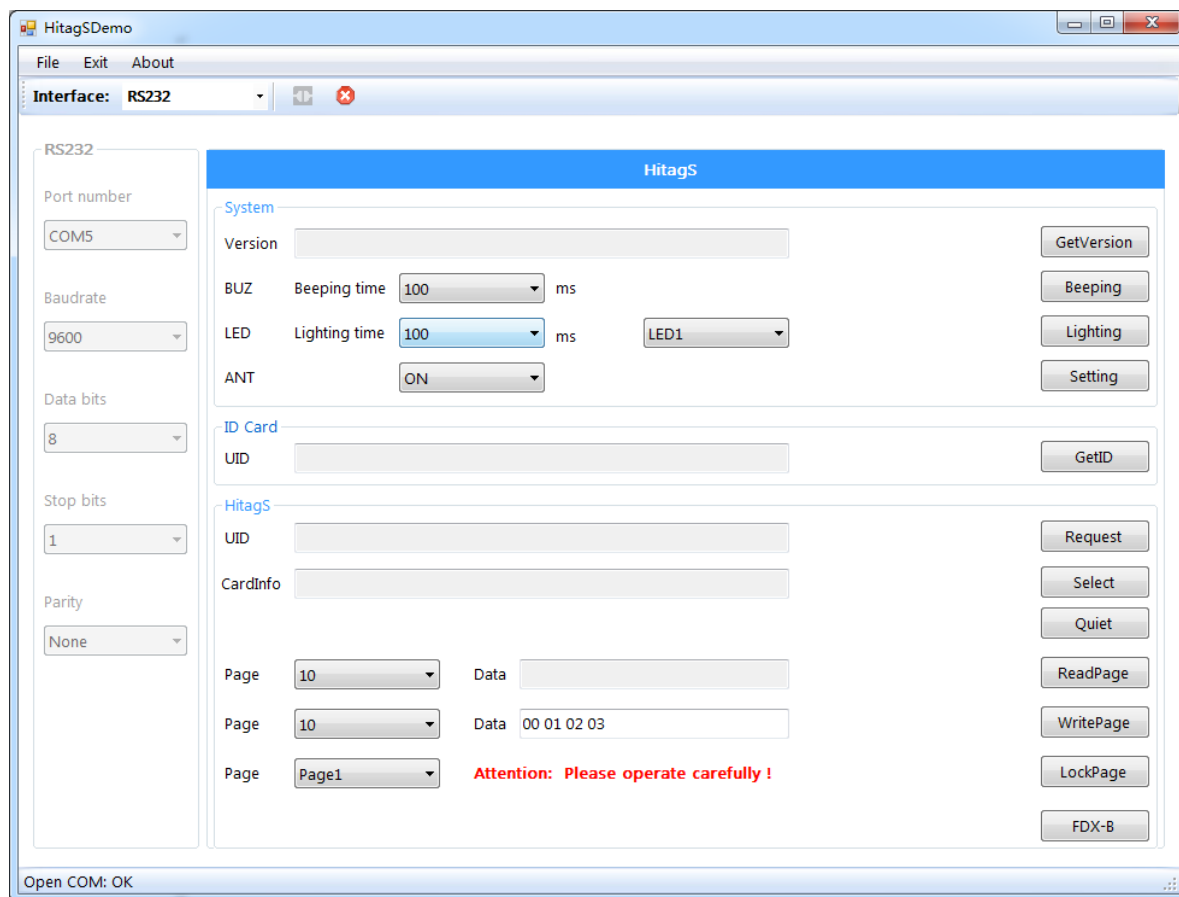


Figure 3 Demo software with connection established

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 used;
- 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, if the card is compatible with 125KHz EM 4100, EM4200, TK 4100.

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

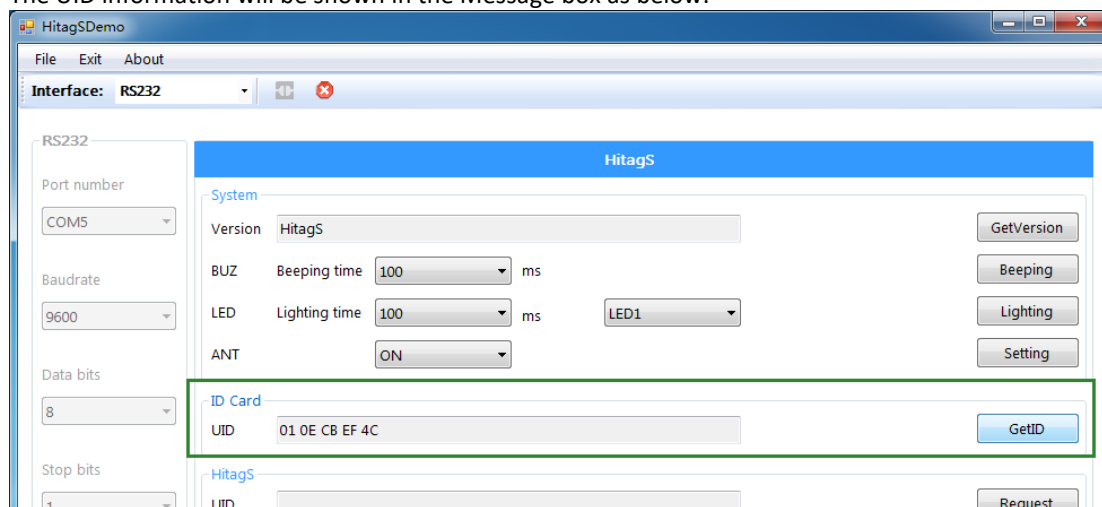


Figure 5 Read UID of read-only tag

1.3.4 Hitags card-Request

The Request button is for getting the UID of HITAGS series cards, which supports chipset of HITAGS 64, HITAGS 256, HITAGS 2048.

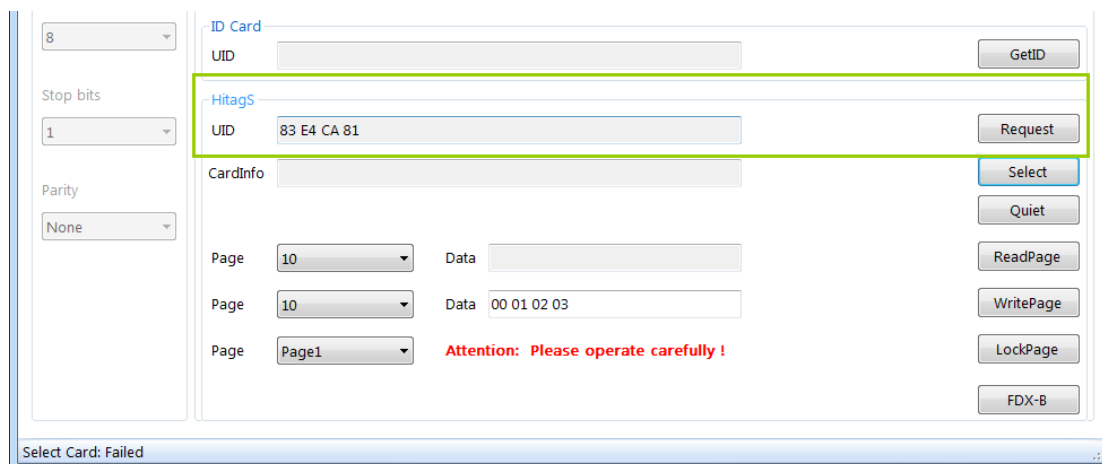


Figure 6 Read UID of Hitag-S tag

1.3.5 Hitags card-Select

This function is to select a card prior to Read/Write operations on a page of the card.

(Note: before using this command, please make sure to use the Request functionality to test the card and don't remove it from the detective area).

Stop bits: 1

Parity: None

HitagS

UID: 83 E4 CA 81

CardInfo: CA 48 00 00

Card Type: HitagS2048

Page: 10 Data:

Page: 10 Data: 00 01 02 03

Page: Page1 **Attention: Please operate carefully !**

Buttons: Request, Select, Quiet, ReadPage, WritePage, LockPage, FDX-B

Select Card: OK

Figure 7 Get card info

1.3.6 Hitags card-Quiet

Stop bits: 1

Parity: None

HitagS

UID: 83 E4 CA 81

CardInfo: CA 48 00 00

Card Type: HitagS2048

Page: 10 Data:

Page: 10 Data: 00 01 02 03

Page: Page1 **Attention: Please operate carefully !**

Buttons: Request, Select, Quiet, ReadPage, WritePage, LockPage, FDX-B

Select Card: OK

Figure 8 Quiet a tag

This function is for setting a card to be in the Quiet status; after entering the Quiet status, the card cannot be operated to Read or Write page.

1.3.7 Hitags card-ReadPage

This is to read a page data in the card, it can be selected which page shall be read using the drop-down menu, it can only read a single page at a time, as below:

Stop bits: 1

Parity: None

HitagS

UID: 26 27 28 29 30 31 32 33

CardInfo: 48

Page: 10 Data: 00 01 02 03 **data be read out**

Page: 10 Data: 00 01 02 03

Page: Page1 **Attention: Please operate carefully !**

Buttons: Request, Select, Quiet, ReadPage, WritePage, LockPage, FDX-B

Read Page: OK

Figure 9 Read pages from the tag

1.3.8 Hitags card-WritePage

This is to write data into HITAGS card, it can be selected which page shall be written using the drop-down menu, it can only write one page at a 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 a page of the HITAGS series card, it can be selected which page shall be locked, and the page that is 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 the detail operation interface:

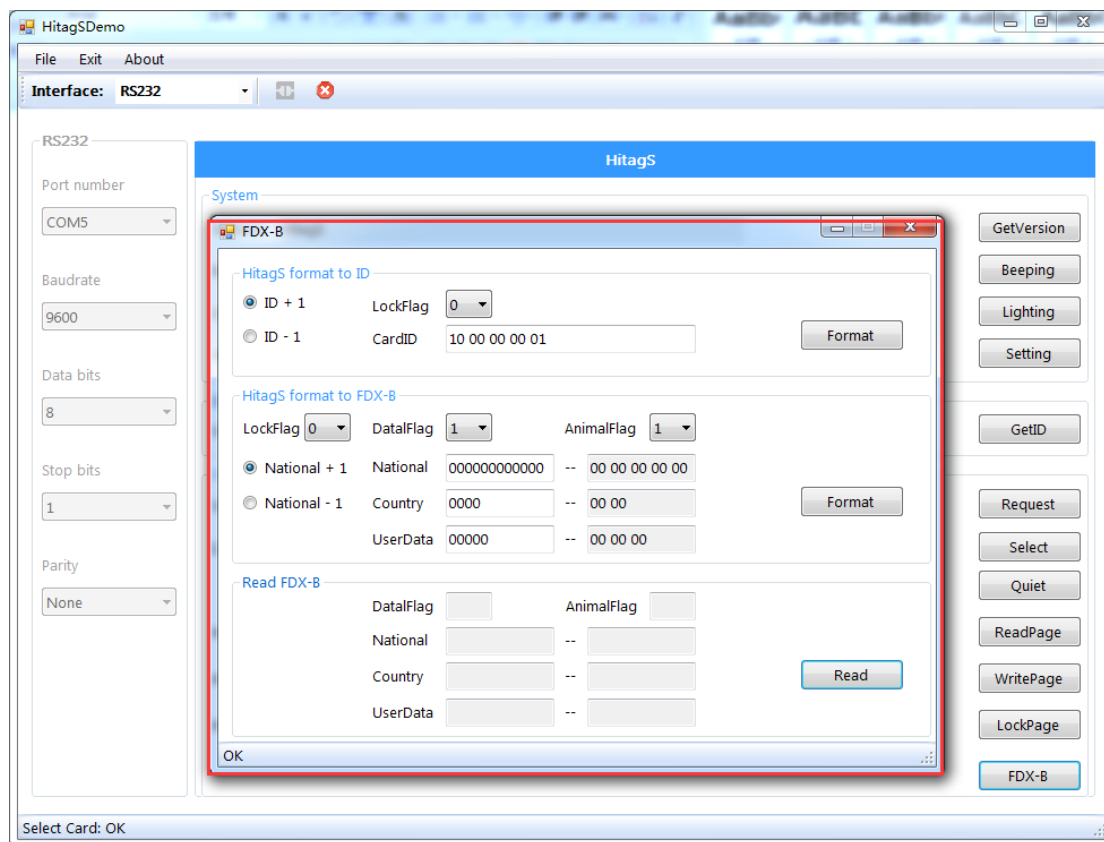


Figure 12 FDX-B dialog popup on software

1.3.11 Hitags format to ID card

This function is used to format HITAGS series card to be an ID card.

The functions include

- CardID Message box the 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). To the right of each "National" and "UserData" box are two smaller boxes showing hex values "00 00 00 00 00" and "00 00" respectively. A "Format" button is on the right.
- Read FDX-B:** This section contains empty text boxes for "DataFlag", "AnimalFlag", "National", "Country", and "UserData", with corresponding hex display boxes to their right. 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 shows how to set the basic functions of the HITAGS cards, and what data is needed for when HITAGS cards are formatted to the 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 indicating if there is an additional data block or not
When it's 0, means there is no data block
When it's 1, means there exists an 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 doesn't need to contain a unique identification number.
- UserData:** data field for customer's own used, and the data set in this field will not be output when reading this formatted FDX-B transponder with the common system application.

After input of the corresponding values in the left message box, Click the Format button to FDX-B (note: the right message boxes 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'. There is a 'LockFlag' dropdown set to '0' and a 'CardID' text field containing '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:
 - 'LockFlag' dropdown set to '0', 'DataFlag' dropdown set to '1', and 'AnimalFlag' dropdown set to '1'.
 - Radio buttons for 'National + 1' (selected) and 'National - 1'.
 - Fields for 'National' (000000000000), 'Country' (0000), and 'UserData' (00000), each with a corresponding 'Format' button.
- Read FDX-B:** Located at the bottom, it includes fields for 'DataFlag', 'AnimalFlag', 'National', 'Country', and 'UserData', each with a 'Read' button.

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 after formatting.

Just put the FDX-B formatted transponder in the antenna detecting area, and Click Read to the 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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