Ordering Information:

Item No.	Description
YHY523U	13.56MHz ISO14443 A Reader/Writer USB Interface
YHY523R	13.56MHz ISO14443 A Reader/Writer RS232 Interface

1 Supported cards

ISO 14443 TypeA: Mifare_One(S50&S70)

2 Special Features

- Read and write contactless smart cards
- Frequency: 13.56 MHz.
- Typical time to read and write cards：<100ms
- Communications Interface: USB or RS232, baud rate9600 ～ 115200 bps
- Power supply ： DC 5V
- Two LED indicators (software controlled)

- Buzzer alarm (software controlled)
- Mechanic and environmental characteristics:

  - Size: 70 ×70× 10 （ mm ）

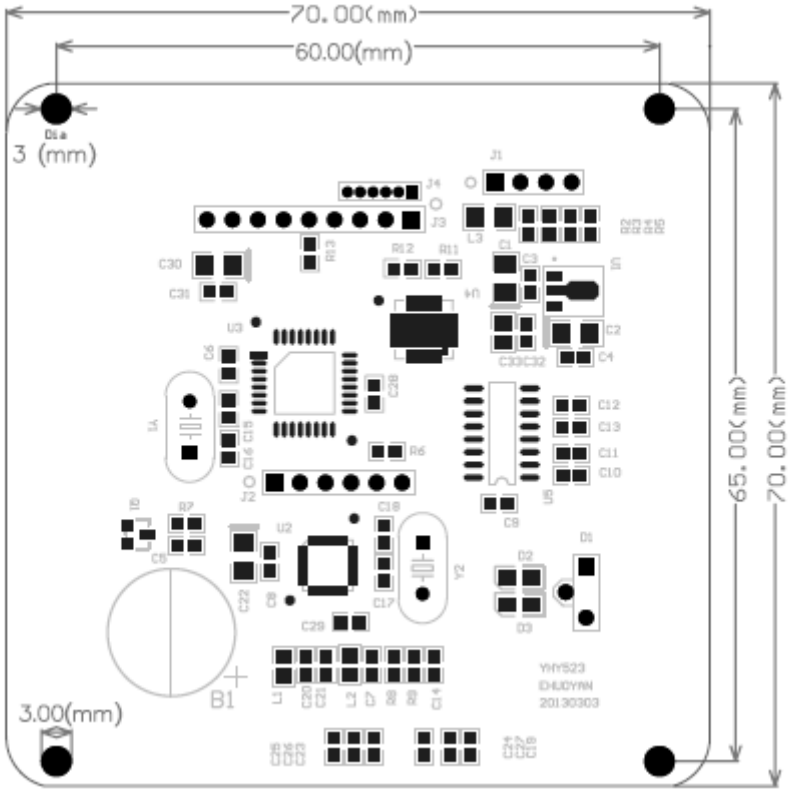
  - Cable length: 1.5m

  - Operating temperature: -10 ~50 ℃

  - Storage temperature: - 25 ~80℃

  - Relative humidity: up to 90%

  - **Weight: 20g**

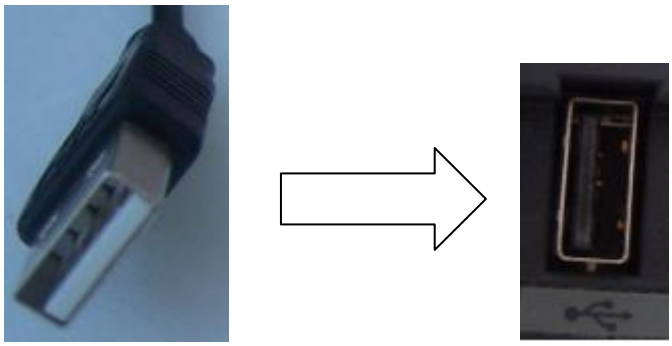


3 Connecting

Connect YHY523U to the USB or RS232 port of PC, after power on the RED led and BLUE led will flash one time, then the RED led will light on again next, the buzzer will beep, it mean that the reader is ready now.

If USB PORT,connect the USB port to PC USB port.

(Item No:YHY523U)



4 Electrical Characteristics

4.1 Operating Condition Range

Relative humidity:up to 90%

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Tamb	Ambient Temperature		-10	25	50	℃
VDD	DC Supply Voltage	DVSS = 0V	4.5	5	5.5	V

Table 1 - Operating Condition Range

4.2 Current Consumption

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
IDVDD	Supply Current	Reading started but no cards in the reader range		70		mA
IDVDD		Reading started, 1 card in the reader range		95		mA

Table 2 - Current Consumption

4.3 Operating Distance

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
OD	14443A S50 tag Operating Distance,	Measured from the reader bottom		0-90		mm

Table 3 - Operating Distance

4.4 COM Interface Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
USB	baud rate			**115200**		
RS232	baud rate		9600	**115200**	115200	baud

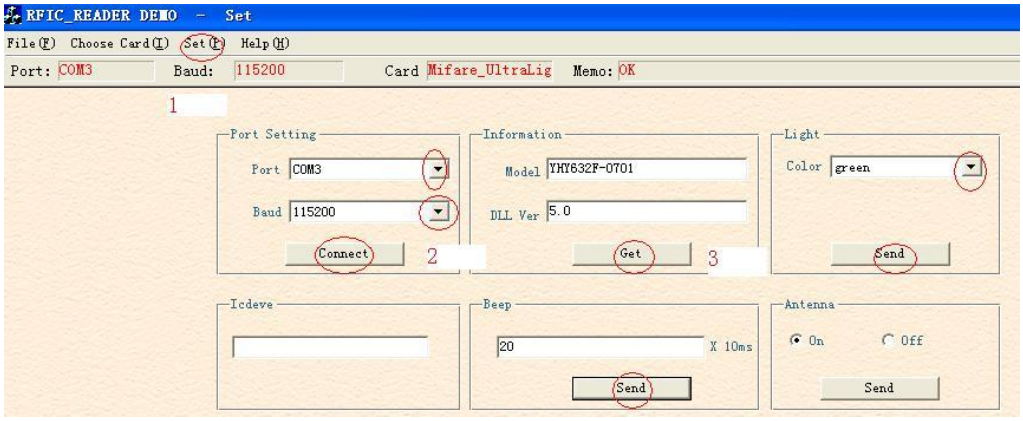
Table 4 - Serial Interface

5. DEMO

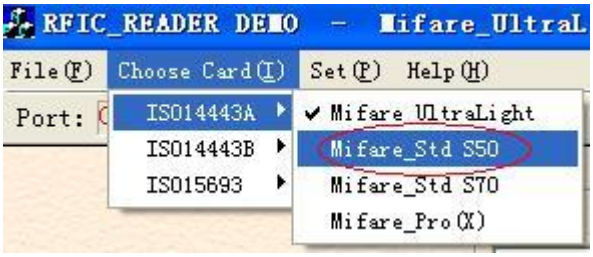
This software rfidxray.exe run on Win32 system.

5.1 COM setup

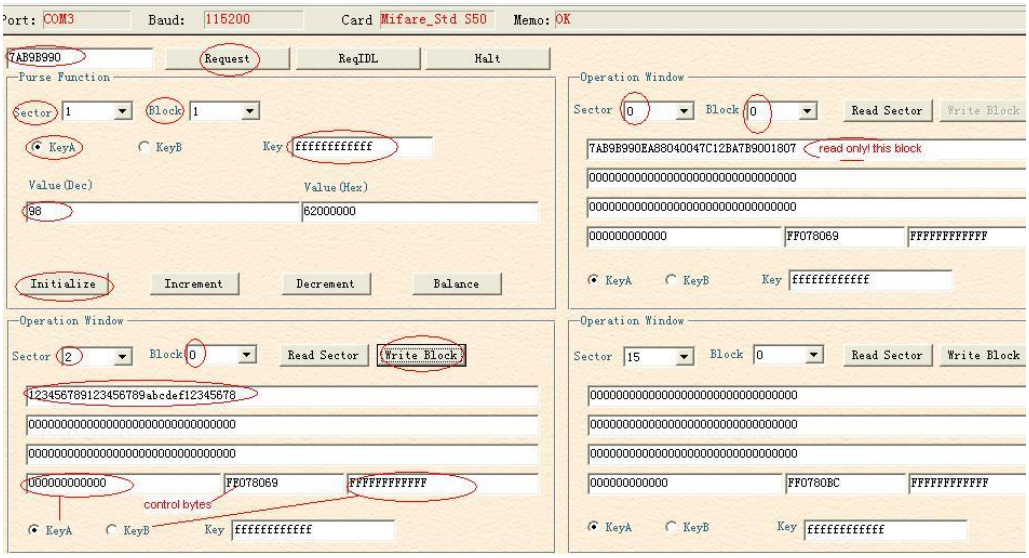
First run RFIDXray.exe, then connect the reader to PC COM port.Choose the correct COM number, click [Connect] button to connect the Reader to PC.Baud set to 115200 Click [Read] the product information button, you can check the specific type of the Reader and the supported cards.



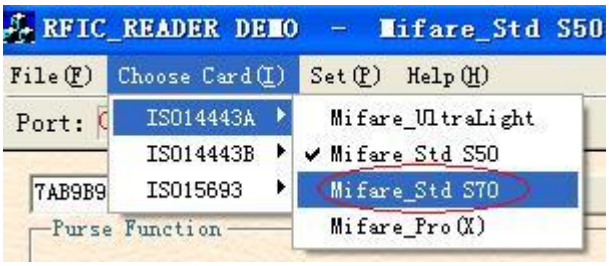
5.3 Mifare_1K (STD S50)



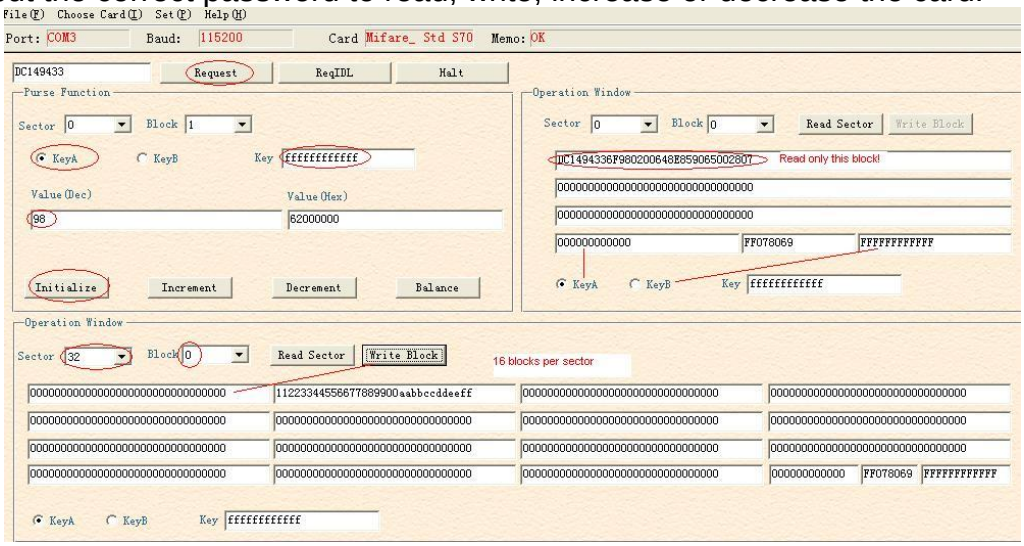
Click the [Request] button to obtain the card serial number.
Input the correct password to read, write, increase or decrease the card.



5.4 Mifare_4K (STD S70)

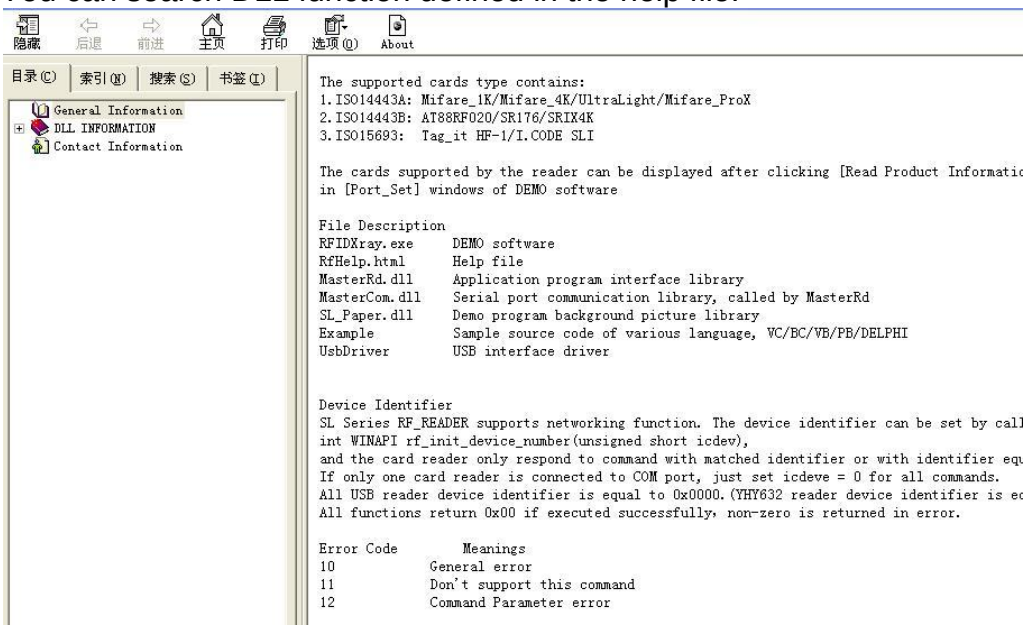


Click the [Request] button to obtain the card serial number.
Input the correct password to read, write, increase or decrease the card.



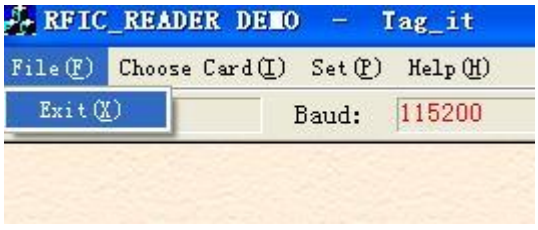
5.6 HELP

You can search DLL function defined in the help file.



5.7 DISCONNECT READER

5.8 EXIT



6. DLL INFORMATION (*icdev=0*)

6.1 SYSTEM FUNCTION

6.1.1 INT WINAPI LIB_VER

Function: Get DLL Version
Prototype: int WINAPI lib_ver (unsigned int *pVer)
Parameter: pVer: [OUT] DLL version
Return: return 0 if successful

6.1.2 INT WINAPI RF_INIT_COM

Function: Connect
Prototype: int WINAPI rf_init_com (int port, long baud)
Parameter: port: [IN] serial port number
baud: [IN] communication baud rate, 19200 ~ 115200 bps
Return: return 0 if successful

6.1.3 INT WINAPI RF_CLOSEPORT

Function: Disconnect
Prototyp: int WINAPI rf_ClosePort(void)
Return: return 0 if successful

6.1.4 INT WINAPI RF_GET_MODEL

Function: Get Device Type
Prototype: int WINAPI rf_get_model (unsigned short icdev,
unsigned char *pVersion,
unsigned char *pLen)
Parameter: icdev: [IN] Device ID
pVersion: [OUT] response information
pLen: [OUT] length of response information
Return: return 0 if successful

6.1.6 INT WINAPI RF_ANTENNA_STA

Function: Manage RF Transmittal
Prototype: int WINAPI rf_antenna_sta (unsigned short icdev, unsigned char model)
Parameter: icdev: [IN] Device ID
model: [IN] transmittal state
Return: return 0 if successful
Explanation:model = 0: turn off RF transmittal
model = 1: turn on RF transmittal

6.1.7 INT WINAPI RF_LIGHT

Function: Manage LED
Prototype: int WINAPI rf_light (unsigned short icdev, unsigned char color)
Parameter: icdev: [IN] Device ID
color: [IN] 0 = off
1 = red

2 = blue

Return: return 0 if successful

6.1.8 INT WINAPI RF_BEEP

Function: beep
Prototype: int WINAPI rf_beep (unsigned short icdev, unsigned char msec)
Parameter: icdev: [IN] Device ID
msec: [IN] beep time, unit 10 Msec
Return: return 0 if successful

6.2 ISO14443A FUNCTION

6.2.2 Mifare_Std

6.2.2.1 INT WINAPI RF_REQUEST

Function: ReqA
Prototype: int WINAPI rf_request (unsigned short icdev,
unsigned char model,
unsigned short *pTagType)
Parameter: icdev: [IN] Device ID
model: [IN] REQ MODE
pTagType: [OUT] response data, chip type code
Return: return 0 if successful
Explanation: mode = 0x26: REQ_STD
mode = 0x52: REQ_ALL

6.2.2.2 INT WINAPI RF_ANTICOLL

Function: Mifare card Anticollision
Prototype: int WINAPI rf_anticoll (unsigned short icdev,
unsigned char bcnt,
unsigned char *pSnr,
unsigned char *pLen)
Parameter: icdev: [IN] Device ID
bcnt: [IN] must be 4
pSnr: [OUT] response data from card, unique serial number
pLen: [OUT] length of response data
Return: return 0 if successful

6.2.2.3 INT WINAPI RF_SELECT

Function: Mifare card Selectting
Prototype: int WINAPI rf_select (unsigned short icdev,
unsigned char *pSnr,
unsigned char snrLen,
unsigned char *pSize)
Parameter: icdev: [IN] Device ID

pSnr: [IN] card unique serial number
snrLen: [IN] length of pSnr
pSize: [OUT] response data from card, capacity code
Return: return 0 if successful
Explanation: card will be on active estate after received this command, only one TYPE_A card on active estate at the same influence range at same time.

6.2.2.4 INT WINAPI RF_M1_AUTHENTICATION2

Function: Mifare_Std Authentify
Prototype: int WINAPI rf_M1_authentication2 (unsigned short icdev,
unsigned char model,
unsigned char block,
unsigned char *pKey)
Parameter: icdev: [IN] Device ID
model: [IN] key validate mode
block: [IN] block absolute address
pKey: [IN] 6 bytes password
Return: return 0 if successful
Explanation:model = 0x60: via KeyA
model = 0x61: via KeyB

6.2.2.5 INT WINAPI RF_M1_READ

Function: MifareOne Read
Prototype: int WINAPI rf_M1_read (unsigned short icdev,
unsigned char block,
unsigned char *pData,
unsigned char *pLen)
Parameter: icdev: [IN] Device ID
block: [IN] block absolute address
pData: [OUT] response data from card
pLen: [OUT] length of response data
Return: return 0 if successful

6.2.2.6 INT WINAPI RF_M1_WRITE

Function: Mifare_Std Write
Prototype: int WINAPI rf_M1_write (unsigned short icdev,
unsigned char block,
unsigned char *pData)
Parameter: icdev: [IN] Device ID
block: [IN] block absolute address
pData: [IN] written data, 16 bytes
Return: return 0 if successful

6.2.2.7 INT WINAPI RF_M1_INITVAL

Function: Mifare_Std card Initialize Value
Prototype: int WINAPI rf_M1_initval (unsigned short icdev,
unsigned char block,
long value)

Parameter: icdev: [IN] Device ID
block: [IN] block absolute address
pValue: [IN] initialize purse value at HEX format, low byte in former
Return: return 0 if successful

6.2.2.8 INT WINAPI RF_M1_READVAL

Function: Mifare_Std Read Value
Prototype: int WINAPI rf_M1_readval (unsigned short icdev,
unsigned char block,
long *pValue)
Parameter: icdev: [IN] Device ID
block: [IN] block absolute address
pValue: [OUT] response value at HEX format, low byte in former
Return: return 0 if successful

6.2.2.9 INT WINAPI RF_M1_INCREMENT

Function: Mifare purse increment
Prototype: int WINAPI rf_M1_increment (unsigned short icdev,
unsigned char block,
long value)
Parameter: icdev: [IN] Device ID
block: [IN] block absolute address
value: [IN] increase value at HEX format, low byte in former
Return: return 0 if successful

6.2.2.10 INT WINAPI RF_M1_DECREMENT

Function: Mifare purse decrement
Prototype: int WINAPI rf_M1_decrement (unsigned short icdev,
unsigned char block,
long value)
Parameter: icdev: [IN] Device ID
block: [IN] block absolute address
value: [IN] decrease value at HEX format, low byte in former
Return: return 0 if successful

6.2.2.13 INT WINAPI RF_HALT

Function: Mifare Halt
Prototype: int WINAPI rf_halt (unsigned short icdev)
Parameter: icdev: [IN] Device ID
Return: return 0 if successful
Explanation: card exit active estate after received this command

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FILE END