

# eSecuCard-S User Manual

## (V1.1)

Excelsecu Data Technology Co., Ltd.

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## Thank You for Using eSecuCard-S Product

### ***IMPORTANT INSTRUCTIONS***

Please read this manual before operating your eSecuCard-S and keep it for future reference.

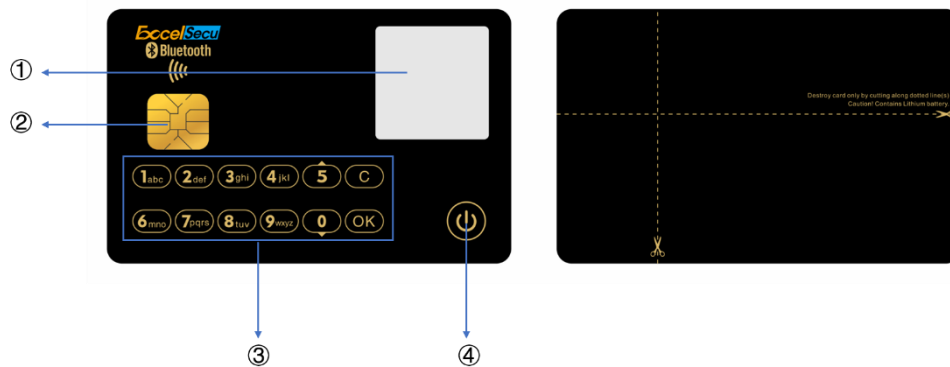
## 1. Getting Started with eSecuCard-S

- Please check eSecuCard-S's battery level and make sure it's not in low-power state before using it.
- Please make sure eSecuCard-S to be charged when it's in low-power condition, otherwise the RTC will be lost permanently.

## 2. Safety Caution

- Do not put objects on the top of eSecuCard-S.
- Do not deliberately bend the card. Parts inside could get damaged.
- Keep eSecuCard-S away from flammable sources.
- Keep eSecuCard-S away from water, alcohol and benzene etc.
- Keep eSecuCard-S away from magnetic objects.
- Do not disassemble or modify eSecuCard-S on your own.
- To dispose of eSecuCard-S, cut along the dotted line on back side of product.
- In low temperature conditions, after removing the displayed picture, there will be a shadow remaining.

### 3. Product Picture



- ① EPD screen, 256\*256 pixel.
- ② EMV chip, also battery recharging terminal.
- ③ Touch keypad: 0~9, a~z, OK and Cancel.
- ④ Power mechanical button.

## 4. How to Use eSecuCard-S

### 4.1. Turn ON/OFF eSecuCard-S

1. Long press the mechanical Power Button to power on/off. You need to set the PIN first after power on. It supports 6 to 16 digits. After set successfully, it shows the boot up logo and enters the BLE mode. If you have set the PIN before, you need to verify the PIN first after power on. After verify successfully, it shows the boot up logo and enters the BLE mode.

*(Note: Boot up logo can be changed by extended API, please refer to **Java Card Extended APIs**)*

2. Standby time: 2 minutes.

#### 4.1.1. eSecuCard-S Function Menu

Touch the OK button to enter the function menu. Touch the Cancel button to quit the function menu.

- Address

- Change PIN
- About

Of which:

➤ **Address**

To display QR code and text. Automatically return to the function menu after 10 seconds.

➤ **Change PIN**

To change the password of the eSecuCard-S.

➤ **About**

To show the version information.

## 4.2. Mobile Application

(Note: eSecuCard-S needs to be turned ON!)

### 4.2.1. Download Demo Application

Download mobile application and open it: Android: **Bigplatform.apk**, iOS: **Bigplatform.ipa**.

This is just a demo but not a perfect app because we need to show as more steps as we can to demonstrate the development for eSecuCard-S, so user experience is the second consideration.



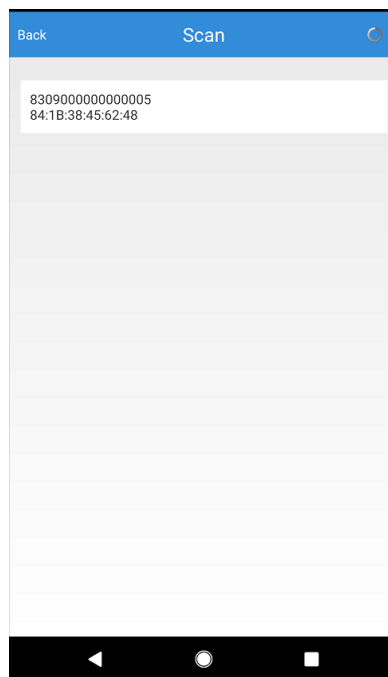
## 4.2.2. Bluetooth Mode

It enters the Bluetooth mode automatically after power-on.

### 1. Connect and Disconnect.

- 1) Click **Scan and Connect**.
- 2) Select SN: 830X000000XX

(Note: SN is on the back of each card. SN can be customized.)



- 3) eSecuCard-S will display “BLE Connected”, and shows an icon of bluetooth connected on the upper left of the screen.

### 2. Select Applet

To select java applet. (Note: The first step after bluetooth connected.)

### 3. API Test

(Note: Results will be displaying on mobile app)

- [GetplatformVersion] to get the JVM version.
- [GetDeviceCapacity] to get the supporting functions of this eSecuCard-S. For example, whether Bluetooth, display, keypad, RTC are supported.
- [GetScreenParameter] to get the size of screen and font.
- [GetButtonCapacity] to get which buttons are supported.

- [GetHardwareInfo] to get the information of Bluetooth MAC address and hardware ID.
- [GetBatteryState] to get the battery level of the eSecuCard-S.
- [GetRTC] to get the real time.
- [UpdateRTC] to update the real time.
- [InquireKey] to get the button value.  
*(Note: After pressing "InquireKey", mobile app will be waiting for the button value, and button pressing on the eSecuCard-S is required, or it will return Timeout error.)*
- [changePIN] to change the pin.
- [verifyPIN] to verify the pin.

#### 4. Screen Test

- [DisplayPic1] [DisplayPic2] [DisplayPic3] to display the existing pictures in the card.
- [WriteText] to write text from mobile app to card and display the text.
- [Write Pic] to write picture from mobile app to card and display the picture.  
*(Note: 1. This function will overwrite the existing pictures. 2.The time to writePic will be around 30s.)*
- [Clearscreen] to clear the EPD screen display.
- [RunDemo] to run and display all the text and all the pictures in the card.

#### 5. Results

- To display all the results of the command.
- [CleanResult] to clean the command result displayed on mobile app.

### 4.3. PC Application

*(Note: eSecuCard-S needs to be turned OFF!)*

Contact and contactless reader are supported by eSecuCard-S.

#### 4.3.1. Contact Mode

1. Prepare contact card reader and insert eSecuCard-S into the reader. The card will be in charging in this mode.
2. In folder "Displaying test", select any one script to test eSecuCard-S.



*Note: “Write-and-display” image/text includes writing data into card and displaying data to the screen. For image, the time will be around 22s, while the text is 3s. “Only-display” image will be around 7s, while the text is 3s.*

3. Results will be returned and general error refers to Appendix 1.

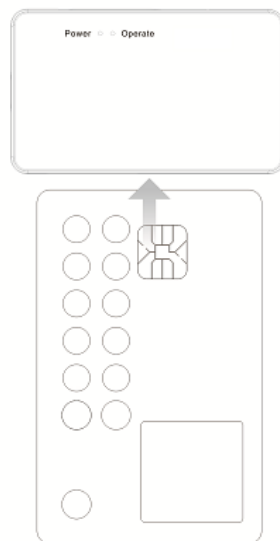
### 4.3.2. Contactless Mode

1. Prepare contactless card reader and place eSecuCard-S on the reader.
2. In folder “Displaying test”, select any one script to test eSecuCard-S.

*Note: “Write-and-display” image/text includes writing data into card and displaying data to the screen. For image, the time will be around 10s, whilst text 3s. “Only-display” image will be around 7s, whilst text 3s.*

3. Results will be returned and general error refers to Appendix 1.

## 5. How to Charge eSecuCard-S



The matching card charger does not have the function of card reader, so you need to purchase the card reader separately.

1. Insert eSecuCard-S into eSecuRD. A blue LED light will turn on when it starts to charge.
2. The light will change color to indicate status.

LED	Status
Red on	Power on Cannot read card
Blue on	Charging

	Can read card
Blue flashing	Charging Card data is being transmitted

\*eSecuRD uses a standard micro-USB charging cable.

\*eSecuCard-S uses the contact chip to charge.

\*eSecuCard-S supports wireless charging, you need to prepare with NFC contactless card reader.

## 6. Product Specs

Product	eSecuCard-S
Card Size	ISO 7810*
Screen	256x256 pixel dot matrix EPD
Key Pad	13
Battery	Rechargeable
Smart Card Protocol	ISO 7816 T=0/ ISO 14443 Type A T=CL
Smart Card OS	Java
Bluetooth	√
One Time Password	*
Algorithm	[MessageDigest] MD5, SHA1, SHA256, SHA384, SHA512, SM3* [Symmetric] DES, AES, SM4* [Asymmetric] RSA1024, RSA2048, RSA4096*, ECC 256/384/521*, SM2*
Typical Application	Identity authentication, bitcoin wallet
√ available      * optional	

## 7. Appendix 1

The following tables describe the error status words that may be returned by any commands:

- *The following can be modified by users.*

SW1	SW2	Meaning
6E	00	Invalid class
6D	00	Invalid instruction
67	00	Wrong length in Lc
6A	86	Incorrect P1 P2
69	82	Security status not satisfied
69	85	Conditions of use not satisfied
69	8A	Fail to setting (eg. bluetooth name)
69	8B	No images in card
69	8C	Fail to get device capacity
69	8D	Fail to update RTC
69	8E	Fail to clear screen
69	8F	Fail to display text or image

- *The following cannot be modified by users*

SW1	SW2	Meaning
93	00	No response by card
6F	F9	8 seconds timeout for card
6A	80	Incorrect format in command data
67	00	Incorrect length in command data
9F	FB	Wrong response by RTC

## **FCC STATEMENT:**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

**Warning:** Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## **RF warning statement:**

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.