ZKTeco

Advanced Biometric And RFID Solutions

MA500 Access Control

Installation Guide & User Manual

Important Note

Document Privacy Note:

Thank you for purchasing this product. Before using the unit, please read this manual carefully to avoid any unnecessary damage. The correct usage of this unit ensures fast and effect performance.

Document use statement:

Due to the constant renewal of products, the company can not undertake the actual product in consistence with the information in the document, also any dispute caused by the difference between the actual technical parameters and the information in this document. Please forgive any change without notice. Reserve the final rights of modification and interpretation.

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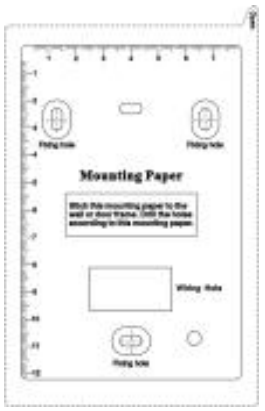
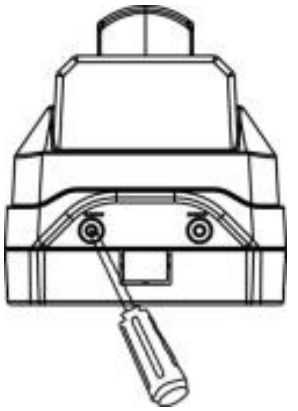
1. Equipment Installation

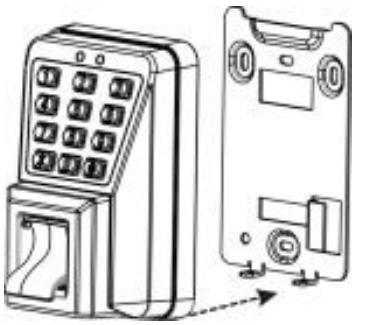
Wall mount installation



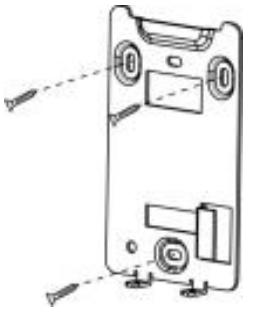
(1)Paste the mounting template On the wall. Drill the holes According to the marks on the template.
(holes for screws and wiring).



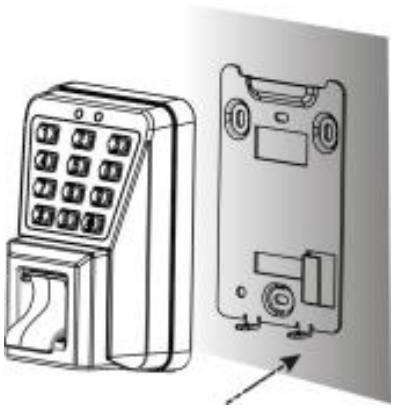
(2)Remove the screws on the bottom of device.



(3)Take away the back plate.

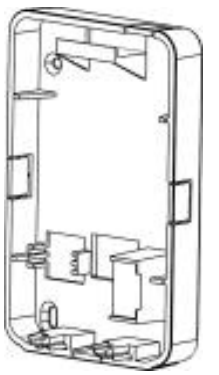


(4)Fix the back plate on the solid wall according to the mounting paper.



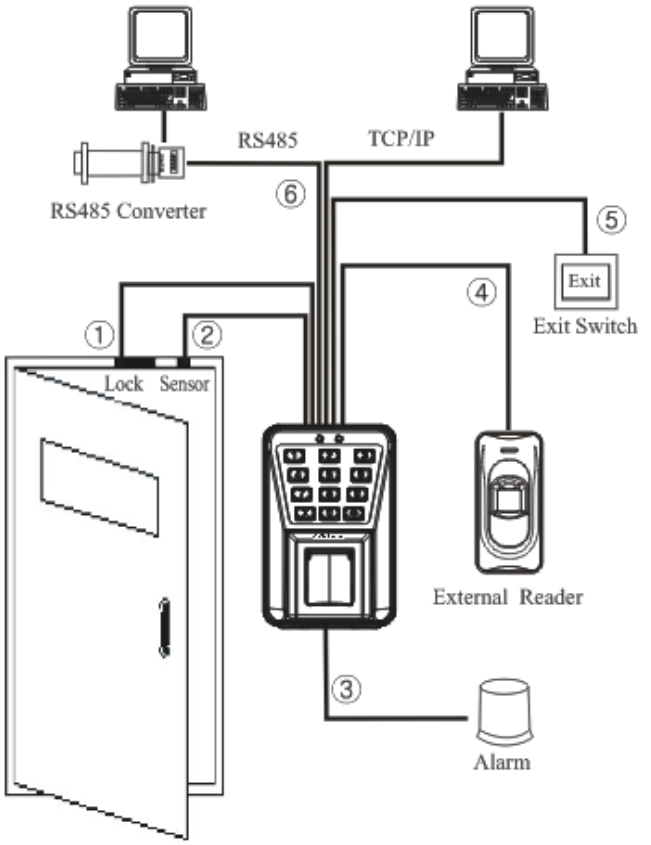
(5)Fix the device to the back plate.

(6)Tighten the screws at the bottom of the device.



Note: If it is not possible to drill on the hollow wall, please select a plastic box instead of iron plate.

2. Structure and Function



Access Control System Function:

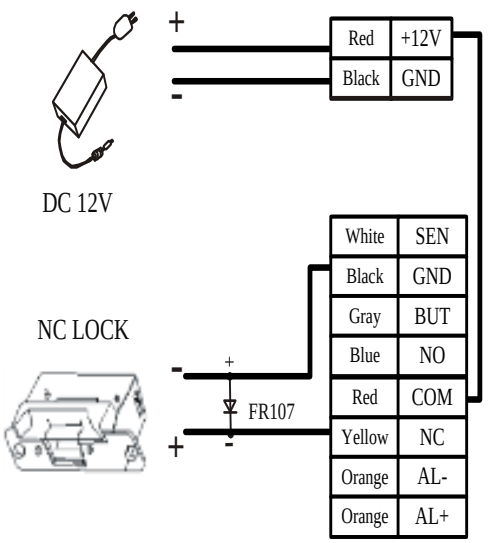
(1)If a registered user is verified, the device will trigger the lock control relay to open the door.
(2)The door sensor will detect the on-off state. If the door is unexpectedly opened or improperly closed, the alarm relay will be triggered.
(3)If the device is illegally removed, the alarm relay will be triggered.
(4)External card reader is supported.
(5)External exit button is supported.
(6)RS485, TCP/IP communication are supported. One PC can manage multiple devices.

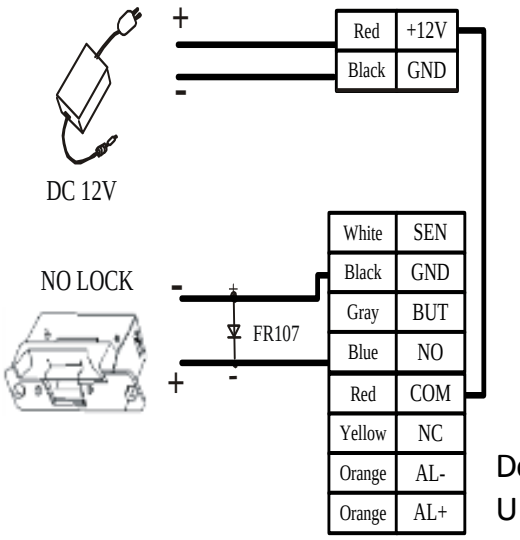
3. Lock Connection

⚠ **Warning: Do not operate with Power connected.**

(1) The system supports NO LOCK and NC LOCK. It is supposed to connect with different terminals.
(2)When the Electrical Lock is connected to the Access Control System, to prevent the self-inductance EMF feedback to the system, please connect one FR107 diode (shipped in the package) in parallel with the connection. **NB: Do not reverse the polarities!**

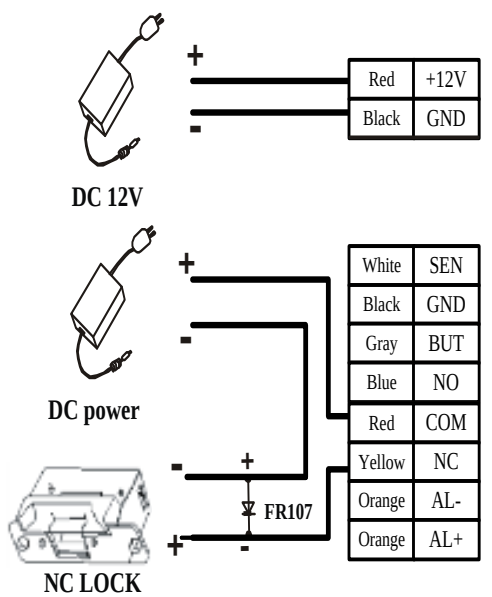
(I) Share power with the lock:

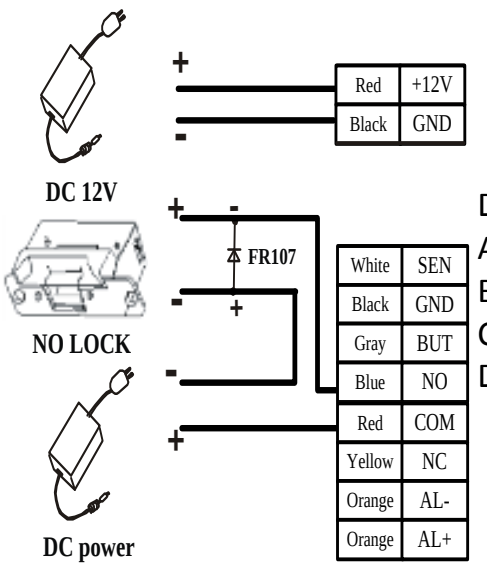




Device share power with the lock:
ULOCK=12V, I-ILOCK>1A……①;
And the lock is near to the device.

(II) Separate power for both device and lock:

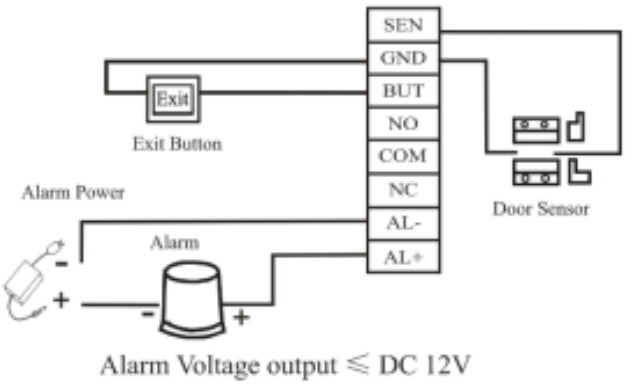




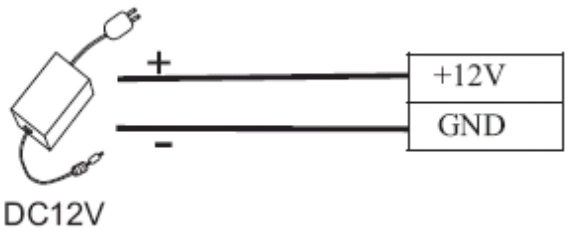
Device separate power with the lock:
A. ULOCK =12V I-ILOCK ≤1A;
B. ULOCK ≠12V;
C. The lock is far apart from the device.
D. We suggest user select “separate power for both device and lock”.

①: ‘I’: device output current, ‘ULOCK’: lock voltage, ‘ILOCK’: lock current.

4. Connected with Other Parts



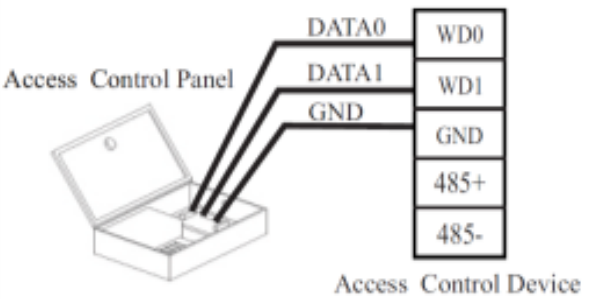
5. Connected with Power



The device working voltage is DC 12V, electric current is 500mA (50mA for standby current). Positive is connected with '+12V', negative is connect with 'GND'.
(**Do not reverse the polarities).**

6. Wiegand Output

The device supports standard Wiegand output, it is able to connect with various third party access control panel, which has Wiegand input.



(1)Do not exceed 90m (meters) distance between the Device and Access Control Lock OR Card reader. (In the case of long distance installation, use the Wiegand Signal Extender, to minimise interference.)

(2)To keep a balanced and stable Wiegand signal, connect the device, access control lock or card reader on the same "GND"(ground) port.

7. Communication

There are two modes that the PC software communicate and exchange information with the device:

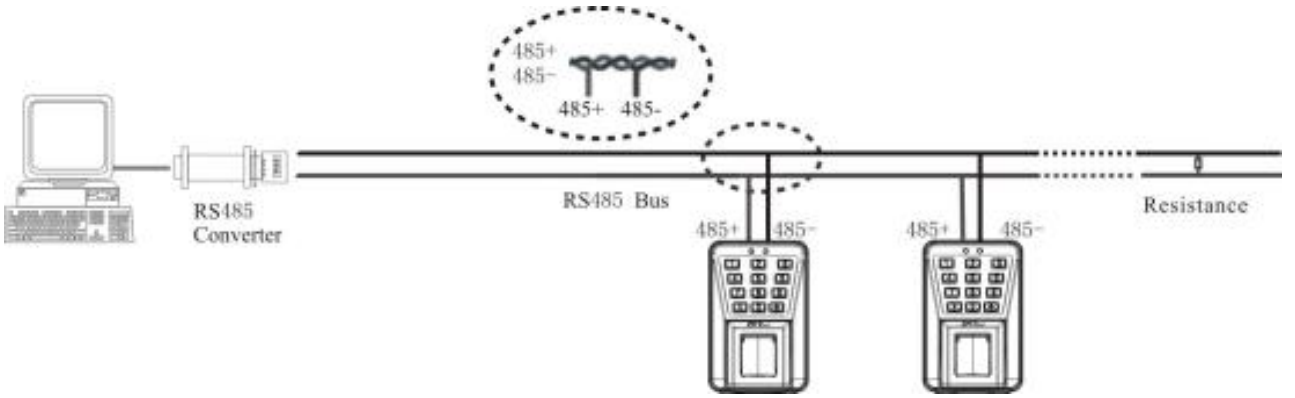
RS485 and TCP/IP, and supports remote control.

(1) RS485 Mode:

Please use specified RS485 wire, RS232/485 active converter, which consists of bus-type wiring. If the communication wire is longer than 100 meters, you need to parallel a terminal resistan on the receiving end, and resistance value is about 120Ω(ohm).

Terminals definition as below:

Terminals	PC Serial Ports
485+	RS485+
485-	RS485-



RS485 Reader Function:

Equipment supports RS485 reader function, can be through the RS485 communication connected to FR1200 reader which is for slaver achieves RS485 Anti-passback function. If RS485 of MA500 is used for connecting with RS485 slave reader, then RS485 communication to PC is disabled.

Diagram of the device connect to reader as below (The device act master):

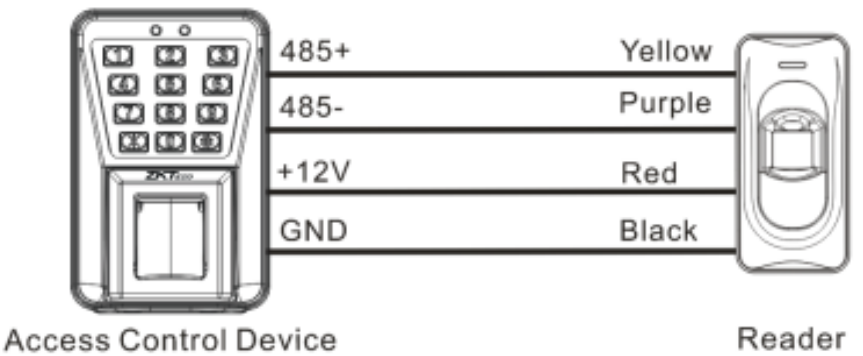
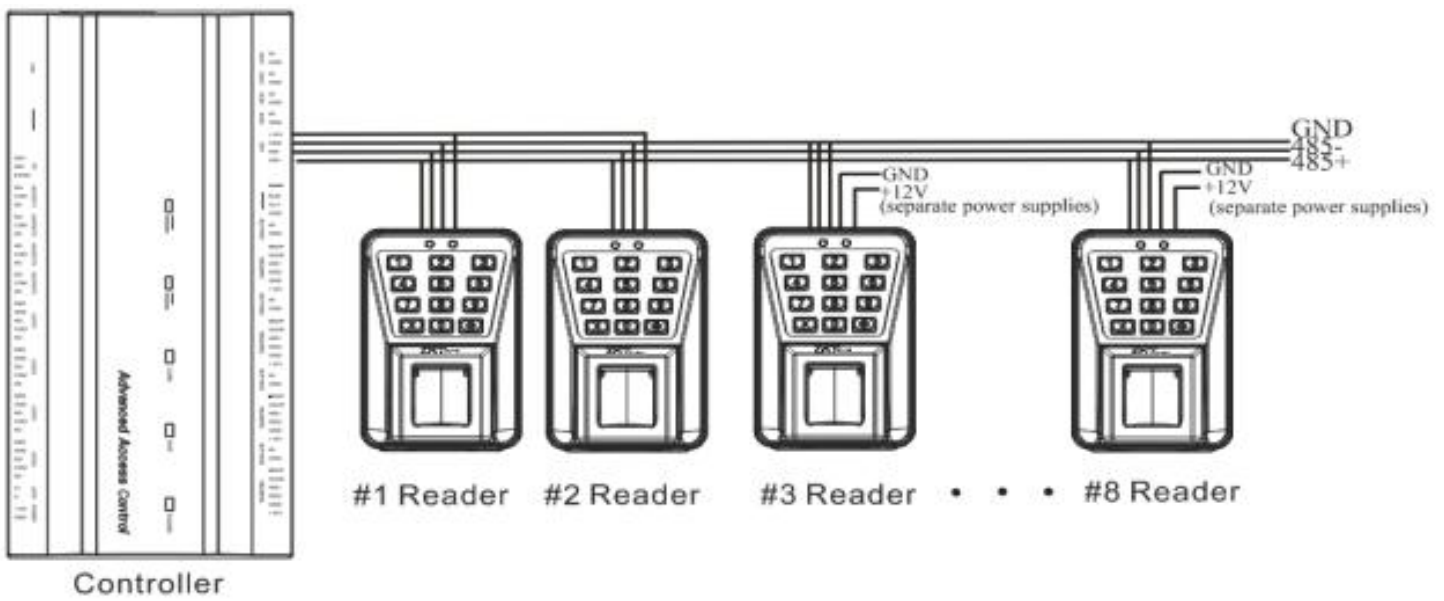


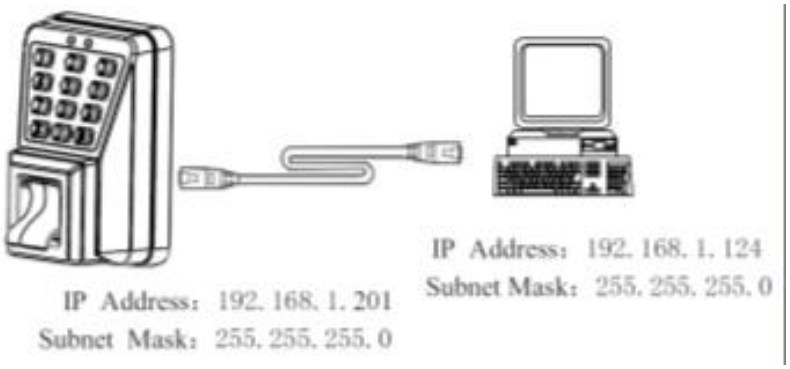
Diagram of the device connect to controller as below:



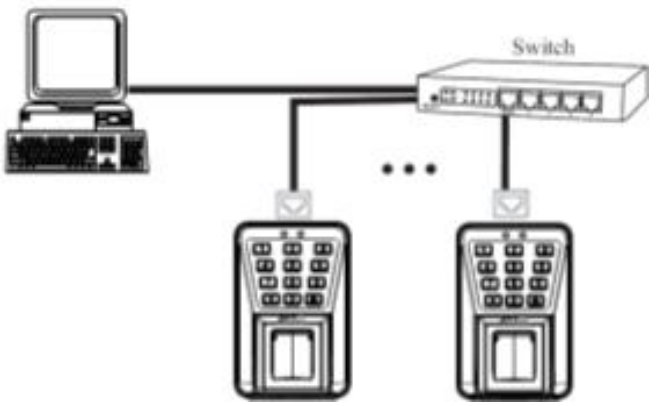
Set the 485 address (device number) by ZKAccess3.5 software.

(2) TCP/IP Mode:

(A)Cross-Over cable: the device connects to PC directly



(B)Straight-through: The device and PC are connected to Switch.



Instructions

Recommended Procedure:

Step 1: Install the device and power on.

Step 2: The administrator password is authenticated and changed.

Step 3: Register users' fingerprints, cards, or passwords.

Step 4: Configure access control parameters, including configuring the unlocking duration, authentication mode, stealth mode, door status sensor mode, and alarm.

☺**Note：** The function likes multi-card opening, first-card normal opening, registration of users, delete users, anti-passback and so on in the access control system, refers to setting of ZKAccess3.5 software.

Operation Instructions

To enter into the system setting mode, fist press * #, then enter system password and press # subsequently to enter into system setting mode. When entered into system setting mode, the status light(green) will be on with a beep sound.

Users should enter any functional selections within 20 seconds. The reader will automatically terminate the system setting mode function after 20 seconds.

The function of * key and # key: While the device is in the state of awaiting verification, press * key to enter the system, then press # key to confirm; while operating, press * to exit.

☺**Note:**

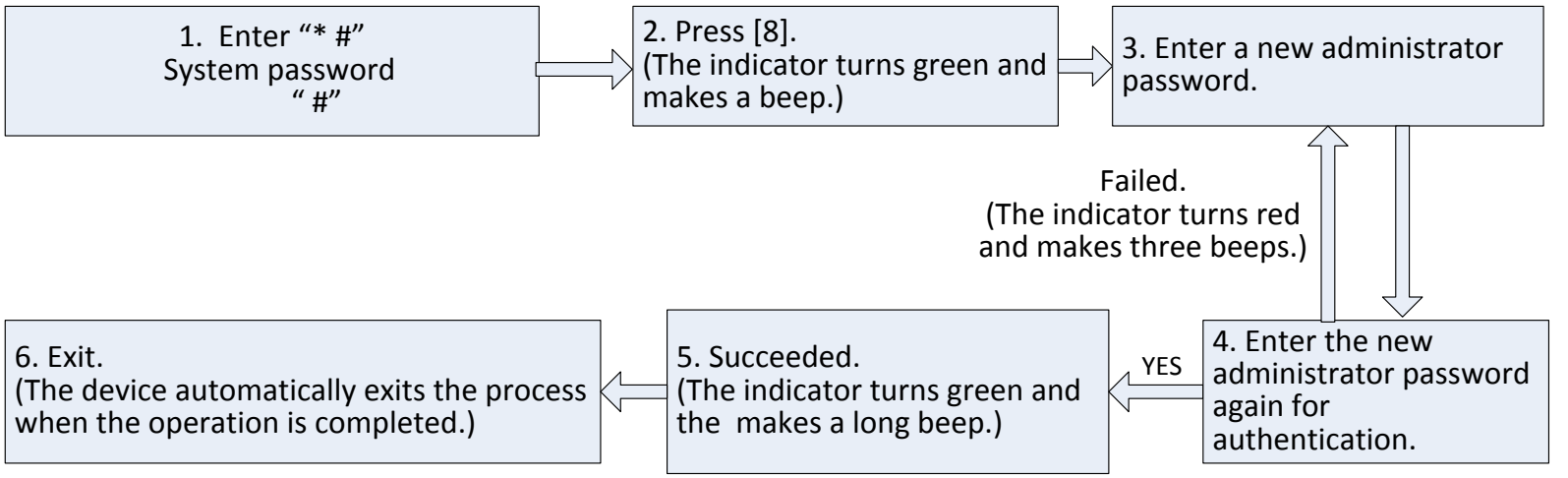
1. Four-digit passwords are automatically verified. For passwords with less than four digits, press # to enter the verification process.
2. The initial administrator password is 1234. You are advised to change the initial password at the beginning.

1. User Management

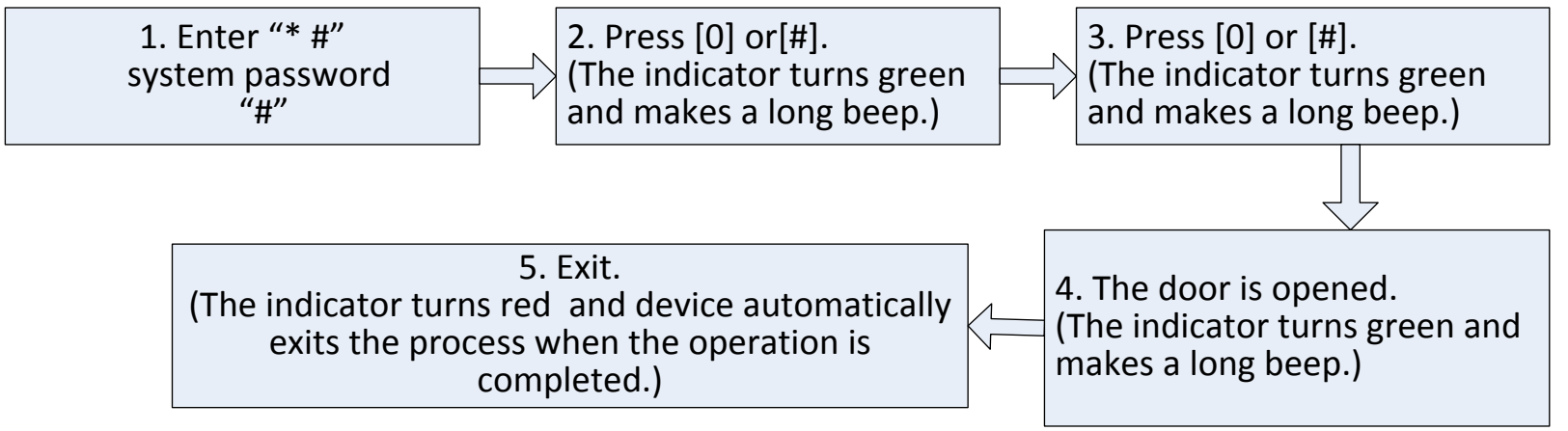
1.1 Administrator Operations

To ensure data security of the device, you can operate the device only after the administrator password is authenticated.

❖ Change Administrator Password



❖ Open the Door by Entering the Administrator Password



☺**Note:** This function can be used to open the door. "#" key： Confirmation key.

❖ Forgot the Password by Administrator

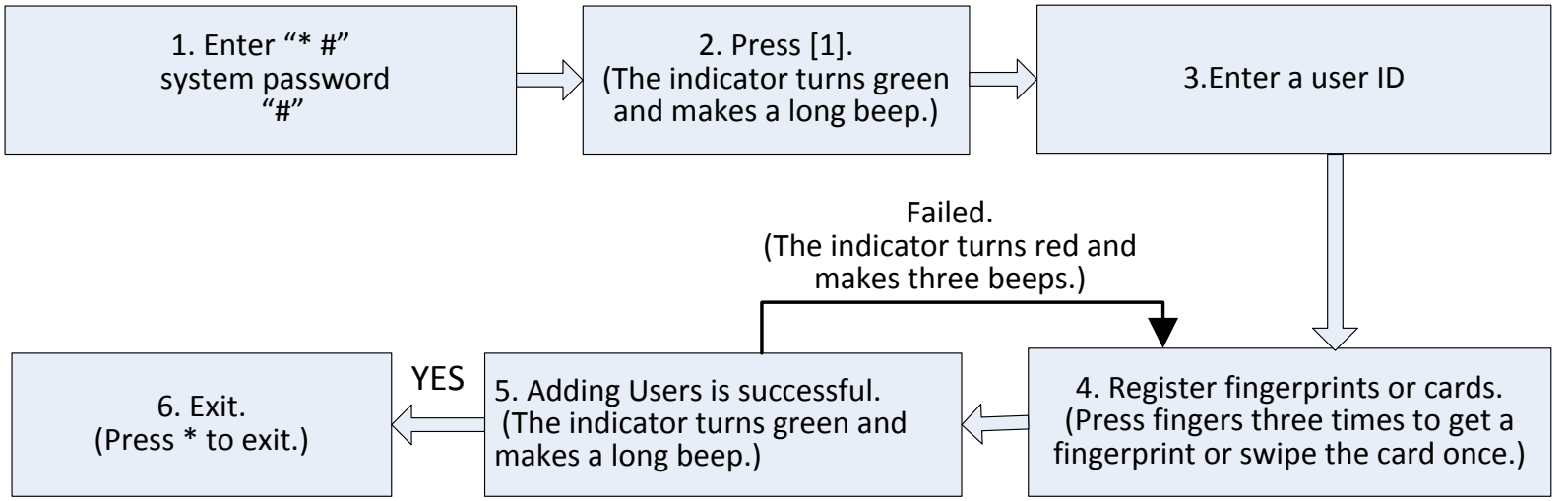
If the administrator password is forgotten, you can swap the magnet tamper switch three times after the alarm being triggered 30 seconds but no more than 60 seconds to restore initial administrator password. Meanwhile, it can restore factory settings, such as device number, IP address etc. (There is a long beep after 30 seconds of the tamper state.)

1.2 Add Users

Register the fingerprint or card of a user or register cards in batches.

❖ Add Users

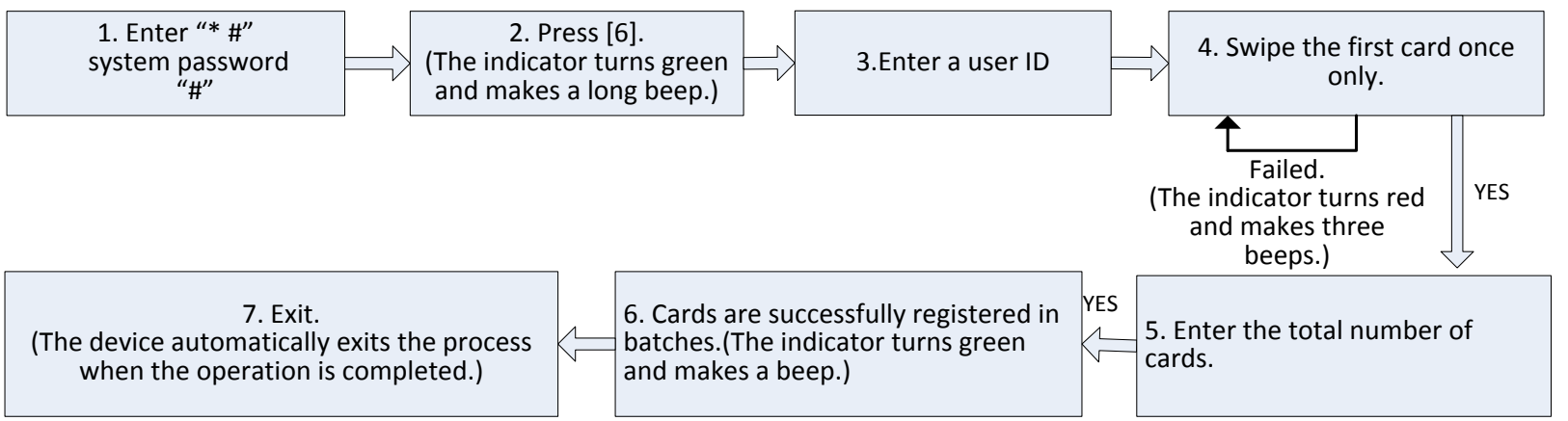
1. User Management



☺Note:

1. In the process of entering the user ID, 9 digits are verified automatically. For numbers with less than 9 digits, press # to enter the verification process.
2. In the registration process, the user ID increases automatically. The device automatically enters the process of registering the next user when a user is successfully registered.
3. The registration process fails if the fingerprint is of poor quality or the fingerprint or the card has been registered. After the device indicator turns green, you can register the user again. Registered users must not be registered again.

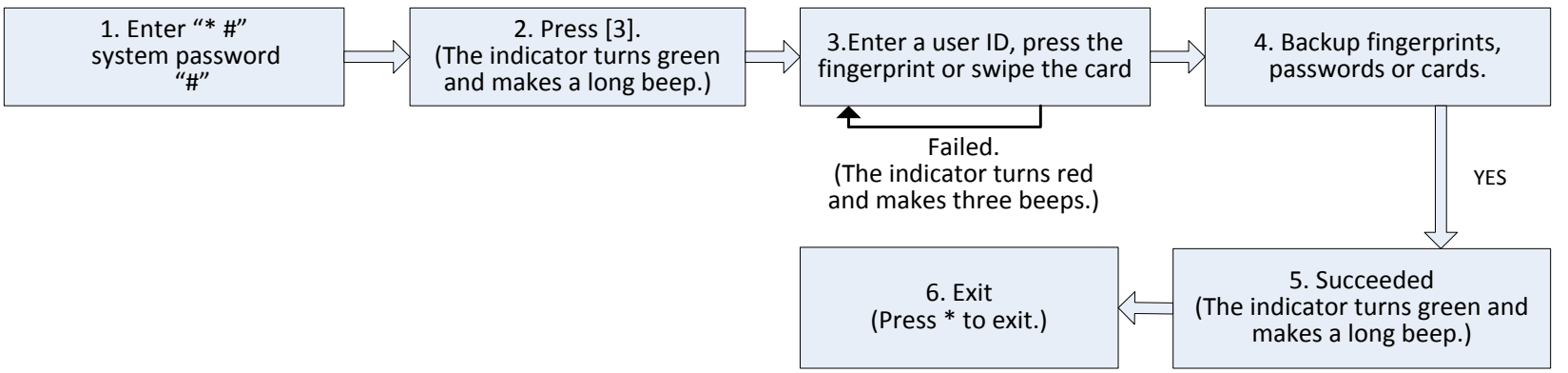
❖ Batch registration (add series cards)



☺**Note:**

1. In the process of entering the user ID, 9 digits are verified automatically. For numbers with less than 9 digits, press # to enter the verification process. If the use ID exists, the indicator turns red and makes three beeps.
2. In the process of entering the total number of cards (0~999), three-digit numbers are automatically verified. For numbers with less than three digits, press # to enter the verification process. Press * to re-enter the total number of cards.
3. You must clear all the registered users before registering cards in batches. IDs of to-be-registered cards must be consecutive numbers.

❖ **Backup registered user**



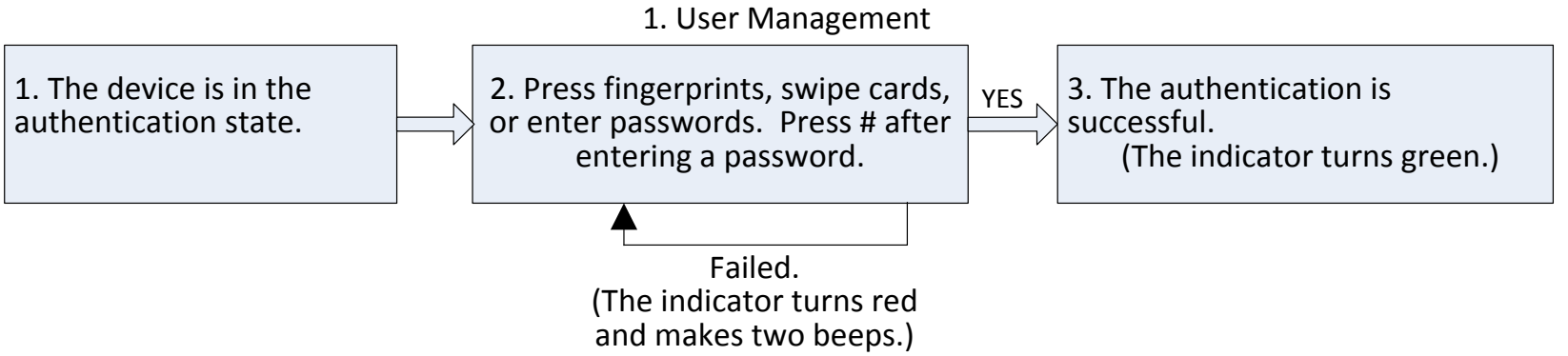
☺**Note:**

1. You can enter a user ID, press the fingerprint or swipe the card to backup registered user. The user ID, fingerprint or card must be registered, if it is not, the indicator turns red and makes three beeps.
2. Backup fingerprint and password, it will backup fingerprint when you press the fingerprint, and if you input numbers, it will backup the password. The indicator turns green and makes a long beep means it is successful. If it is fails, it will turn red and makes three beeps.
3. One time only backup one user. Press * to exit.

1.3 User Authentication

Authenticate Users' Fingerprints/Cards/Passwords

After the device is powered on, it enters the authentication state for users to unlock the door.



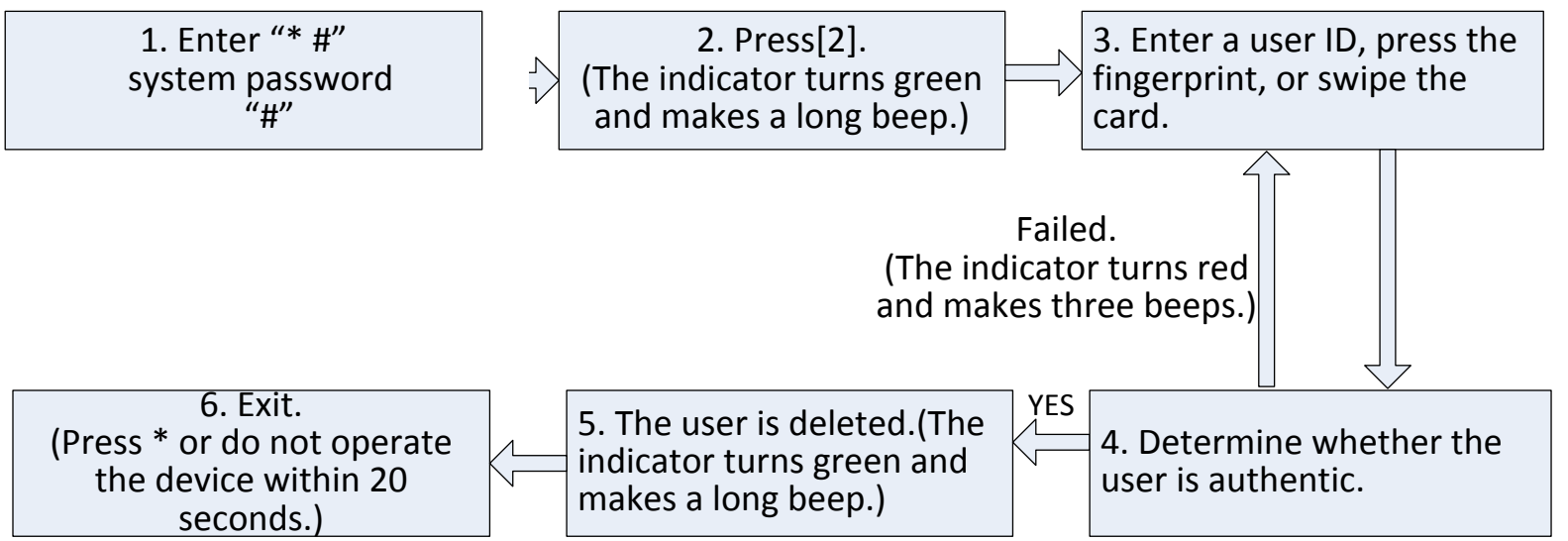
☺Note:

1. Press # after entering a user ID for authentication, then entering a password, after that press #.
2. Duress password and Emergency password: First press #, then enter a password, after that press # (Duress password / Emergency password).
3. You can enter a duress password to open the door only when an password authentication.

1.4 Delete Users

Delete a user whose fingerprint or card is registered, or delete all users.

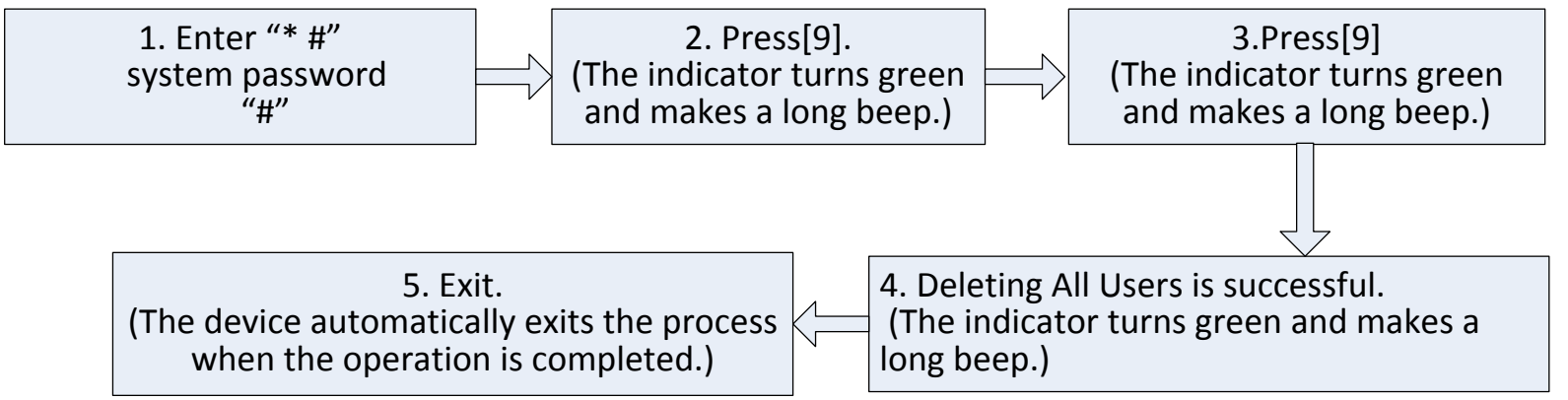
❖ **Delete a User**



☺**Note:**

1. You can enter a user ID, press the fingerprint or swipe the card to delete the user. The user ID, fingerprint or card must be registered, if it is not, the indicator turns red and makes three beeps. In the process of entering user IDs, 9 digit IDs are automatically verified. For IDs with less than 9 digits, press # to enter the verification process.
2. The device automatically enters the process of deleting the next user when a user is deleted, and the indicator turns green and makes a long beep.
3. Press* to exit.

❖ Delete All Users

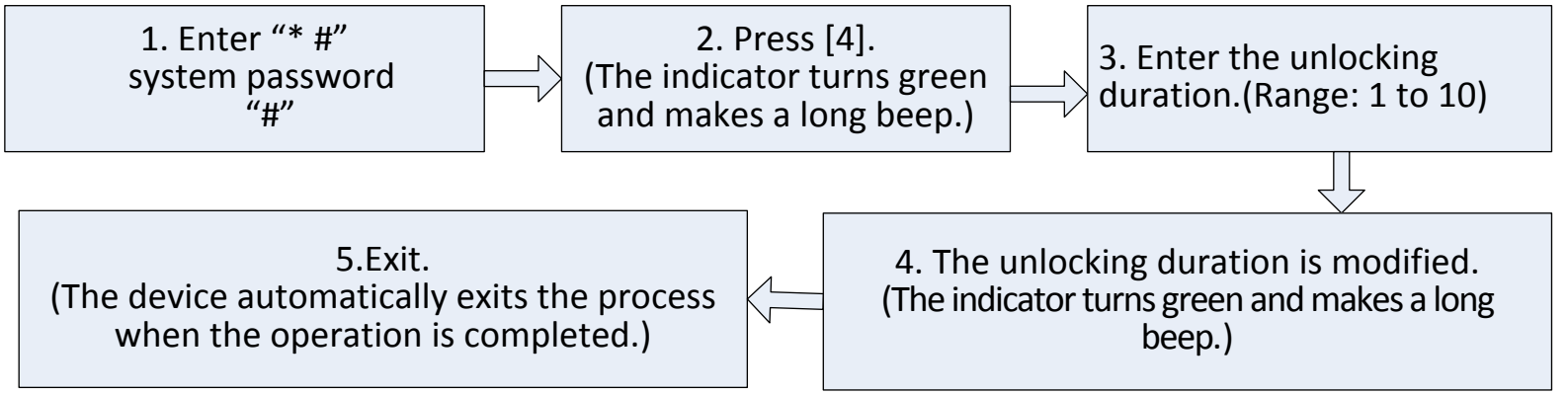


☺**Note:**

1. The indicator turns green and makes a long beep when it is successful, then the indicator turns red and makes a long beep meaning the device exits the state of setting.
2. If you do not press 9 for a second time, the indicator turns red and makes three beeps, after that, the indicator turns red and makes a long beep, then the device exits the process.

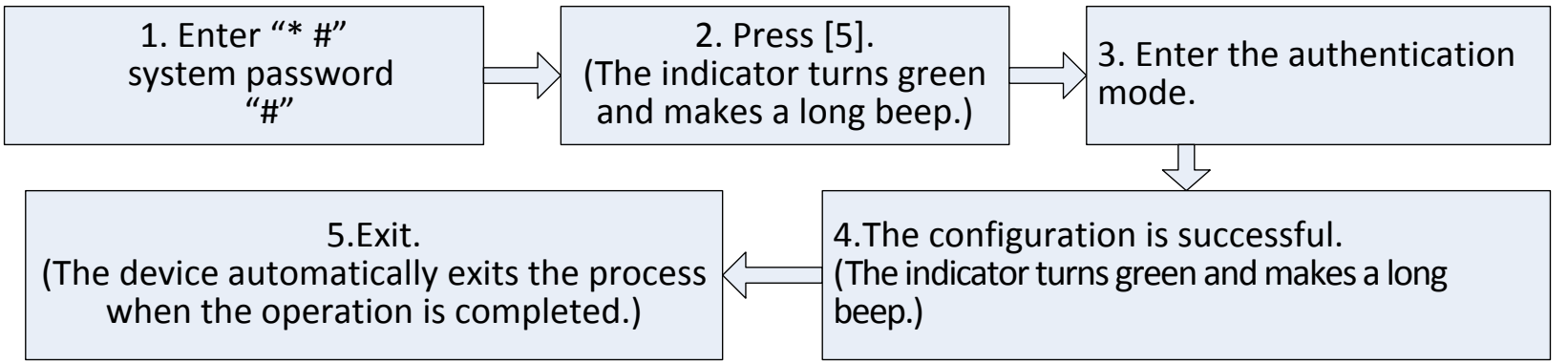
2. Access Control Management

2.1 Configure Unlocking Duration



☺**Note:** Two-digit values are automatically verified. For values with less than two digits, press # to enter the verification process. Values greater than 10 are considered invalid.

2.2 Configure Authentication Mode

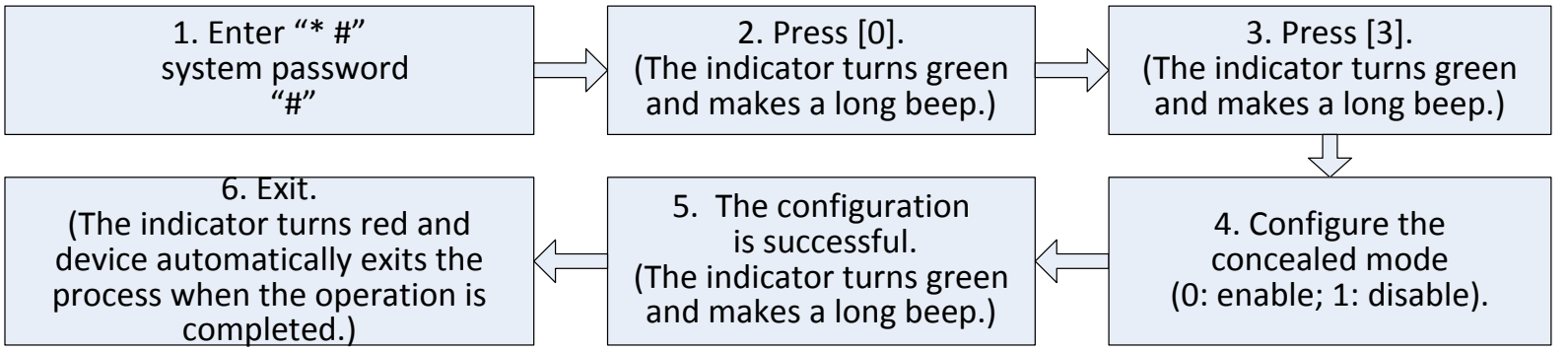


☺**Note:** 1. Details about the authentication mode are as follows:

Authentication Mode	type	Description
Mode 1 (number1)	PW	Only password verification
Mode 2 (number2)	RF	Only RF Card verification
Mode 3 (number3)	FP	Only fingerprint verification
Mode 4 (number4)	FP/PW/RF	fingerprint or password or RF verification
Mode 5 (number5)	RF&PW	RF plus password verification
Mode 6 (number6)	FP&PW	fingerprint plus password verification

2.3 Configure Stealth Mode

If the Stealth mode is opened, the indicator light is off.



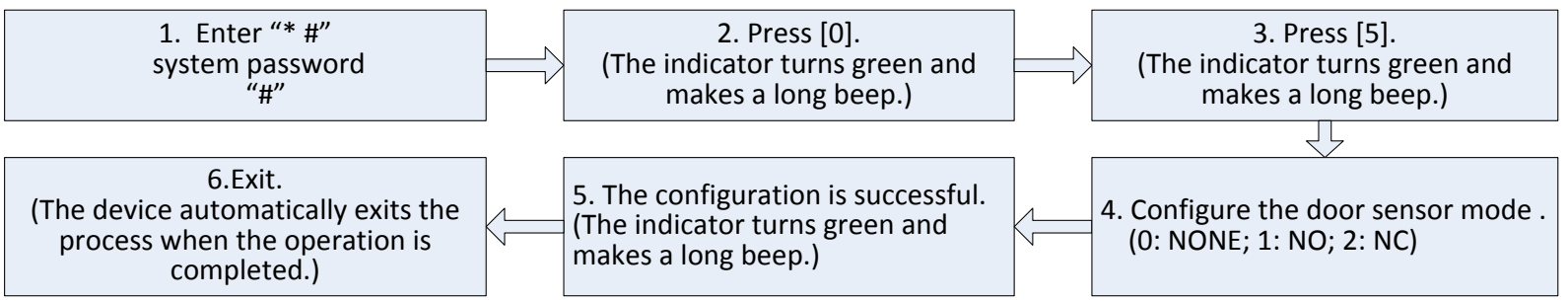
☺**Note:**

1. If the stealth mode is opened, the indicator light prompts the status of this function when users authenticating or administrator operation.
2. In the process of configure stealth mode setting, press 0 or 1 which is verified automatically, the indicator turns green and makes a long beep when the authentication is successful, the device automatically exits the process when the operation is completed, and the indicator turns red and makes a long beep.

2.4 Configure Door Sensor Mode

The door sensor switch includes three modes:

- **NONE**: The door sensor switch is not used.
- **NO**: The lock is open as long as the door is open.
- **NC**: The lock is closed after the door is closed.



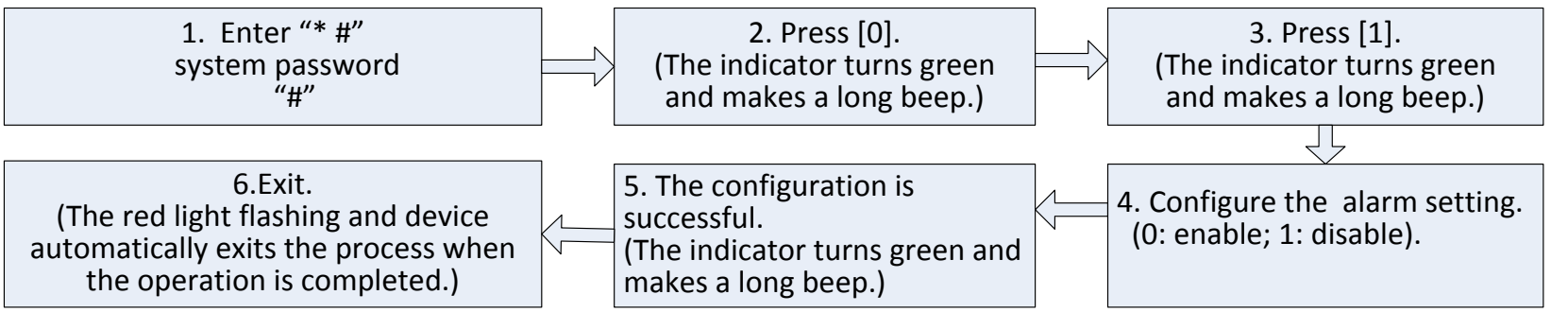
☺**Note:**

1. The door sensor mode configured here is used as the basis for the door sensor alarm.
2. In the process of configure door sensor mode setting, press 0 or 1 or 2 which is verified automatically, the indicator turns green and makes a long beep when the authentication is successful, the device automatically exits the process when the operation is completed, and the indicator turns red and makes a long beep.

2.5 Configure Alarm

❖ Configure Alarm setting

The switch should be on, when it is set to be close, Error Operation-Triggered Alarm, Tamper Alarm, the Alarm Delay for the Door Status Sensor will be disabled.

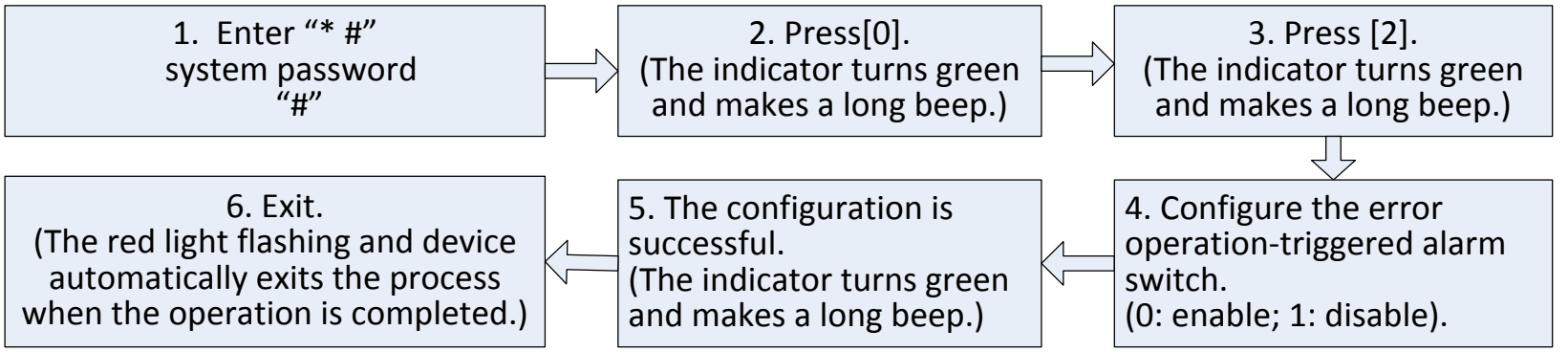


☺**Note:**

In the process of configure alarm setting, press 0 or 1 which is verified automatically, the indicator turns green and makes a long beep when the authentication is successful, the device automatically exits the process when the operation is completed, and the indicator turns red and makes a long beep.

❖ Configure Error Operation-Triggered Alarm

If this function is enabled, alarms are generated if administrator fails the authentication upon three attempts. The administrator authentication is not allowed within 20 seconds after an alarm is generated.



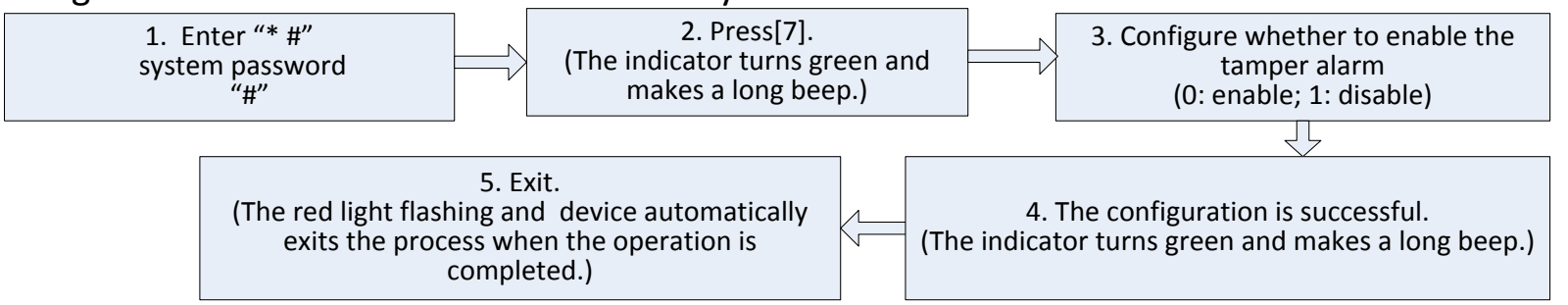
☺**Note:**

In the process of configure the error operation-triggered alarm switch, press 0 or 1 which is verified automatically, the indicator turns green and makes a long beep when the authentication is successful, the device automatically exits the process when the operation is completed, and the indicator turns red and makes a long beep.

❖ **Configure Tamper Alarm**

If this function is enabled, alarms are generated upon device disassembly.

Configure whether to enable the disassembly alarm.

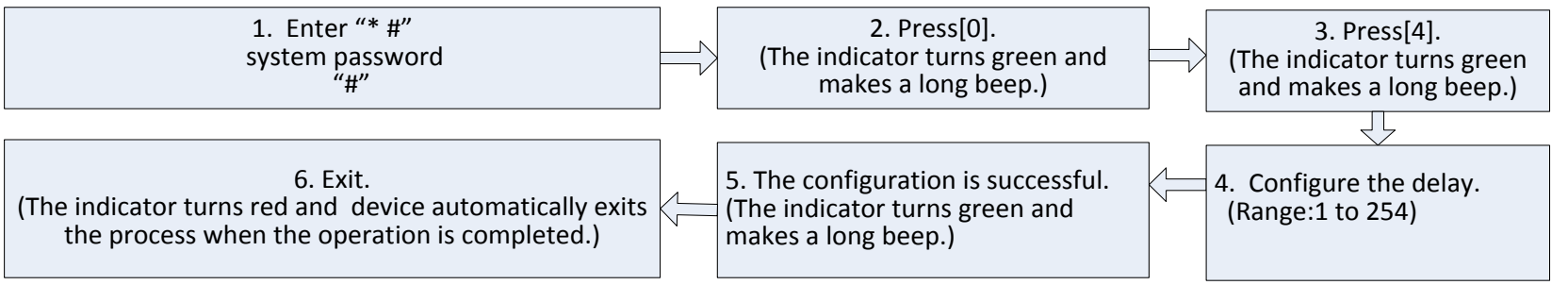


☺**Note:**

In the process of configure whether to enable the tamper alarm, press 0 or 1 is automatically verified, the indicator turns green and makes a long beep when the authentication is successful, the device automatically exits the process when the operation is completed, and the indicator turns red and makes a long beep.

❖ Configure Delay for the Door Status Sensor

DSen. Delay (Door Sensor Delay): indicates the delay in checking the door sensor after the door is open. If door sensor state is inconsistent with the normal state set by the door sensor switch, an alarm will be generated, and this period of time is regarded as the “door sensor delay”.



☺Note:

1.In the process of configure the alarm delay, three-digit values are automatically verified. For values with less than three digits, press # to enter the verification process. The indicator turns green and makes a long beep when the authentication is successful, the device automatically exits the process when the operation is completed, and the indicator turns red and makes a long beep. If the values greater than 254 are considered as invalid.

2.When alarm is triggered, the alarm process as follow:

1) Firstly, the buzzer inside the device beep.

2) Secondly, after about 30 seconds, buzzer beep stopped, and external alarm set off.

3) On one hand, any valid user does the verification to stop alarm. On the other hand, if the current door sensor is coordinated with the set one, the terminal stops to alarm.

FAQ

Q: Does the MA500 support connect with external fingerprint reader? How to set the RS485 address of the external fingerprint reader?

A: Yes, MA500 support connect with one external fingerprint reader via RS485 communication way. For the setting of its RS485 address, please refer to corresponding document of reader. Normally, the address set via decimal code switches, and the RS485 address of reader only can be 0 or 1.

Q: Which Wiegand-out format does MA500 support?

A: MA500 are preset with Wiegand 26-bit Output format, it also support Wiegand 34-bit Output format and other 9 format.(Please using ZKAcccess3.5.2.1449 or above version to edit Wiegand out format)

Q: What's the users and fingerprint capacity of MA500?

A: 30,000 users and 3,000 fingerprint templates.