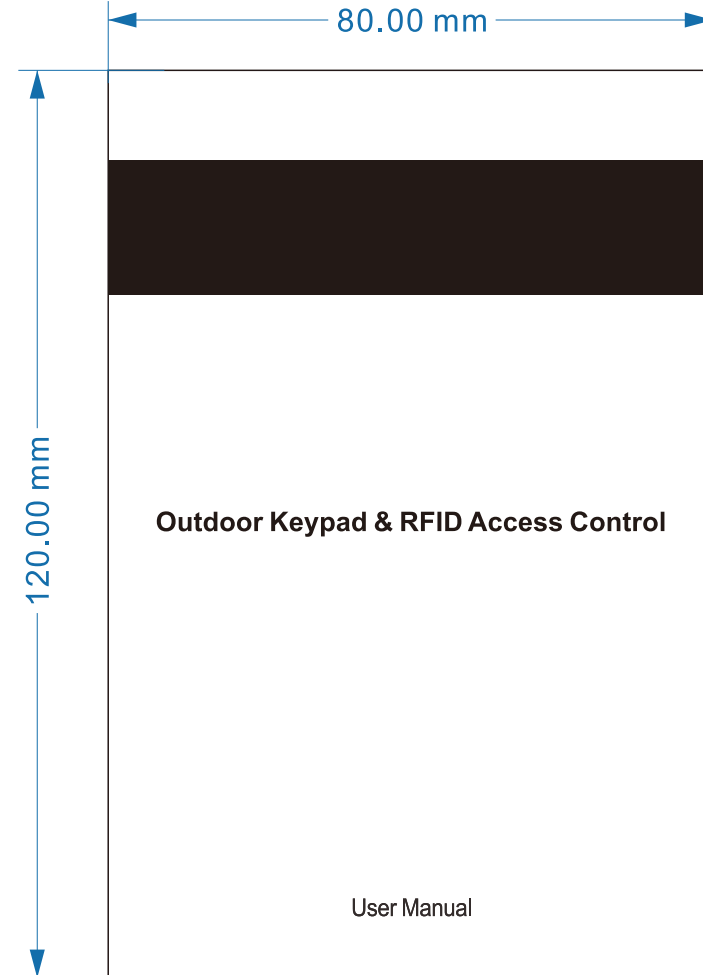




## Outdoor Keypad & RFID Access Control

User Manual

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### INTRODUCTION

The device is a single door multifunction standalone access controller or a Wiegand output reader. It uses Atmel MCU assuring stable performance. The operation is very user-friendly, and low-power circuit makes it long service life.

The device can be made with Bluetooth version or with WIFI version.

#### Features

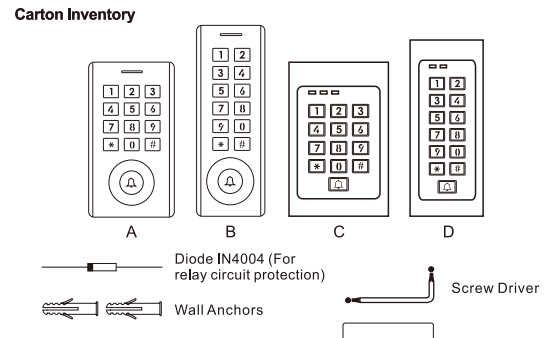
- > Metal case, anti-vandal
- > Waterproof, conforms to IP66
- > PIN length: 4-6 digits
- > EM card, Mifare card optional
- > EM card: Wiegand 26-44 bits input & output
- > Mifare card: Wiegand 26-44bits, 56bits, 58bits input & output
- > Can be used as Wiegand reader with LED & buzzer output
- > Card block enrollment
- > Tri-color LED status display
- > Integrated alarm & buzzer output
- > Pulse mode, Toggle mode
- > User data can be transferred
- > 2 devices can be interlocked for 2 doors
- > Built-in light dependent resistor (LDR) for anti tamper
- > Backlit keypad, can set automatic OFF after 20 seconds

#### Specifications

|                              |                                                                               |
|------------------------------|-------------------------------------------------------------------------------|
| <b>User Capacity</b>         | 10000                                                                         |
| Common Card/PIN User         | 9988                                                                          |
| Panic User                   | 2                                                                             |
| Visitor User                 | 10                                                                            |
| <b>Operating Voltage</b>     | 12V DC                                                                        |
| Working Current              | ≤150mA                                                                        |
| Idle Current                 | ≤60mA                                                                         |
| <b>Proximity Card Reader</b> | EM / Mifare                                                                   |
| Radio Technology             | 125KHz / 13.56MHz                                                             |
| Read Range                   | 2-6 cm                                                                        |
| <b>PIN Length</b>            | 4-6 digits                                                                    |
| <b>Wiring Connections</b>    | Relay Output, Exit Button, Alarm, Door Contact, Wiegand Input, Wiegand Output |

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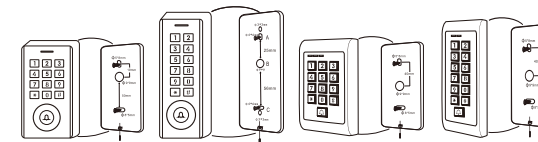
|                                                                   |                                                                                                                                                                                                             |
|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Relay</b><br>Adjustable Relay Output Time<br>Lock Output Level | <b>One (NO, NC, Common)</b><br>0-99 Seconds (5 seconds default)<br>2 Amp Maximum                                                                                                                            |
| <b>Wiegand Interface</b>                                          | EM card: Wiegand 26-44 bits input & output.<br>Mifare card: Wiegand 26bits for EM card, Wiegand 34bits for Mifare card)<br><b>4 bits, 8 bits(ASCII), 10 digits Virtual Number</b> (Factory Default: 4 bits) |
| <b>PIN Output</b>                                                 |                                                                                                                                                                                                             |
| <b>Environment</b><br>Operating Temperature<br>Operating Humidity | <b>Meets IP66</b><br>-40°C ~ 60°C (-40°F ~ 140°F)<br>0%RH-95%RH                                                                                                                                             |
| <b>Physical</b><br>Colour<br>Dimensions                           | <b>Zinc-Black</b><br>Silver & Black<br>L117.5 x W66 x D19 (mm)-- A<br>L145 x W52 x D21 (mm)-- B<br>L117 x W70 x D22 (mm)-- C<br>L132 x W55 x D25 (mm)-- D                                                   |
| <b>Unit Weight</b><br><b>Shipping Weight</b>                      | 430g<br>510g                                                                                                                                                                                                |



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### INSTALLATION

- > Remove the back cover from the unit
- > Drill 2 holes(A,C) on the wall for the screws and one hole for the cable
- > Knock the supplied rubber bungs to the screw holes(A,C)
- > Fix the back cover firmly on the wall with 4 flat head screws
- > Thread the cable through the cable hole(B)
- > Attach the unit to the back cover



#### Wiring

| Wire Color                                         | Function      | Notes                                                 |
|----------------------------------------------------|---------------|-------------------------------------------------------|
| Red                                                | DC+           | 12V DC Power Input                                    |
| Black                                              | GND           | Negative Pole of DC Power Input                       |
| Blue & Black                                       | Relay NO      | Normally Open Relay Output (install diode provided)   |
| White & Black                                      | Relay Common  | Common Connection for Relay Output                    |
| Green & Black                                      | Relay NC      | Normally Closed Relay Output (install diode provided) |
| Yellow                                             | OPEN          | Request to Exit(REX) Input                            |
| Pass-Through Wiring (Wiegand Reader or Controller) |               |                                                       |
| Green                                              | Data 0        | Wiegand Output (Pass-through) Data 0                  |
| White                                              | Data 1        | Wiegand Output (Pass-through) Data 1                  |
| <b>Advanced Input and Output Features</b>          |               |                                                       |
| Grey                                               | Alarm Output  | Negative contact for Alarm                            |
| Brown                                              | Contact Input | Door/Gate Contact Input (Normally Closed)             |
| <b>WIFI Version with Doorbell</b>                  |               |                                                       |
| Brown & Black                                      | Doorbell A    | Contact for Doorbell                                  |
| Yellow & Black                                     | Doorbell B    | Contact for Doorbell                                  |

|                                   |                  |               |
|-----------------------------------|------------------|---------------|
| <b>Sound and Light Indication</b> | <b>LED</b>       | <b>Buzzer</b> |
| <b>Operation Status</b>           |                  |               |
| Stand by                          | Red light bright | —             |
| Enter into programming mode       | Red light shines | One beep      |

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|                                |                                                                                    |             |
|--------------------------------|------------------------------------------------------------------------------------|-------------|
| In the programming mode        | Orange light bright / Red and Green light bright (only for the device with 3 LEDs) | One beep    |
| Operation error                | Red light shines                                                                   | Three beeps |
| Exit from the Programming mode | Red light bright                                                                   | One beep    |
| Open lock                      | Green light bright                                                                 | One beep    |
| Alarm                          | Red light shines quickly                                                           | Beeps       |

Note: 3 LEDs device with WIFI version—The orange light indicates successful WIFI connection and will remain on as long as the device remains online.

#### Basic Configure

##### Enter and Exit Program Mode

| Programming Step   | Keystroke Combination |
|--------------------|-----------------------|
| Enter Program Mode | * (Master Code) #     |
| Exit Program Mode  | *                     |

##### Set Master Code

| Programming Step      | Keystroke Combination                            |
|-----------------------|--------------------------------------------------|
| 1. Enter Program Mode | * (Master Code) #                                |
| 2. Update Master Code | 0 (New Master Code) # (Repeat New Master Code) # |
| 3. Exit Program Mode  | *                                                |

##### Set the Working Mode

Notes: The device has 3 working modes: Standalone Mode, Controller Mode, Wiegand Reader Mode, choose the mode you use. (Factory default is Standalone Mode / Controller Mode)

| Programming Step              | Keystroke Combination   |
|-------------------------------|-------------------------|
| 1. Enter Program Mode         | * (Master Code) #       |
| 2. Standalone/Controller Mode | 7 7 # (Factory default) |
| OR                            |                         |
| 2. Wiegand Reader Mode        | 7 8 #                   |
| 3. Exit                       | *                       |

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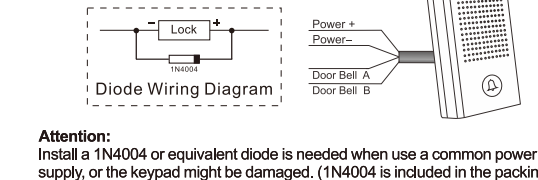
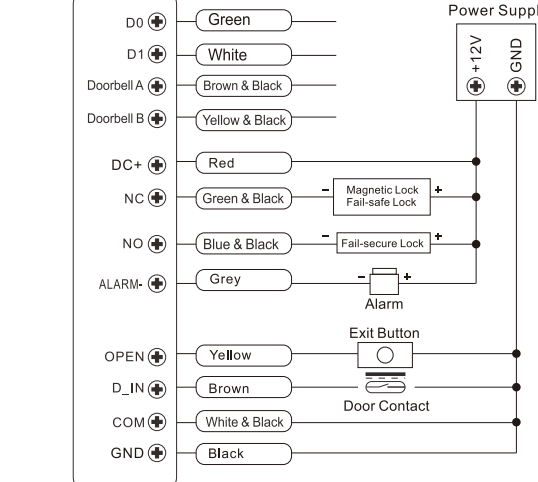
### STANDALONE MODE

The device can work as Standalone Access Control for single door.

(Factory default mode) — 7 7 #

#### Connection Diagram

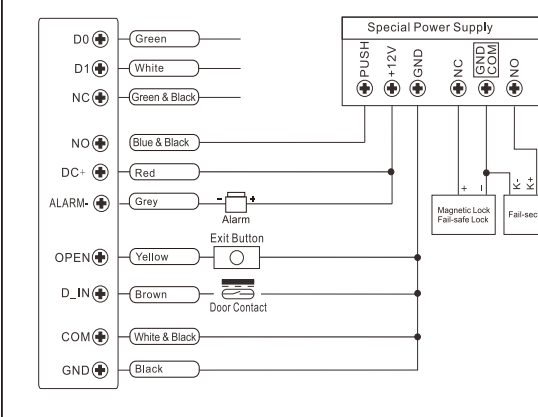
##### Common Power Supply



Attention: Install a 1N4004 or equivalent diode is needed when use a common power supply, or the keypad might be damaged. (1N4004 is included in the packing)

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### Access Control Power Supply



Programming  
Programming will be very depending on access configuration. Follow the instructions according to your access configuration.

Notes:  
> **User ID number:** Assign a user ID to the access card/ PIN in order to track it.  
> **User ID number:**  
The Common Card/PIN User ID: 1-9988  
Panic User ID: 9989-9990  
Visitor User ID: 9991-10000

IMPORTANT: User ID do not have to be proceeded with any leading zeros. Recording of User ID is critical. Modifications to the user require the User ID be available.

> **Proximity Card:**  
Proximity Card: EM card/Mifare card

> **PIN:** Can be any 4-6 digits.

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### Add Common Users

(PIN Card user ID 1-9988; PIN length: 4-6 digits)

| Programming Step                                                                                                                   | Keystroke Combination                                                    |
|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| 1. Enter Program Mode                                                                                                              | * (Master Code) #                                                        |
| <b>Add Card User</b>                                                                                                               |                                                                          |
| 2. Using Auto ID<br>(Allows the device to assign Card to next available User ID number)                                            | 1 (Read Card) / (Input 8/10/17 Digits Card Number) #                     |
| OR                                                                                                                                 |                                                                          |
| 2. Select Specific ID<br>(Allows Master to define a specific User ID to associate the card to)                                     | 1 (User ID) # (Read Card) / (Input 8/10/17 Digits Card Number) #         |
| OR                                                                                                                                 |                                                                          |
| 2. Add Card: Block Enrollment<br>(Allows Master to add up to 588 cards to the Reader in a single step) Takes 2 minutes to program. | 1 (User ID) # (Card Quantity) # (The First Card 8/10/17 Digits Number) # |
| <b>Add PIN User</b>                                                                                                                |                                                                          |
| 2. Select Specific ID<br>(Allows Master to define a specific User ID to associate the PIN to)                                      | 1 (User ID) # (PIN) #                                                    |
| 3. Exit                                                                                                                            | *                                                                        |

**Tips for PIN Security (Only valid for 6 digits PIN):**  
For higher security we allow you to hide your correct PIN with other numbers up to a max of 10 digits.  
Example PIN: 123434  
You could use \*(123434)\* or \*(123434)  
(\*\* can be any numbers from 0-9)

**Add Panic Users (Valid for Card/ PIN Users)**  
(User ID number is 9989-9990 PIN length: 4-6 digits)

| Programming Step      | Keystroke Combination                                          |
|-----------------------|----------------------------------------------------------------|
| 1. Enter Program Mode | * (Master Code) #                                              |
| 2. Add Card           | 1 (User ID) # (Read Card / Input 8/10/17 Digits Card number) # |

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#### Simplified Instruction

| Function Description           | Operation                                                                                            |
|--------------------------------|------------------------------------------------------------------------------------------------------|
| Enter the Programming Mode     | * - Master Code - #<br>(then you can do the programming (123456 is the factory default master code)) |
| Change the Master Code         | 0 - New Code - # - Repeat the New Code - #<br>(code: 6 digits)                                       |
| Add Card User                  | 1 - Read Card - #<br>(can add cards continuously)                                                    |
| Add PIN User                   | 1 (User ID) - PIN - #<br>(The PIN is any 4-6 digits)                                                 |
| Delete User                    | 2-Read Card- #<br>2-User ID- #                                                                       |
| Exit from the Programming Mode | *                                                                                                    |
| <b>How to release the door</b> |                                                                                                      |
| Card User                      | Read Card                                                                                            |
| PIN User                       | Input PIN #                                                                                          |

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|            |                       |
|------------|-----------------------|
| OR         |                       |
| 2. Add PIN | 1 (User ID) # (PIN) # |
| 3. Exit    | *                     |

**Add Visitor Users**  
(User ID number is 9991-10000 PIN length: 4-6 digits)  
There are 10 groups Visitor PIN/card available, the users can be specified up to 10 times of usage, after a certain number of times, i.e. 5 times, the PIN/card become invalid automatically.

| Programming Step      | Keystroke Combination                                                    |
|-----------------------|--------------------------------------------------------------------------|
| 1. Enter Program Mode | * (Master Code) #                                                        |
| 2. Add Card           | 1 (User ID) # (0-9) # (Read Card) / (Input 8/10/17 Digits Card Number) # |
| OR                    |                                                                          |
| 2. Add PIN            | 1 (User ID) # (0-9) # (PIN) #                                            |
| 3. Exit               | *                                                                        |

#### Change PIN Users (PIN length: 4-6 digits)

| Programming Step      | Keystroke Combination                                    |
|-----------------------|----------------------------------------------------------|
| 1. Enter Program Mode | * (Master Code) #                                        |
| 2. Change PIN         | * (User ID) # (Old PIN) # (New PIN) # (Repeat New PIN) # |

Note: Below is done outside programming mode, users can undertake this themselves

| Programming Step               | Keystroke Combination                  |
|--------------------------------|----------------------------------------|
| 1. Enter Program Mode          | * (Master Code) #                      |
| 2. Delete User- By             | 2 (Read Card) #                        |
| OR                             |                                        |
| 2. Delete User- By ID number   | 2 (User ID) #                          |
| OR                             |                                        |
| 2. Delete User- By Card number | 2 (Input 8/10/17 Digits Card Number) # |
| OR                             |                                        |
| 2. Delete ALL Users            | 2 (Master Code) #                      |
| 3. Exit                        | *                                      |

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#### Set Relay Configuration

The relay configuration sets the behaviour of the output relay on activation.

| Programming Step      | Keystroke Combination        |
|-----------------------|------------------------------|
| 1. Enter Program Mode | * (Master Code) #            |
| 2. Pulse Mode         | 3 (1-99) # (factory default) |
| OR                    |                              |
| 2. Toggle Mode        | 3 (1-99) # (factory default) |
| 3. Exit               | *                            |

#### Set Access Mode

For Multi user access mode, the interval time of reading can not exceed 5 seconds, or else, the device will exit to standby automatically.

| Programming Step      | Keystroke Combination                                           |
|-----------------------|-----------------------------------------------------------------|
| 1. Enter Program Mode | * (Master Code) #                                               |
| 2. Card Access        | 4 0 #                                                           |
| OR                    |                                                                 |
| 2. PIN Access         | 4 1 #                                                           |
| OR                    |                                                                 |
| 2. Multi User Access  | 4 3 (2-9) #<br>(Only after 2-9 valid users, the door be opened) |
| OR                    |                                                                 |
| 2. Card or PIN Access | 4 3 # (factory default)                                         |
| 3. Exit               | *                                                               |

#### Set Strike-out Alarm

The strike-out alarm will engage after 10 failed entry attempts (Factory is OFF). It can be set to deny access for 10 minutes after engaging or disengage only after entering a valid card/ PIN or Master code/ card.

| Programming Step      | Keystroke Combination                                                     |
|-----------------------|---------------------------------------------------------------------------|
| 1. Enter Program Mode | * (Master Code) #                                                         |
| 2. Disable Sound      | 7 0 #                                                                     |
| OR                    |                                                                           |
| 2. Strike-Out OFF     | 6 0 # (factory default)                                                   |
| OR                    |                                                                           |
| 2. Strike-Out ON      | 6 1 # Access will be denied for 10minutes (Exit button is still workable) |

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|                          |                                                                         |
|--------------------------|-------------------------------------------------------------------------|
| OR                       |                                                                         |
| 2. Strike-Out ON (Alarm) | 6 2 #                                                                   |
| <b>Set Alarm Time</b>    | 5 (0-3) # (factory default is 1 minute)                                 |
|                          | Enter Master Code # or Master Card or valid user/ card / PIN to silence |
| 3. Exit                  | *                                                                       |

#### Set Door Open Detection

**Door Open Too Long (DOTL) Detection**  
When use with an optional magnetic contact or built-in magnetic contact of the lock, if the door is opened normally, but not closed after 1 minute, the inside buzzer will beep automatically to remind people to close the door. The beep can be stopped by closing the door; master users or valid users, or else, it will continue to sound the same time with the alarm time set.

**Door Forced Open Detection**  
When use with an optional magnetic contact or built-in magnetic contact of the lock, if the door is opened by force, the inside buzzer and external alarm (if there is) will both operate, they can be stopped by master users or valid users, or else, it will continue to sound the same time with the alarm time set.

| Programming Step               | Keystroke Combination                   |
|--------------------------------|-----------------------------------------|
| 1. Enter Program Mode          | * (Master Code) #                       |
| 2. Enable Door Open Detection  | 6 3 # (factory default)                 |
| OR                             |                                         |
| 2. Disable Door Open Detection | 6 4 #                                   |
| <b>Set Alarm Time</b>          | 5 (0-3) # (factory default is 1 minute) |
| 3. Exit                        | *                                       |

The function of **Set Alarm Time** also apply for anti-tamper alarm

#### Set Audible and Visual Response

| Programming Step      | Keystroke Combination   |
|-----------------------|-------------------------|
| 1. Enter Program Mode | * (Master Code) #       |
| 2. Disable Sound      | 7 0 #                   |
| OR                    |                         |
| 2. LED Always OFF     | 7 2 #                   |
| OR                    |                         |
| 2. LED Always ON      | 7 3 # (factory default) |

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|                              |                                                                                                             |
|------------------------------|-------------------------------------------------------------------------------------------------------------|
| OR                           |                                                                                                             |
| 2. Keypad Backlit Always OFF | 7 4 #                                                                                                       |
| Keypad Backlit Always ON     | 7 5 #                                                                                                       |
| Keypad Backlit Automatic OFF | 7 6 # (factory default)                                                                                     |
|                              | Automatic OFF after 20 seconds, it will go ON by pressing any key (this key isn't taken into consideration) |
| 3. Exit                      | *                                                                                                           |

#### Master Card Usage

Using Master Card to add and delete users

|                        |                                                                                                                                               |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Add Card/ PIN Users    | 1. Input (Master Card)<br>2. Input (Card) or (User ID#PIN#)<br>Repeat step 2 for additional users<br>3. Input (Master Card) again             |
| Delete Card/ PIN Users | 1. Input (Master Card Twice within 5s)<br>2. Input (Card) or (User ID#)<br>Repeat step 2 for additional users<br>3. Input (Master Card) again |

#### Users Operation & Reset to Factory Default

> **Open the door:** Read valid user card or input valid user PIN #

> **Remove Alarm:** Enter Master Code # or Master Card or valid user card / PIN

> **To reset to factory default & Add Master Card:** Power off, press the Exit Button, hold it and power on, there will be two beeps, then release the exit button, the LED light turns into yellow, then read any 125KHz EM card/ 13.56MHz Mifare card, the LED will turn into red, means reset to factory default successfully. Of the card reading, it is the Master Card.

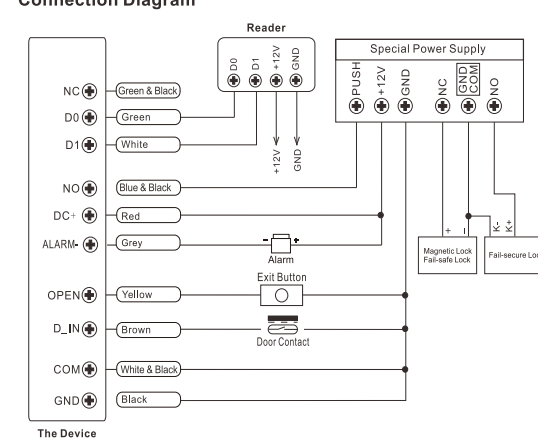
#### Remarks:

- ① If no Master Card added, must press the Exit Button for at least 5 seconds before release, this will make the previous registered Master Card invalid)
- ② Reset to factory default, the user's information is still retained.

### CONTROLLER MODE

The device can work as Controller, connected with the external Wiegand reader. (Factory default mode) — 7 7 #

#### Connection Diagram



Attention: Install a 1N4004 or equivalent diode is needed when use a common power supply, or the reader might be damaged. (1N4004 is included in the packing)

#### Set Wiegand Input Formats

Please set the Wiegand input formats according to the Wiegand output format of the external Reader.

| Programming Step      | Keystroke Combination                                                                                                            |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------|
| 1. Enter Program Mode | * (Master Code) #                                                                                                                |
| 2. Wiegand Input Bit  | For EM Card: 8 (26-44) #<br>(factory default is 26bits)<br>For Mifare Card: 8 0 (26-44, 56, 58) #<br>(factory default is 34bits) |

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|                       |                         |
|-----------------------|-------------------------|
| 3. Disable Parity Bit | 8 0 #                   |
| Enable Parity Bit     | 8 1 # (factory default) |
| 4. Exit               | *                       |

Note: For connecting Wiegand readers with 32, 40, 56 bits output, need disable parity bits.

#### Programming

> **Basic Programming is the same as Standalone Mode**

> **There are some exceptions for your attention:**

- The device Connected with External Card Reader
  - If EM/Mifare card reader: users can be added/deleted on either the device or external reader.
  - If HID card reader: users can only be added/deleted on external reader.

#### The device Connected with Fingerprint Reader

For example:  
Connect SF1 as the fingerprint reader to the device.  
Step 1: Add the Fingerprint (A) on SF1 (Please refer to SF1 manual)  
Step 2: Add the same Fingerprint(A) on the device:

| Programming Step                                                     | Keystroke Combination |
|----------------------------------------------------------------------|-----------------------|
| 1. Enter Program Mode: * (Master Code) #                             |                       |
| 2. 1 (Press Fingerprint A once on SF1) # (ID auto allocated)         |                       |
| OR                                                                   |                       |
| 2. 1 (User ID) # (Press Fingerprint A on SF1) # (Select specific ID) |                       |
| 3. Exit                                                              | *                     |

#### The device Connected with Keypad Reader

The keypad reader can be 4 Bits, 8 Bits (ASCII), or 10 Bits output format. Choose the below operation according to the PIN output format of your reader.

| Programming Step      | Keystroke Combination                          |
|-----------------------|------------------------------------------------|
| 1. Enter Program Mode | * (Master Code) #                              |
| 2. PIN input bits     | 8 (4 or 8 or 10) # (factory default is 4 bits) |
| 3. Exit               | *                                              |

Remarks: 4 means 4 bits, 8 means 8 bits, 10 means 10 digits virtual number.

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|                       |                         |
|-----------------------|-------------------------|
| 3. Disable Parity Bit | 8 0 #                   |
| Enable Parity Bit     | 8 1 # (factory default) |
| 4. Exit               | *                       |

Note: For connecting Wiegand readers with 32, 40, 56 bits output, need disable parity bits.

#### Programming

> **Basic Programming is the same as Standalone Mode**

> **There are some exceptions for your attention:**

- The device Connected with External Card Reader
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Connect SF1 as the fingerprint reader to the device.  
Step 1: Add the Fingerprint (A) on SF1 (Please refer to SF1 manual)  
Step 2: Add the same Fingerprint(A) on the device:

| Programming Step                                                     | Keystroke Combination |
|----------------------------------------------------------------------|-----------------------|
| 1. Enter Program Mode: * (Master Code) #                             |                       |
| 2. 1 (Press Fingerprint A once on SF1) # (ID auto allocated)         |                       |
| OR                                                                   |                       |
| 2. 1 (User ID) # (Press Fingerprint A on SF1) # (Select specific ID) |                       |
| 3. Exit                                                              | *                     |

#### The device Connected with Keypad Reader

The keypad reader can be 4 Bits, 8 Bits (ASCII), or 10 Bits output format. Choose the below operation according to the PIN output format of your reader.

| Programming Step      | Keystroke Combination                          |
|-----------------------|------------------------------------------------|
| 1. Enter Program Mode | * (Master Code) #                              |
| 2. PIN input bits     | 8 (4 or 8 or 10) # (factory default is 4 bits) |
| 3. Exit               | *                                              |

Remarks: 4 means 4 bits, 8 means 8 bits, 10 means 10 digits virtual number.

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|                       |                         |
|-----------------------|-------------------------|
| 3. Disable Parity Bit | 8 0 #                   |
| Enable Parity Bit     | 8 1 # (factory default) |
| 4. Exit               | *                       |

Note: For connecting Wiegand readers with 32, 40, 56 bits output, need disable parity bits.

#### Programming

> **Basic Programming is the same as Standalone Mode**

> **There are some exceptions for your attention:**

- The device Connected with External Card Reader
  - If EM/Mifare card reader: users can be added/deleted on either the