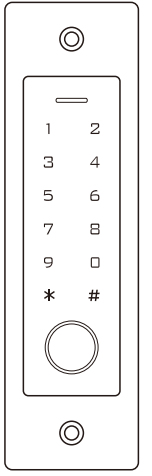


# Embedded FingerKey & Reader



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 supports 1,000 users, all user data can be transferred from one to another (except fingerprint users). It supports multi access modes in card access, PIN access, fingerprint access, card + PIN access, or multi cards (PINs) fingerprints access. It has extra features including block enrollment, Wiegand input & output interface, etc.

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**Features**

- > Capacitive fingerprint sensor, Touch key
- > Metal case, anti-vandal, embedded design
- > Waterproof, conforms to IP66
- > One relay, 1,000 users (990 common + 10 visitor)
- > PIN length: 4-6 digits
- > Card type: 125KHz EM Card
- > Can be used as Wiegand reader with buzzer output
- > Card block enrollment
- > Tri-color LED status display
- > Pulse mode, Toggle mode
- > User data can be transferred (except fingerprint users)
- > Backlit keypad, can set automatic OFF after 20 seconds

**Specifications**

<b>User Capacity</b>	1000 990(100 Fingerprint + 890 Card/PIN Users)
<b>Operating Voltage</b>	12~18V DC
Working Current	≤50mA
Idle Current	≤60mA
<b>Proximity Card Reader</b>	EM
Radio Technology	125KHz
Read Range	2~5cm
<b>PIN Length</b>	4-6 digits
<b>Wiring Connections</b>	Relay Output, Exit Button, Wiegand Input, Wiegand Output

### Relay

Adjustable Relay Output Time	0~99 Seconds (5 seconds default)
Lock Output Load	2 Amp Maximum

### Wiegand Interface

Wiegand Interface	Wiegand 26-44 bits input & output (Factory Default: Wiegand 26bits)
PIN Output	4 Bits, 8 Bits(ASCII), 10 Digits Virtual Number (Factory Default: 4bits)

### Environment

Meets IP66	Stainless Steel
Operating Temperature	-30°C ~ 60°C (-22°F ~ 140°F)
Operating Humidity	0%RH~95%RH

### Physical

Colour	Shiner & Black
Dimensions	116x55x48mm (D17.5mm)
Unit Weight	135g
Shipping Weight	195g

### Carton Inventory

- 1x Device
- 1x Diode 1N4004 (For relay output protection)
- 1x Wall Anchors
- 1x Self Tapping Screws
- 1x Screw Driver
- 1x Screw Cover Stickers
- 1x Master Card

### Wiring

Wire Color	Function	Notes
Red	DC +	12-18V DC Power Input
Black	GND	Negative Pole of DC Power Input
Blue	Relay NO	Normally Open Relay Output (install diode provided)
Brown	Relay Common	Common Connection for Relay Output
Grey	Relay NC	Normally Closed Relay Output (install diode provided)
Yellow	OPEN	Request to Exit(REX) Input
Green	Data 0	Wiegand Output (Pass-through) Data 0
White	Data 1	Wiegand Output (Pass-through) Data 1

### Sound and Light Indication

Operation Status	LED	Buzzer
Stand by	Red light bright	Red light bright
Enter into programming mode	Red light flashes	One beep
In the programming mode	Orange light bright	Three beeps
Operation error	---	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

### INSTALLATION

- Drill 2 holes(A, C) on the wall for the screws and one hole for the device
- Knock the supplied rubber bungs to the screw holes(A, C)
- Thread the cable through the hole(B)
- Attach the unit to the hole(B)
- Fix the unit firmly on the wall with 2 flat head screws
- Cover the screws by Screw Cover Stickers

### 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) # (Master code is any 6 digits)
3. Exit Program Mode	*

#### Set the Working Mode

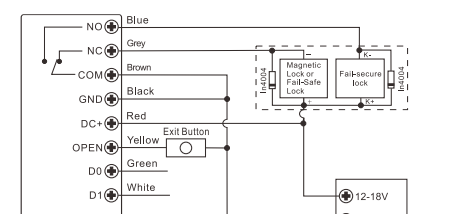
Notes: The device has 3 working modes: Standalone Mode, Controller Mode, Wiegand Reader Mode, choose the mode you use. (Factory default is Standalone Mode / Controller Mode)

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

### STANDALONE MODE

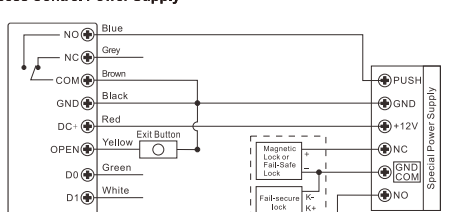
The device can work as Standalone Access Control for single door. (Factory default mode) --- 7 7 #

#### Connection Diagram



**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)

#### 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 fingerprint/ card/ PIN in order to track it.
- > **Common User ID:**
  - Fingerprint user ID: 0 ~ 98
  - PIN/ Card user ID: 100 ~ 989
  - Master Fingerprint user ID: 99
  - Visitor User ID: 990-999

**IMPORTANT:** User IDs 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: 125KHz EM card  
> **PIN:** Can be any 4-6 digits except 8888 which is reserved.

#### Add Common Users

(Fingerprint user ID: 0 ~ 98, PIN/ Card user ID: 100 ~ 989; PIN length: 4~6 digits except 8888)

Programming Step	Keystroke Combination
1. Enter Program Mode	* (Master Code) #
2. Using Auto ID (Allows the device to assign Card to next available User ID number)	1 (PIN) # (Repeat Fingerprint) (Repeat Fingerprint again) (Repeat Fingerprint) (Repeat Fingerprint again)
3. Exit	*

#### Add Card User

Programming Step	Keystroke Combination
2. Using Auto ID (Allows the device to assign Card to next available User ID number)	1 (Read Card) / (Input 8/10 Digits Card Number) #
OR	1 (User ID) # (Read Card) / (Input 8/10 Digits Card Number) #
2. Select Specific ID (Allows Master to define a specific User ID to associate the card to)	1 (User ID) # (Card Quantity) # (The First Card 8/10 Digits Number) # (Cards' number must be consecutive. Card quantity = number of cards to be enrolled.)

#### Add PIN User

Programming Step	Keystroke Combination
2. Using Auto ID (Allows the device to assign PIN to next available User ID number)	1 (PIN) #
OR	1 (User ID) # (PIN) #
2. Select Specific ID (Allows manager to define a specific User ID to associate the PIN to)	*

**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 Master Fingerprint (By Specified ID: 99)

Programming Step	Keystroke Combination
1. Enter Program Mode	* (Master Code) #
1. Add Master Fingerprint	1 (99) # (Fingerprint) (Repeat Fingerprint) (Repeat Fingerprint again)
3. Exit	*

### Users Operation & Reset to Factory Default

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

> **Remove Alarm:** Enter Master Code # or Master Fingerprint/ Card or valid user fingerprint / 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, 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.

#### Master Fingerprint/ Card Usage

(Master Card is not default accessory in the box, please add it by yourself if needed)

Using Master Fingerprint/ Card to add and delete users

1. Input (Master Fingerprint / Card) or (Card) or (PIN #)
2. Input (Fingerprint three times) or (Card) or (PIN #)
3. Input (Master Fingerprint / Card) again

Add Fingerprint/ Card/ PIN Users

1. Input (Master Fingerprint / Card) or (Card) or (PIN #)
2. Input (Fingerprint) or (Card) or (PIN #)
3. Input (Master Fingerprint / Card) again

Delete Fingerprint/ Card/ PIN Users

1. Input (Master Fingerprint / Card) or (Card) or (PIN #)
2. Input (Fingerprint) or (Card) or (PIN #)
3. Input (Master Fingerprint / Card) again

### Change PIN Users (PIN length: 4~6 digits except 8888)

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

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

### Delete Users

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

### 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	3 (1~99) # (factory default)
2. Toggle Mode	3 # (Default is 5 seconds)
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. Fingerprint Access	4 0 #
OR	4 1 #
2. Card Access	4 2 #
OR	4 3 #
2. Card + PIN Access	4 3 (2~9) #
OR	4 3 (2~9) #
2. Multi User Access	4 4 # (factory default)
OR	4 4 # (factory default)
3. Exit	*

### Set Strike-out Alarm

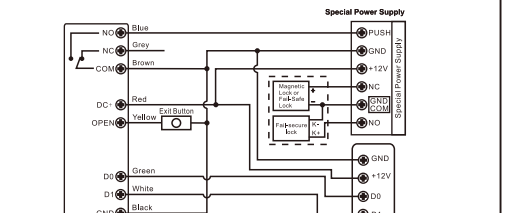
The strike-out alarm will engage after 10 failed entry attempts (Factory is OFF). It can be set to deny access for 10 minutes after engaging or disengage only after entering a valid Fingerprint/ card/ PIN or Master code/ fingerprint/ card.

Programming Step	Keystroke Combination
1. Enter Program Mode	* (Master Code) #
2. Strike-Out OFF	6 0 # (factory default)
OR	6 1 # Access will be denied for 10 minutes (Exit button is still workable)
2. Strike-Out ON	6 2 #
OR	6 2 #
2. Strike-Out ON (Alarm)	5 (0~3) # (factory default is 1 minute)
OR	5 (0~3) # (factory default is 1 minute)
3. Exit	*

### Set Audible and Visual Response

Programming Step	Keystroke Combination
1. Enter Program Mode	* (Master Code) #
2. Disable Sound	7 0 #
OR	7 1 # (factory default)
2. LED Always OFF	7 2 #
OR	7 3 # (factory default)
2. LED Always ON	7 4 #
OR	7 5 # (factory default)
2. Keypad Backlit Always Off	7 6 # (factory default)
OR	7 6 # (factory default)
2. Keypad Backlit Always On	7 7 # (factory default)
OR	7 7 # (factory default)
2. Keypad Backlit Automatic OFF	7 8 # (factory default)
OR	7 8 # (factory default)
3. Exit	*

### 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

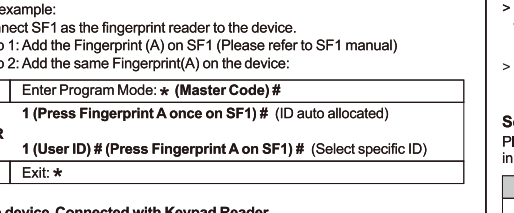
Please set the Wiegand input formats according to the Wiegand output format of the external Reader.

Programming Step	Keystroke Combination
1. Enter Program Mode	* (Master Code) #
2. Wiegand Input Bit	8 (26~44) # (factory default is 26bits)
3. Disable Parity Bit	8 0 #
OR	8 1 # (factory default)
4. Exit	*

### Wiegand Reader Mode

The device can work as Standard Wiegand Reader, connected to the third party Controller --- 7 8 #

#### 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)

#### Basic Programming is the same as Standalone Mode

> There are some exceptions for your attention:

**The device Connected with External Card Reader**

- If EM card reader: users can be added/deleted on either the device or external reader.
- If HID or Mifare card reader: users can only be added/deleted on external reader.

### ADVANCED APPLICATION

#### Collection Card Mode

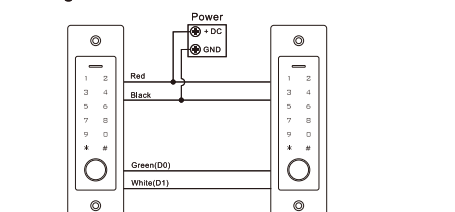
After this mode is turned on, all cards can open the lock. At the same time, the card is added to the device.

Programming Step	Keystroke Combination
1. Enter Program Mode	* (Master Code) #
2. Collection Card Mode OFF	9 2 # (factory default)
OR	9 3 #
2. Collection Card Mode ON	9 3 #
3. Exit	*

### User Information Transfer (Valid for Card / PIN Users)

The device supports the User Information Transfer function, and the enrolled user (cards, PINs) can be transferred from one (let's name it Master Unit) to another (let's name it Accept Unit).

#### Connection Diagram:



**Remarks:**

- > The Master units and Accept units must be same series devices.
- > The Master Code of the Master Unit and the Accept Unit must be set to the same.
- > Program the transfer operation on Master Unit only.
- > If the Accept Unit is already with the users enrolled, it will be covered after transferring.
- > For full 900 users enrolled, the transfer takes about 30 seconds.

#### Set Transferring on Master Unit:

Programming Step	Keystroke Combination
1. Enter the programming mode	* (Master Code) #
2. Set transferring	9 8 #
Within 30 seconds, Green LED shines, after one beep, the LED will turn into Red, which means the users' information has been transferred successfully.	
3. Exit	*

### Simplified Instruction

Function Description	Operation
Enter the Programming Mode	* (Master Code) # then you can do the programming (123456 is the factory default master code)
Change the Master Code	0 - New Code - # - Repeat the New Code - # (code: 6 digits)
Add Card User	1 - Read Card - # (can add cards continuously)
Add Fingerprint User	1-Fingerprint-Repeat Fingerprint-Repeat Fingerprint Again- #
Add PIN User	1 - PIN - # (The PIN is any 4-6 digits except 8888 which is reserved)
Delete User	2-Fingerprint-# 2-Read Card-# 2-PIN-#
Exit from the Programming Mode	*
How to release the door	
Fingerprint User	Input Fingerprint
Card User	Read Card
PIN User	Input PIN #