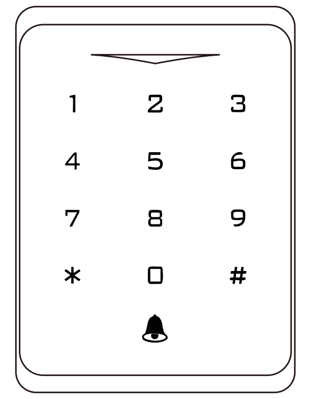
Access Controller / Reader
WiFi Version



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 (990 common users + 10 visitor users), all user data can be transferred from one to another It supports multi access modes in card access, PIN access, or multi cards/PINs access. It has extra features including block enrollment, Wiegand input & output interface...etc.

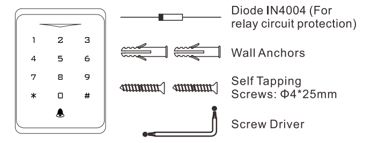
Features

> WiFi 2.4G network
> Touch key
> Waterproof, conforms to IP66
> One relay, 1,000 users (990 common + 10 visitor)
> PIN length: 4~6 digits
> EM card, EM+ Mifare cards 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
> Pulse mode, Toggle mode
> User data can be transferred
> Built-in light dependent resistor (LDR) for anti tamper
> Backlit keypad, can set automatic OFF after 20 seconds

Specifications

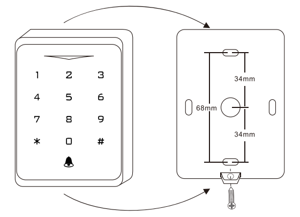
User Capacity Common User Visitor User	**1000** 990 10
Operating Voltage Working Current Idle Current	**12~18V DC** ≤150mA ≤60mA
Proximity Card Reader Radio Technology Read Range	**EM / EM + Mifare (Optional)** 125KHz / 125KHz + 13.56MHz 2~6 cm
PIN Length	**4~6 digits**
Wiring Connections	**Relay Output, Exit Button, Wiegand Input, Wiegand Output**
Relay Adjustable Relay Output Time Lock Output Load	**One (NO, NC, Common)** 0~99 Seconds (5 seconds default) 2 Amp Maximum
Wiegand Interface PIN Output	**EM card: Wiegand 26~44 bits input & output.** **Mifare card: Wiegand 26~44bits 56bits, 58bits input & output.** (Factory default: Wiegand 26bits for EM card, Wiegand 34bits for Mifare card) **4 bits, 8 bits(ASCII), 10 digits Virtual Number** (Factory Default: 4 bits)
Environment Operating Temperature Operating Humidity	**Meets IP66** -40°C ~ 60°C (-40°F ~ 140°F) 0%RH~98%RH
Physical Colour Dimensions Unit Weight Shipping Weight	**ABS** Black L116 x W72 x D24 (mm) 160g 185g

Carton Inventory


Diode IN4004 (For relay circuit protection)
Wall Anchors
Self Tapping Screws: Φ4*25mm
Screw Driver

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

Colour	Function	Notes
Red	+12V	12-18V DC Power Input
Black	GND	Negative Pole of DC Power Input
Blue	NO	Normally Open Relay Output
Purple	COM	Common Connection for Relay Output
Orange	NC	Normally Closed Relay Output
Yellow	OPEN	Request to Exit (REX) Input
White	D1	Wiegand Output /Input Data 1
Green	D0	Wiegand Output /Input Data 0
Grey	Doobell A	Contact for Doorbell
Brown	Doobell B	Contact for Doorbell

Sound and Light Indication

Operation Status	LED	Buzzer
Stand by	Red light bright	—
Enter into programming mode	Red light shines	One beep
In the programming mode	Orange light bright	One beep
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

Basic Configure

Enter and Exit Program Mode

Programming Step	Keystroke Combination
Enter Program Mode	* **(Master Code) #** (Factory default is 123456)
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)

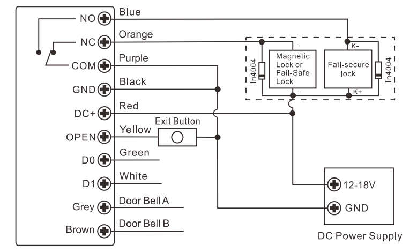
Programming Step	Keystroke Combination
1. Enter Program Mode	* **(Master Code) #**
2. Standalone/Controller Mode **OR** 2. Wiegand Reader Mode	**7 7 # (Factory default)** **7 8 #**
3. Exit	*

STANDALONE MODE

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

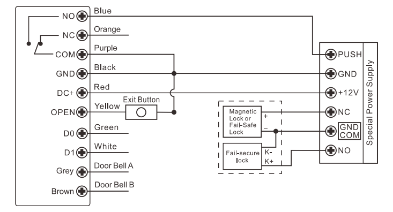
Connection Diagram

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)

Access Control Power Supply



Programming

Programming will be varied 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.

The Common User ID: 0~989
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: EM card/ EM+ Mifare cards

> **PIN:** Can be any 4~6 digits

Add Common Users

PIN/ Card user ID: 0~989; PIN length: 4~6

Programming Step	Keystroke Combination
1. Enter Program Mode	* **(Master Code) #**
Add Card User	
2. Using Auto ID (Allows the device to assign Card to next available User ID number) **OR** 2. Select Specific ID (Allows Master to define a specific User ID to associate the card to) **OR** 2. Add Card: Block Enrollment (Allows Master to add up to 990 cards to the Reader in a single step) Takes 2 minutes to program.	**1 (Read Card) / (Input 8/10/17 Digits Card Number) #** The cards can be added continuously. **1 (User ID) # (Read Card) / (Input 8/10/17 Digits Card Number) #** **1 (User ID) # (Card Quantity) # (The First Card 8/10/17 Digits Number) #** Cards' number must be consecutive; Card quantity= numbers of cards to be enrolled
Add PIN User	
2. Using Auto ID (Allows the device to assign PIN to next available User ID number) **OR** 2. Select Specific ID (Allows manager to define a specific User ID to associate the PIN to)	**1 (PIN) #** The PINs can be added continuously **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 9 digits.

Example PIN: 123434
You could use **(123434) * or ** (123434)
("*" can be any numbers from 0~9)

Add Visitor Users

(User ID number is 990~999; 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.

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 PIN User	**1 - PIN - #** (The PIN is any 4~6 digits)
Delete User	**2 - Read Card - #** **2 - PIN - #**
Exit from the Programming Mode	*
How to release the door	
Card User	Read Card
PIN User	Input PIN #

Programming Step	Keystroke Combination
1. Enter Program Mode	* **(Master Code) #**
2. Add Card **OR** 2. Add PIN	**1 (User ID) # (0~9) # (Read Card) / (Input 8/10/17 Digits Card Number) #** **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 Card/ PIN **OR** 2. Delete User - By ID number **OR** 2. Delete User - By Card number **OR** 2. Delete ALL Users	**2 (Read Card)/(Input PIN) #** The users can be deleted continuously. **2 (User ID) #** **2 (input 8/10/17 Digits Card Number) #** **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 **OR** 2. Toggle Mode	**3 (1~99) #** (factory default) The relay time is 1-99 seconds. (Default is 5 seconds) **3 0 #** Sets the relay to ON/OFF Toggle mode
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 **OR** 2 PIN Access **OR** 2 Card or PIN Access **OR** 2 Multi User Access	**4 0 #** **4 1 #** **4 3 #** (factory default) **4 3 (2~9) #** (Only after 2~9 valid users, the door can be opened)
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. Strike-Out OFF **OR** 2. Strike-Out ON **OR** 2. Strike-Out ON (Alarm) **Set Alarm Time**	**6 0 #** (factory default) **6 1 #** Access will be denied for 10 minutes (Exit button is still workable) **6 2 #** **5 (0 ~ 3) #** (factory default is 1 minute) Enter Master Code # or Master Card or valid user card/ PIN to silence
3. Exit	*

Set Audible and Visual Response

Programming Step	Keystroke Combination
1. Enter Program Mode	* **(Master Code) #**
2. Disable Sound Enable Sound **OR** 2. LED Always OFF LED Always ON **OR** 2. Keypad Backlit Always OFF Keypad Backlit Always ON Keypad Backlit Automatic OFF	**7 0 #** **7 1 #** (factory default) **7 2 #** **7 3 #** (factory default) **7 4 #** **7 5 #** **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 (Users can add the Master Cards by themselves)

Using Master Card to add and delete users	
Add Card/ PIN Users	1. Input **(Master Card)** 2. Input **(Card)** or **(PIN #)** Repeat step 2 for additional users 3. Input **(Master Card)** again
Delete Card/ PIN Users	1. Input **(Master Card Twice within 5s)** 2. Input **(Card)** or **(PIN #)** Repeat step 2 for additional users 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

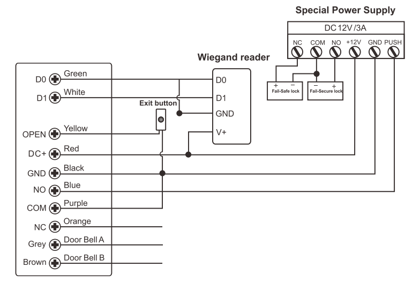
> **To reset to factory default & Add Master Card**: Power off, press the Exit Button, hold it and power on, there will be two beeps, then release the exit button, the LED light turns into yellow, then read any 125KHz EM card/ 13.56MHz Mifare card, the LED will turn into red, means reset to factory default 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 5seconds 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) #** (factory default is 26bits) **For Mifare Card: 8 0 (26~44, 56, 58) #** (factory default is 34bits)
3. Disable Parity Bit Enable Parity Bit	**8 0 #** **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 extemal 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:

1	Enter Program Mode: * **(Master Code) #**
2 **OR** 2	**1 (Press Fingerprint A once on SF1) #** (ID auto allocated) **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.

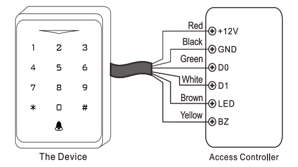
> **Add PIN Users**:
To add PIN users, after enter into programming mode on the device, PIN(s) can be input / added on either thedevice or the external Keypad Reader.

> **Delete PIN Users**: the same way as add users.

WIEGAND READER MODE

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

Connection Diagram



Notes:
> When set into Wiegand Reader mode, nearly all settings in Controller Mode will become invalid, and Brown & Yellow wires will be redefined as below:
- Brown wire: Green LED light control
- Yellow wire: Buzzer control

> If you need to connect Brown/Yellow wires:
When the input voltage for LED is low, the LED will turn into Green; and when the input voltage for Buzzer is low, it will sound.

Set Wiegand Output Formats

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

Programming Step	Keystroke Combination
1. Enter Program Mode	* **(Master Code) #**
2. Wiegand output bits PIN output bits	**For EM Card: 8 (26~ 44) #** (factory default is 26bits) **For Mifare Card: 8 0 (26~44, 56, 58) #** (factory default is 34bits) **8 (4 or 8 or 10) #** (factory default is 4 bits)
3. Disable Parity Bit Enable Parity Bit	**8 0 #** **8 1 #** (factory default)
4. Exit	

Note: For connecting Wiegand controller with 32, 40, 56 bits input, need disable parity bits.

ADVANCED APPLICATION

Collection Card Mode

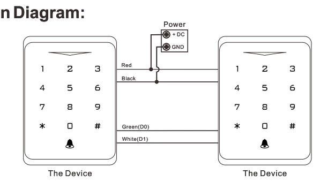
After this mode is turned on, all cards can open the lock. At the same time, the card is added to the device.

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

User Information Transfer

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 1000 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	*