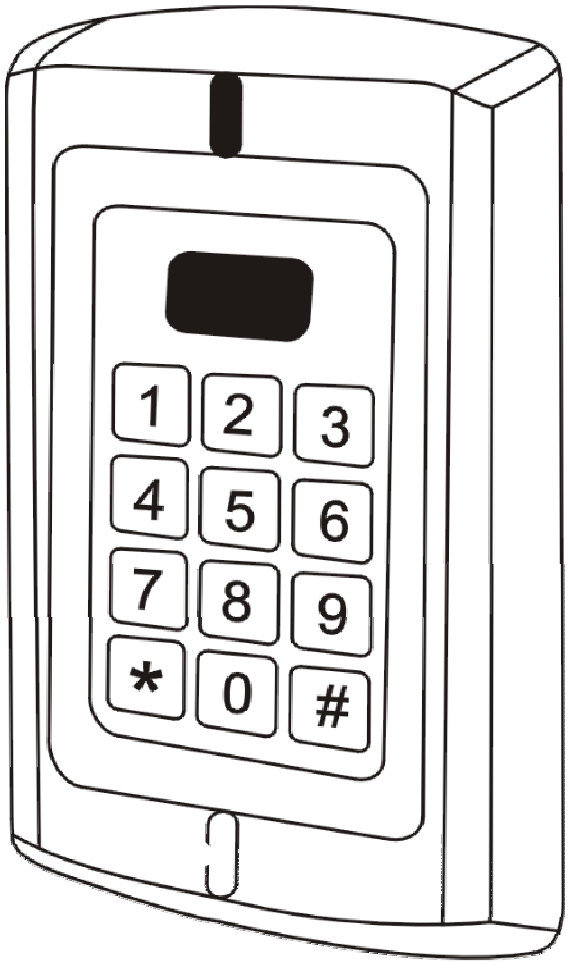
Multi-function Access Control



User Manual

1. Packing List

Name	Quantity	Remarks
Digital keypad-W4	1	
User manual	1	
Screw driver	1	
Rubber bungs	4	6*27mm, used for fixing
Self tapping screws	4	4*28mm, used for fixing
Diode	1	IN4004
Manager card	2	Manager add card & Manager delete card

Please ensure that all the above contents are correct. If any are missing please notify the supplier of the W4.

2. Description

The W4 is a dual-relay access control with EM & HID 125 KHz card reader. It is suitable for mounting either indoor or outdoor in harsh environments. It is housed in a strong, sturdy and vandal proof zinc alloy electroplated case. The electronics are fully potted so the W4 is waterproof and conforms to IP68.

The W4 supports up to 2,100 users in a Card, 4~8 digits PIN, Card + PIN option and additional 10 groups Duress PIN/Card. The built-in card reader supports both EM & HID 125 KHz frequency cards/tags. The W4 has many extra features including Duress PIN/card, block enrollment, Wiegand 26~37 bits interface, and backlight keypad…etc.

These features make W4 an ideal choice for door access not only for small shops and domestic households but also for commercial and industrial applications such as factories, warehouses, laboratories, banks and prisons.

3. Features

- Waterproof, conforms to IP68
- Strong zinc alloy electroplated anti-vandal case
- Two relays operation
- 2,100 users & 10 groups duress PIN/Card
  Zone 1: up to 2,000 PIN & card holders
  Zone 2: up to 100 PIN & card holders
- Relay of both zones can be programmed for 3 modes: Card, PIN, Card + PIN
- Read both EM & HID 125KHz card
- PIN length 4~8 digits
- Pulse mode, Toggle mode
- Wiegand 26~37 input & output
- Adjustable door output time, alarm time, door open time
- Card block enrollment
- With manager cards for adding or deleting card user easily
- Very low power consumption（25mA）
- Backlight keypad
- Built in light dependent resistor (LDR) for anti tamper

- Built in buzzer
- Red, yellow, green and blue LED display the working status
- **12~24V DC or 12~18V AC**
- Two-year warranty

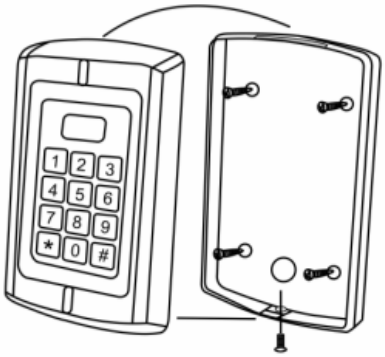
4. Specifications

Operating Voltage	**12~24V DC or 12~18V AC**
User Capacity	2,100 (Additional10 groups Duress PIN/Card)
Keypad	12 keys, 3 x 4 digits
Card Type	EM & HID 125 KHz card
Card Reading Distance	3~6 cm
Active Current	≥60mA
Idle Current	≥25mA
Lock Output Load	Max 2A
Alarm Output Load	Max 20A
Operating Temperature	-20~60℃
Operating Humidity	10%~90% RH
Environment	Conforms to IP68
Adjustable Door Relay time	1~99 seconds
Adjustable Alarm Time	0~3 minutes
Wiegand Interface	Wiegand 26~37 input & output
Wiring Connections	Electric Lock, Exit Button, DOTL, External Alarm
Dimensions	L128 x W82 x H28mm
Net Weight	600 g
Gross Weight	700 g

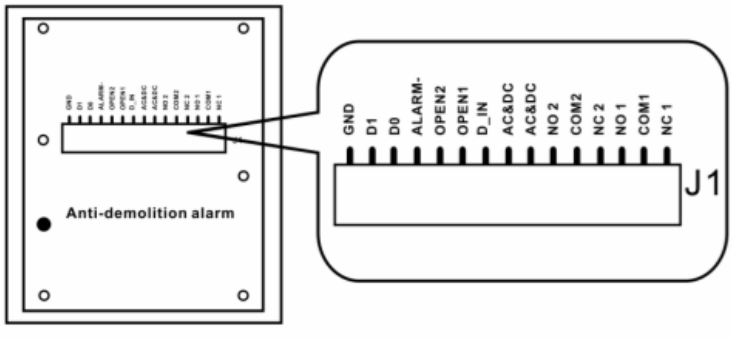
5. Installation

- Remove the back cover from the keypad using the supplied security screwdriver
- Drill 4 holes on the wall for the screws and 1 hole for the cable
- Fix the back cover firmly on the wall with 4 flat head screws
- Thread the cable through the cable hole

  Attach the keypad to the back cover



W4

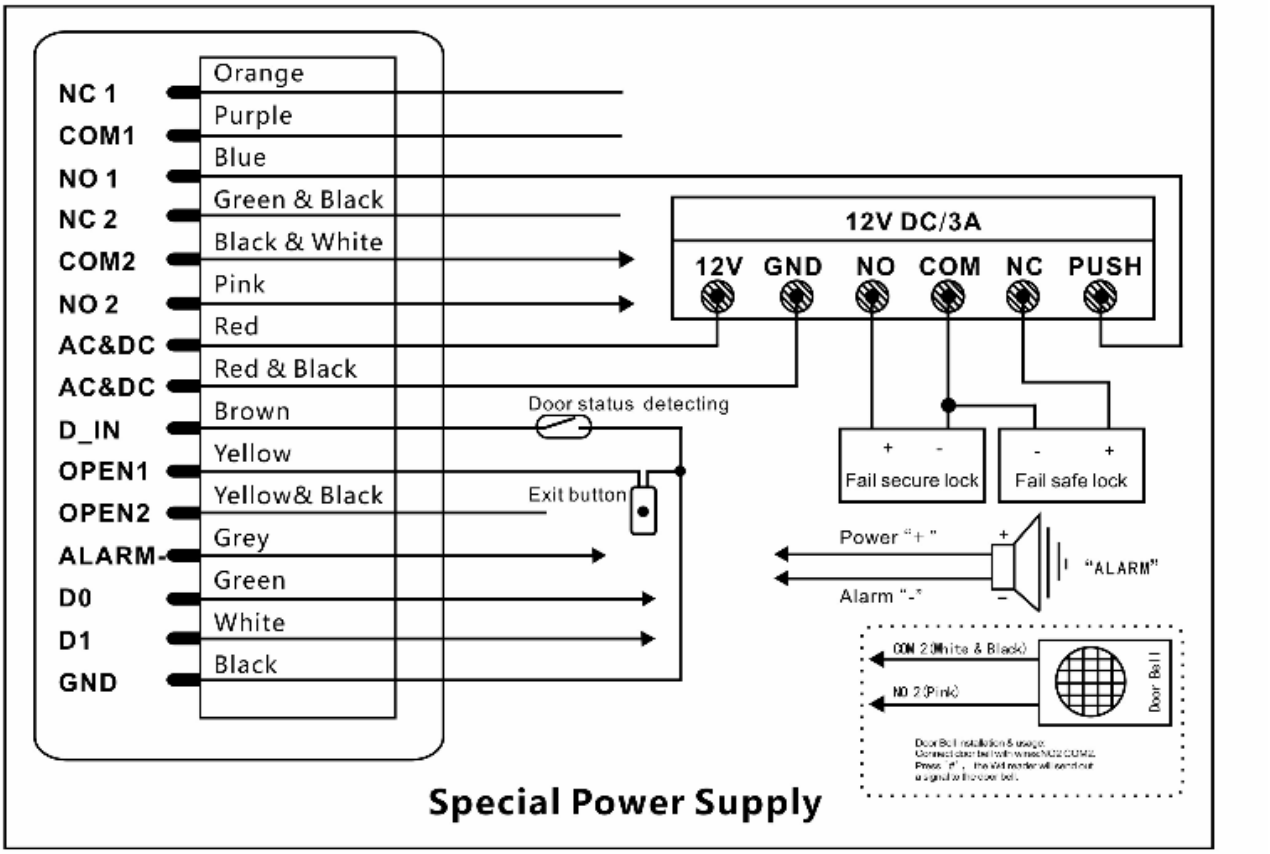


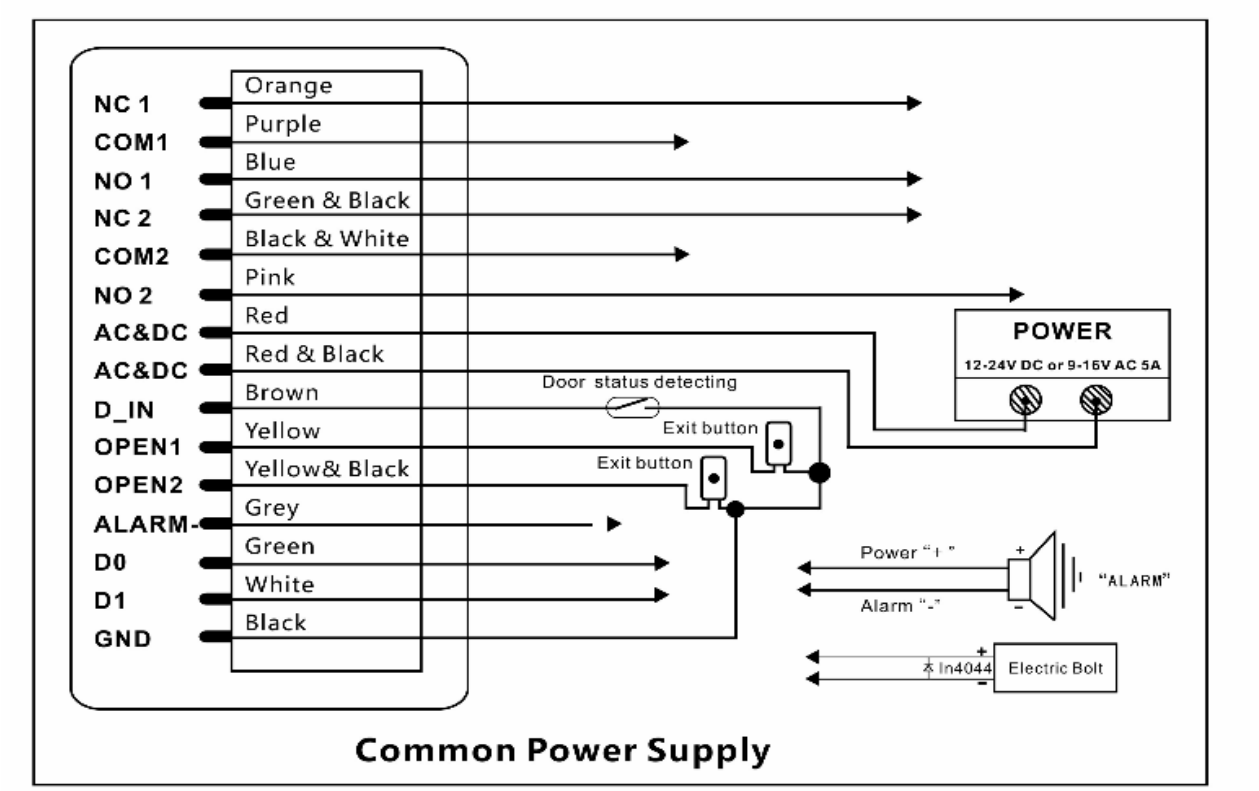
PCB connect diagram

6. Wiring

Color	Function	Description
Orange	NC1	Relay1 NC
Purple	COM1	Relay1 COM
Blue	NO1	Relay1 NO
Green & Black	NC 2	Relay2 NC
Black & White	COM2	Relay2 COM
Pink	NO2	Relay2 NO
Red	AC&DC	12~24V DC or 9～16V AC Regulated Power Input
Red & Black	AC&DC	12~24V DC or 9～16V AC Regulated Power Input
Brown	D_IN	Door Contact
Yellow	OPEN1	Request to Exit Button of Zone 1
Yellow& Black	OPEN2	Request to Exit Button of Zone 2
Grey	Alarm -	Alarm Negative
White	D1	Wiegand Input/Output D1
Green	D0	Wiegand Input/Output D0
Black	GND	Negative pole

Connection Diagram





Remarks: the Zone 2, it can be used to operate the door bell when no need to operate a second door. The wiring is connecting the door bell to NO2 and COM2. Press #, the reader will send out a switching signal to the door bell, as long as you press the" #", the door bell will continuous operate, it will stop until you release the "#"

Connect the negative pole of the lock to NC is for Fail–safe lock.
Connect the negative pole of the lock to NO is for Fail-secure lock.

7. Relay operation (Pulse mode and Toggle mode)

Both of the two relays on board operate in Pulse Mode (suitable for access control) or Toggle Mode (suitable for arming/disarming alarms, switching lights, machines….etc)

Every time a valid tag/card or PIN is read/input in Pulse Mode, the relay will operate, for the pre-set relay pulse time.

Every time a valid tag/card or PIN is read/input in Toggle Mode, the relay changes state, which will not turn back until read card or input PIN again.

8. To Reset to Factory Default

To reset to factory default, power off, press [*] , hold it and power on, release it until hear two beeps and the LED shines in orange, then read any two EM or HID cards, the LED will turn in red, means reset to factory default setting successfully. Of the two cards read, the first one is Manager Add Card, the second one is Manager Delete Card.
Remarks: Reset to factory default, the user's information is still retained.

9. Anti Tamper Alarm

The W4 uses a LDR (light dependent resistor) as an anti tamper alarm. If the keypad is removed from the cover then the tamper alarm will operate.

10. Sound and Light indication

Operation Status	Red Light	Green Light	Blue Light	Buzzer
Zone 1, unlock	-	Bright	-	Short Ring
Zone 2, unlock	-	-	Bright	Short Ring
Power on	Bright	-		Long Ring
Stand by	Shines slowly	Off	-	-
Press keypad	-	-	-	Short Ring
Operation successful	-	Bright	-	Long Ring
Operation failed	-	-	-	3 Short Rings
Enter into programming mode	Bright	off	-	Long Ring
In the programming mode	Bright	Bright	-	-
Exit from the programming mode	Shines slowly	-	-	Long Ring
Alarm	Shines quickly	-	-	Alarm

11. W4 Detailed Programming Guide

11.1 User Settings

To enter the programming mode	* Master code # 888888 is the default factory master code
To exit from the programming mode	*
Note that to undertake the following programming the master user must be logged in	
To change the master code	0 New code # New code # The master code is any 6 digits
Setting the working mode:	
Set valid **card or PIN** users	3 1 2 #, Zone 1 3 2 2 #, Zone 2 Entry by **card or PIN(Factory default setting)**
Set valid **card and PIN** users	3 1 1 #, Zone 1 3 2 1 #, Zone 2 Entry by **Card and PIN** together
Set valid **card ONLY**	3 1 0 #, Zone 1 3 2 0 #, Zone 2 Entry by **Card only**
Note: When adding users, if the Card or PIN user has been enrolled already, you can not add it again to the same zone, or the device will give a bleep as error. But it is ok to enroll the same card or PIN for the zone 1 and zone 2.	

Card or PIN Mode - Factory default setting (3 1 2 # for **Zone 1** or 3 2 2 # for **Zone 2**)	
To add **PIN** users	1 1 User ID number # PIN # **Zone 1**: User ID: 1-2000 1 2 User ID number # PIN # **Zone 2**: User ID: 2001-2100 The PIN is any 4~8 digits between 0000~99999999 with the exception of 1234 which is reserved. Users can be added continuously without exiting programming mode as follows: 1 1 User ID number 1 # PIN# User ID number 2 # PIN # **Zone 1** 1 2 User ID number 1 # PIN# User ID number 2 # PIN # **Zone 2**
To delete **PIN** users	2 0 User ID number # Users can be deleted continuously without exiting programming mode
To change the **PIN** of a PIN user ***(This step must be done out of programming mode)***	* User ID number # Old PIN # New PIN # New PIN #
To add a **card** user (Method 1) This is the fastest way to enter cards using ID number auto generation.	1 1 Read card # **Zone 1** 1 2 Read card # **Zone 2** Cards can be added continuously without exiting programming mode
To add a **card** user (Method 2) This is the alternative way to enter cards using User ID Allocation. In this method a User ID is allocated to a card. Only one user ID can be allocated to a single card.	1 1 User ID number # Read Card # **Zone 1** (User ID: 1-2000) 1 2 User ID number # Read Card # **Zone 2** (User ID: 2001-2100)
To add **card** user (Method 3) Add a **series cards** users – **Block Enrollment** The card number must be consecutive. (This operation is only for Zone 1)	1 0 User ID number # Card number # Card quantity # Card quantity is between 1-2000. Card number must be 8 digits or 10 digits
To delete a **card** user by card **Note:** Users can be deleted continuously without exiting from programming mode	2 0 Read Card # The devices can automatically identify the card of Zone 1 or Zone 2
To delete a **card** user by user ID This option can be used when a user has lost	2 0 User ID number #

their card	
To delete a card user by Card number	2 0 Card number # Users can be deleted continuously without exiting from programming mode
Card and PIN mode (3 1 1 # for **Zone 1** or 3 2 1 # for **Zone 2**)	
To Add a **card** and **PIN** user (The PIN is any 4~8 digits between 0000 & 99999999 with the exception of 1234 which is reserved.)	Add the card as for a card user Press * to **exit from the programming mode** Then allocate the card a PIN as follows: * Read card 1234 # PIN # PIN #
To change a **PIN** in card and PIN mode (Method 1) Note that this is done outside programming mode so the user can undertake this themselves	* Read Card Old PIN # New PIN # New PIN #
To change a **PIN** in card and PIN mode (Method 2) Note that this is done outside programming mode so the user can undertake this themselves	* User ID number # Old PIN # New PIN # New PIN #
To delete a **Card and PIN** user just delete the card	2 0 Read Card # or 2 0 User ID number #
Card ONLY mode (3 1 0 # for **Zone 1** or 3 2 0 # for **Zone 2**)	
To Add and Delete a **card** user	The operating is the same as adding and deleting a card user in ***Card or PIN Mode***

To delete **All users**	
To delete **All users** Note that this is a **dangerous** option so use with care	2 0 0000 # Delete ALL users 2 1 0000 # Delete ALL users of Zone 1 2 2 0000 # Delete ALL users of Zone 2

To set card users by Manager card(This operation is only for Zone 1)	
To add Card User by Manager Add Card	Manager add card Read user card Manager add card Cards can be added continuously.
To delete Card User by Manager Delete Card	Manager delete card Read user card Manager delete card Cards can be deleted continuously.

To unlock the door	
For a **PIN** user	Enter the PIN then press #
For a **card** User	Read card
For a **card and PIN** user	Read card then enter PIN #

11.2 Relay Setting (Pulse mode, Toggle mode)

Pulse mode (Factory default)	
Pulse mode (Door relay time setting)	4 1 1~99 # Zone 1 4 2 1~99 # Zone 2 The door relay time is between 1~99 seconds, the factory default setting is 5 seconds.
Toggle mode	
Toggle mode	4 1 0 # Zone 1 4 2 0 # Zone 2

12.2 Door Detecting, Alarm, Sound and Light Settings

Door Open Detection *Door Open Too Long (DOTL) warning*. When used 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 and continue for 1 minute before switching off automatically. *Door Forced Open warning.* When used with an optional magnetic contact or built-in magnetic contact of the lock, if the door is opened by force, or if the door is opened after 20 seconds of the electro-mechanical lock not closed properly, the inside buzzer and alarm output will both operate. The Alarm Output time is adjustable between 0~3 minutes with the default being 1 minute.	
Alarm output time	
To set the alarm output time (0~3 minutes)	5 0~3 # Factory default is 1 minute
Door open detection setting	
To disable door open detection (Factory default)	6 0 #
To enable door open detection	6 1 #
Keypad Lockout & Alarm Output options. If there are 10 invalid cards or 10 incorrect PIN numbers in a 10 minute period either the keypad will lockout for 10 minutes or the alarm will operate for 0~3 minutes, depending on the option selected below.	
Normal status: No keypad lockout or alarm	7 0 # (Factory default)

(factory default)	
Keypad Lockout	7 1 #
Alarm Output	7 2 #
Light and Sound Setting	
To set keypad backlight	8 1 0 # To disable keypad backlight 8 1 1 # To enable keypad backlight (Factory default)
To set LED	8 2 0 # To disable the RED Led 8 2 1 # To enable the RED Led (Factory default)
*To set **Acoustic Signal*** The acoustic signal can be set on or off. When on, the device will give the voice when press the keys; when off, the device will be in silent.	8 3 0 # To disable the keypad tone 8 3 1 # To enable the keypad tone (Factory default)
Change Zone 2 to Door Bell (When no need to operate a second door, Zone 2 can be set to operate the Door Bell. The wiring is connecting the door bell to COM2 and NO2. Press #, the keypad will send the signal to the door bell.	
Zone 2	8 4 0 # Factory default.
Door bell	8 4 1 #
To remove the alarm	
To reset the Door Forced Open warning	Read valid card **or** Master Code #
To reset the Door Open Too Long warning	Close the door **or** Read valid card **or** Master Code #

13 Duress User Settings

There are 10 groups Duress PIN/card available. When input Duress PIN/card, the door will open, at the same time, the output alarm operates.	
To set Duress PIN User	
To add a PIN user	1 3 user ID number # PIN #
To delete a PIN user	As the same method of deleting common PIN user (The ID number is any number between 2101~2110.)
To set Duress card user	
To add a card user by read card	1 3 user ID number # Card # (The ID number is any number between 2101~2010.)
To delete a card user	As the same method of deleting common card user
To delete **All *Duress* users** Note that this is a **dangerous** option so use with care	2 3 0000 #

Note:
① User ID number must be any 4digits between 2101 ~ 2110
② Duress PIN/card must be unique, should be distinguished from common PIN/card (When the Duress PIN/card is the same with common PIN/card, they will become invalid in Duress, and worked as common user function)

14 Wiegand Mode Setting

W4 supports Wiegand 26~37, both input and output. It can be used as a reader or controller.	
To Set Wiegand format:	9 26~37 # **(Default setting: Wiegand 26)**

15 Interconnecting Two Devices

15.1 W4 operating as a Wiegand Output Reader

In this mode the W4 supports a Wiegand 26~37 bit output so the Wiegand data lines can be connected to any controller which supports a Wiegand 26~37 bit input. See figure 1.

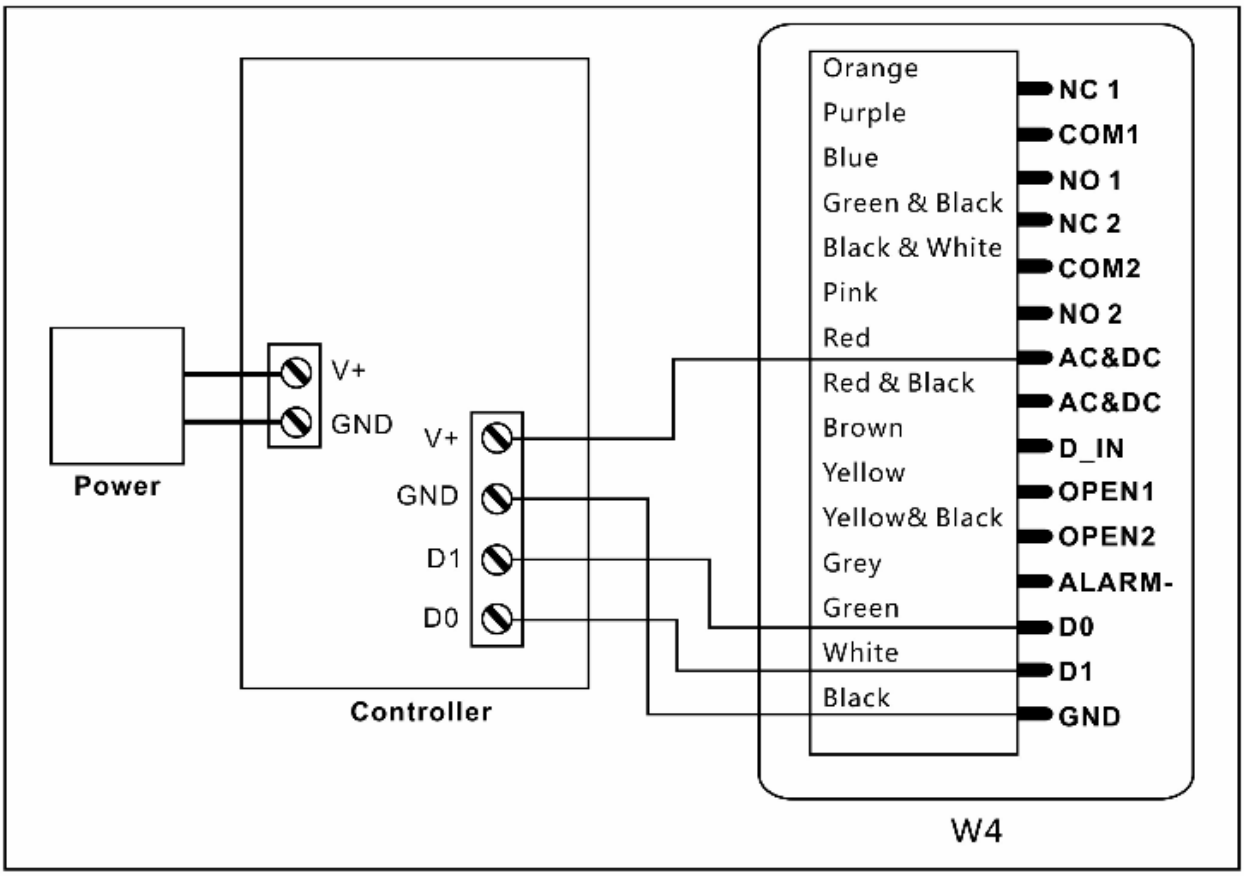


Figure 1

Transmission Format:

◆ **1: Keypad Transmission**

The Reader will transmit the PIN data when it receives the last key (#) press after PIN code.

Format: PIN Code (any 4~8 digits between 0000 ~ 99999999)
Example: PIN code: 111111
Press 111111 #, then the output format will be: 0000111111
(Note: if press an invalid PIN (any 4~8 digits), the data will be also transmitted.)

◆ **2: Proximity Card Transmission**
The Reader will transmit the card data when it reads the Card.

Format: Card Number
(Note: no matter the card is valid or invalid, the data will be transmitted)

15.2 W4 operating as a Controller

In this mode the W4 supports a Wiegand 26~37 bit input so an external Wiegand device with a 26~37 bit output can be connected to the Wiegand input terminals on the W4. Either an ID card reader (125 KHz) or an IC card reader (13.56MHz) can be connected to the W4. See figure 2.

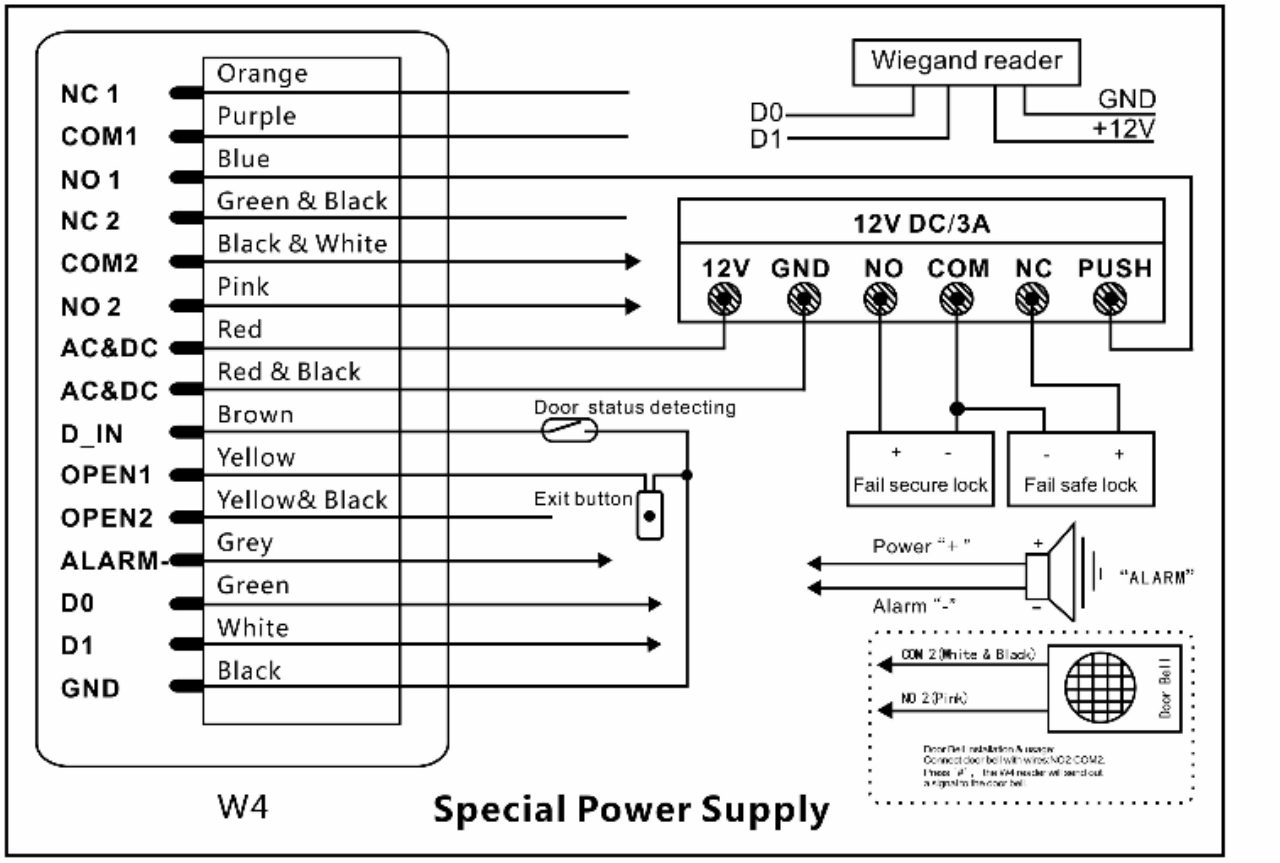


Figure 2

W4 Quick Reference Programming Guide

To enter the programming mode	* Master code # 888888 is the default factory master code
To exit from the programming mode	*
Note that to undertake the following programming the master user must be logged in	
To change the master code	0 New code # New code # The master code can be 6 digits long
To add a **PIN** user	1 1 User ID number # PIN # **Zone 1** (User ID: 1-2000) 1 2 User ID number # PIN # **Zone 2** (User ID: 2001-2100) The PIN is any 4~8 digits between 0000 ~ 99999999 with the exception of 1234 which is reserved. Users can be added continuously without exiting programming mode
To add a **Card** user	1 1 Read card # **Zone 1** 1 2 Read card # **Zone 2** Cards can be added continuously without exiting from programming mode
To delete a **PIN** or a **Card** user	2 0 User ID number # for a PIN user or 2 0 Read Card # for a card user
To unlock the door	
To unlock the door for a PIN user	Enter the PIN then press #
To unlock the door for a card user	Present the card