CAMDEN
DOOR CONTROLS

inVISION

CV-550SPK V2
Waterproof Keypad/Reader/Controller
Installation Instructions

Packing List

NAME	MODEL/SIZE	QTY
Self tapping screw	0.15" x 1.06" (4mm × 27 mm)	2
Rubber plug	0.23" x 1.2" (6mm × 30 mm)	2
Star screw driver	0.78" x 2.4" (20mm × 60mm)	1
Two-electrode valve	1N4007	1

1. Description

The CV-550SPK is a single door multifunction standalone access control keypad with a Wiegand input/output interface. It is suitable for mounting either indoors or outdoors in harsh environments. It is housed in a strong, sturdy and vandal proof Zinc Alloy electroplated case. The electronics are fully potted so the CV-550SPK is waterproof and conforms to IP68.

The CV-550SPK supports up to 2000 users in either a Card, 4~6 digit PIN, or a Card + PIN option. The built-in card reader supports 125KHZ HID 26, 34 or 37 bit cards/tags. The CV-550SPK has many extra features including block enrollment, Wiegand 26 bit interface, and backlit keypad.

These features make CV-550SPK an ideal choice for door access for commercial and industrial applications such as factories, offices, warehouses, laboratories, banks and prisons.
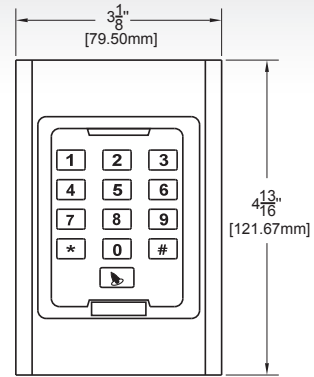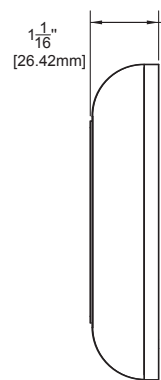
2. Features

- Waterproof, conforms to IP68
- Strong Zinc Alloy Electroplated anti-vandal case
- Full programming from the keypad
- 2,000 users, supports Card, PIN, Card + PIN
- Can be used as a stand alone keypad, Pin length 4~6 digits
- Backlit keypad
- Wiegand input & output
- One programmable Relay output, NO, NC, COM
- Adjustable Door Output time, Alarm time, Door Open time
- Block enrollment, can enroll maximum 2000 consecutive cards within 2 minutes
- Very low power consumption (< 60mA)
- Easy to install and program
- Built in light dependent resistor (LDR) for anti-tamper
- Built in buzzer
- Red, Yellow and Green LEDs display the working status
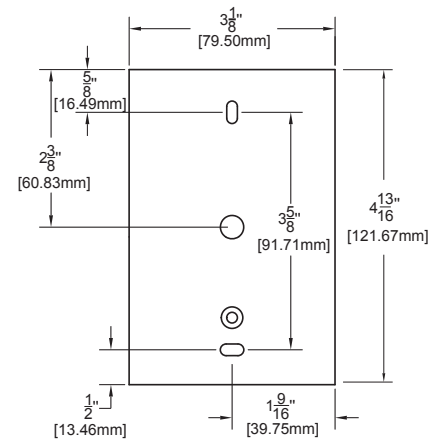- 12 VDC +/- 10%.
- Three-year warranty

3. Specifications

Input voltage	12 VDC +/- 10%
IP rating	68
Idle current	25mA
Contact type	(1) Form 'C'
Contact rating	1 Amp@30VDC
Alarm output load	1 Amp@30VDC
Ring bell load	1 Amp@30VDC
Card read distance	1.75" (40Mm) Max
Card frequency	125KHz, EM and HID
Card format	26, 34 and 37 bit Wiegand
Keypad format	4bit, 8 bit and Virtual card number
Operating temperature	-49°F to 113°F (-45°C to 55°C)
Dimensions	4 13/16"H x 3 1/8" W x 1 1/16" 121.67mm x 79.50 mm x 26.42mm

FRONT VIEW

SIDE VIEW

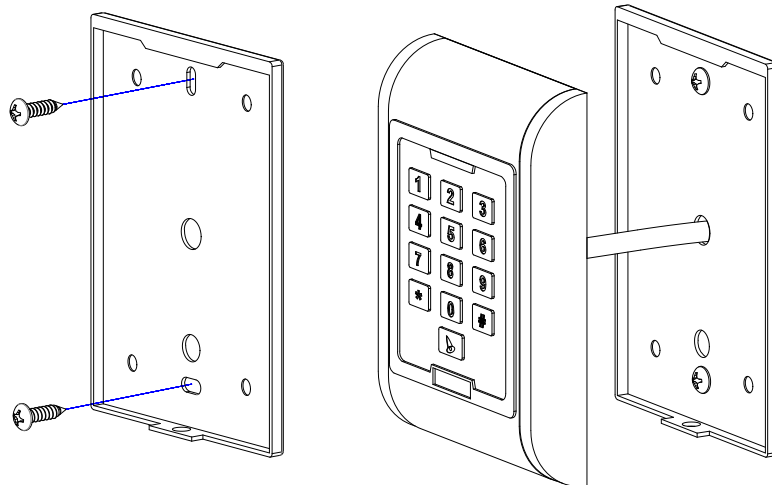**BACK VIEW**

4. Installation

- Remove the back cover from the keypad using the supplied special screw driver
- Drill 2 holes on the wall for the Self tapping screws and 1 hole for the cable
- Put the supplied rubber bungs to into the two holes

- 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.

5. Wiring

NO.	MARKS	COLOR	DESCRIPTION
1	BELL_A	Pink	Doorbell button
2	BELL_B	Pink	Doorbell button
3	D0	Green	Wiegand output D0
4	D1	White	Wiegand output D1
5	ALARM	Gray	Alarm
6	OPEN	Yellow	Request to Open (BUZ)
7	D_IN	Brown	Door Contact (LED)
8	DC	Red	Power IN
9	GND	Black	Ground
10	NO	Blue	Relay NO
11	COM	Purple	Relay Com
12	NC	Orange	Relay NC

6. Sound and Light Indication

OPERATION	LED COLOR	BUZZER
Standby	Red Flash	
Press Key		Di-
Read Card	Green	Di-
Door 1 Open	Green	Di-
Door 2 Open	Green Flash	Di-
Operation Successful	Green	Di-
Operation Failed		Di-Di-Di-
PIN Inputting	Red	
Card & Pin Reading	Red	
Multi Card Reading	Red	
Under Menu	Red	
Under Setting	Orange	
Manager Card Enter	Orange	Di-Di-
Manager Card Exit	Red Flash	Di-
Alarm	Red Quick Flash	Alarm

7. Quick Programming Guide

7.1 Administrator Setting

STANDBY	MASTER CODE	MENU	SETTING	REMARKS	FUNCTIONS
Red Flash	Red	Red	Orange		
*	Master Code #	00	New master code# Repeat new master code # (Note: Code length: 6-8 digits)	Factory default:999999	Change the master code
		01	Read Manager Add Card	Default	Set Manager Add Card
		02	Read Manager Delete Card		Set Manager Delete Card
		03	Read Anti-duress card		Anti-duress card
		05	Anti-duress PIN#		Anti-duress PIN
		07	000#		Delete All Users
		51		Master open	

7.2 User Setting

STANDBY	MASTER CODE	MENU	SETTING	REMARKS	FUNCTIONS
Red Flash	Red	Red	Orange		
*	Master Code #	11	Red card	Users can be added continuously without exiting programming mode	To add card users
			User ID number# read card		
			Card number#		
			ID number# card number#		
			User ID number# PIN#		To add PIN users
		12	Read card	Users can be deleted continuously without exiting programming mode	To delete users
			User ID number#		
			Card number#		
		13	0#	Default 2	Entry by card
			1#		Entry by card+PIN
			2#		Entry by either card or PIN
		14	0-99#	Default 5	Set door relay time
		15	0#	Default 0	Relay Setting-Pulse mode
			1#		Relay Setting-Toggle mode
		16	1-10#	Default 1	To set open door by multi cards
		17	User ID number#, card number#, card quantity #	Card number= FC+card ID Max FC= 255, Max ID = 65535	To add a series cards users

7.3 System Setting

STANDBY	MASTER CODE	MENU	SETTING	REMARKS	FUNCTIONS
Red Flash	Red	Red	Orange		
*	Master Code #	30	0-15#	Default 0	To set facility code
		31	0#	This setting is not affected by resetting to factory default.	Wiegand reader
			1#		Standalone for single door
			2#		
			3#		
			4#		
			5#		Anti-passback for single door
			6#		
		32	26, 34 or 37#	Default 26	To set Wiegand format
		33	0-2#	This setting is not affected by resetting to factory default.	To set keypad transmission format 0 = 26 bit weigand 1 = 4 bit burst 2 = 8 bit burst
		34	1-3#	Default 1	To set alarm time in minutes
		35	0#	Default 0	Normal mode
			1#		Lock out mode
			2#		Alarm mode

7.4 User Optional Setting

STANDBY	MASTER CODE	MENU	SETTING	REMARKS	FUNCTIONS
Red Flash	Red	Red	Orange		
*	Master Code #	41	0#		Buzzer is turned off, except while in programming mode
			1#	Default 1	Buzzer will sound during key presses
		42	0#		Disable keypad backlighting
			1#		Enable keypad backlighting
			2#	Default 2	Automatic mode, normally it is off (stand-by mode) but will illuminate when the key is pressed
		43	0#		LED Light Disable while in stand-by
			1#	Default 1	LED flashes while in stand-by

Notes:

1. Master code must be 6-8 digits.
2. Anti-duress PIN must be 8 digits.
3. User PIN is 4-6 digits.
4. The user ID number is any number from 1-2000.
5. Card number must be 8 or 10 digits, if the card number is less than 8 or 10 digits, enter 0 before the card number.
6. Door open time is 0-99 second, 0=50mS.
7. While operating the keypad, pressing # means to confirm the input digits, in operation of a cycle adding or deleting cards, pressing # means to end the cycle operation and back up the operation; pressing * means to exit the operation.

8. When block enrolling cards, the facility code and the card ID are entered as one number. The facility code is from 1 – 255 and the card ID is from 0-65,535. For example, if our facility code is 45 and your card ID is 56987, you would enter 04556987 as your first card number. The system will automatically increment the card ID by 1 for every entry until the total number of cards in the block are entered. The maximum number of cards to block enroll is 2,000.
9. Keypad/Reader Wiegand modes are set at the factory to 26 bit. If the output format is changed through programming, the changes are not affected by a reset to factory defaults.

8. Administrator Setting

8.1 ADMINISTRATOR SETTING	
Administrator setting on keypad	Press * Master code # factory default:999999
Change the master code	Press 00 new code # repeat new master code#
Note: Master Code length: 6~8 digits	
8.2 SET MANAGER CARD	
Set manager add card	Press 01 read manager add card
Set manager delete card	Press 02 read manager delete card
Note: When adding the new manager card, the new one will automatically cover the old card, only one manager card for one device.	
8.3 SET ANTI-DURESS CARD	
Set anti-duress card for Zone 1	Press 03 read anti-duress card (Zone 1)
Set anti-duress card for Zone 2 (not available)	Press 04 read anti-duress card (Zone 2)
Note: When adding the new anti-duress card, the new one will automatically replace the old card, only one anti-duress card per one device.	
8.4 SET ANTI-DURESS PIN	
Set anti-duress PIN	Press 05 8-digit duress PIN# (Zone 1)
8.5 DELETE ALL USERS	
Delete all users	Press 07 0000 #

8.6 ACTIVATE THE LOCK OUTPUT WHILE IN PROGRAMMING MODE	
Activate the lock output while in programming Mode	Press * Master code # factory default: 999999,
	Press 51

Note: The relay will operate for the relay on time.

8.7 USERS SETTING FOR ZONE 1	
Read card to add user	Press 11 read card # read card...#
Use ID Number and read card to add user	Press 11 ID number # read card...ID number # read card... #
Use card number	Press 11 card number #...card number#...#

Note: 1. Card number must be 8 or 10 digits, if the card number is less than 8 or 10 digits, input 0 before the card number. 2. Automatically increases, the user ID will be generated by the machine automatically, the range is 1 ~ 2000, and   automatically search from 1 to 2000.

Use ID number and card number to add user	Press 11 ID number # 8-digit card number #... ID number # 8-digit card number #...#

Note: ID number is 1~4 digits, the range is 1~2000, 1, 01, 001, 0001, all these mean ID number 1.

Use ID number and PIN to add user	Press 11 ID number# PIN #...ID number #PIN #...#

Note: The PIN is any 4-6 digits, except 1234 which is reserved.

8.8 DELETE USER	
Read card to delete user	Press 12 read card read card... #
Use ID number to delete user	Press 12 ID number # ID number #...#
Use card number to delete user	Press 12 card number # card number #...#
Delete all users	Press 07 0000 #

8.9 SET OPENING DOOR MODE	
Entry is by card only	Press 13 0 #
Entry is by card and PIN together	Press 13 1 #
Entry is by card or PIN (factory default)	Press 13 2 #

8.10 SET DOOR RELAY TIME	
Set door relay time	Press 14 0~99 #

Note: 0~99 is to set the door delay time 0-99 seconds, factory default is 5 seconds

8.11 SET RELAY MODE	
Relay setting -pulse mode	Press 15 0 #
Relay setting-toggle mode	Press 15 1 #

8.12 SET OPENING DOOR BY MULTI CARDS	
Set opening door by multi cards	Press 16 card quantity #

Note: The door will be opened only after reading all the valid cards up to the card quantity setting. It is only for card entry mode (Factory default setting :1)

8.13 ADD A SERIES CONSECUTIVE CARDS USERS	
Add a series consecutive cards users	Press 17 ID number # card number # card quantity #

When block enrolling cards, the facility code and the card ID are entered as one number. The facility code is from 1 – 255 and the card ID is from 0-65,535. For example, if our facility code is 45 and your card ID is 56987, you would enter 04556987 as your first card number. The system will automatically increment the card ID by 1 for every entry until the total number of cards in the block are entered. The maximum number of cards to block enroll is 2,000.

8.14 SYSTEM SETTING	
To set facility code	Press 30 0~15 #

Note: code should be 0~15, factory default setting :0

Wiegand Reader	Press 31 0 #
Stand alone for single door (Factory default setting)	Press 31 1 #

8.15 TO SET WIEGAND FORMAT	
To set Wiegand format	Press 32 26 34 37 #

Note: factory default setting: 26

8.16 SETTING KEYPAD TRANSMISSION FORMAT	
Setting keypad transmission format	Press 33 0~2 #

Note: Keypad transmission format is 0 1 2, factory default is 0; not affected by resetting to factory default.

8.17 SETTING ALARM TIME	
Setting alarm time	Press 34 1~3 #

Note: Factory default is 1 minute; not affected by resetting to factory default.

8.18 SETTING SAFE MODE	
Normal mode (factory default)	Press 35 0 #
Lock out mode	Press 35 1 #
If an invalid card or wrong PIN is input 10 times in 10 minutes, uses will be locked out 10 minutes	
Alarm mode	Press 35 2 #
If an invalid card or wrong PIN is input 10 times in 10 minutes, external alarm and built-in buzzer will sound.	
8.19.1 USER OPTIONAL SETTING	
Setting keypad tone OFF or ON	Press 41 0 # OFF
	Press 41 1 # ON (Default)
8.19.2 SETTING KEYPAD BACKLIGHT	
Disable keypad backlight	Press 42 0 #
Enable keypad backlight	Press 42 1 #
Automatic mode (factory default setting)	Press 42 2 # Keypad will illuminate when a key is pressed
8.20.3 SETTING LED LIGHT (STANDBY STATUS)	
Disable LED light	Press 43 0 #
Flash LED light (factory default setting)	Press 43 1 #

Manager Card Operation

8.21 Add user
- Read Manager Add Card, read user cards continuously, read Manager Add card again.

8.22 Delete user
- Read Manager Delete Card, read user cards continuously, read Manager Delete card again.

9. User Operation

9.1 Entry by card mode, set multi cards to open door when card quantity is 1
- Read user card, lock will be unlocked

9.2 Entry by card mode, set multi cards to open door when card quantity is 2-10
- Read these cards one by one, present each card in 5 seconds, lock will be unlocked

9.3 Entry by card and PIN
- Present card, then press PIN (4 to 6 digits), #, lock will be unlocked

9.4 Entry by card or PIN mode
- Present card, lock will be unlocked
- Or Press PIN (4 to 6 digits), #, lock will be unlocked

9.5 Relay mode
- Relay setting -pulse mode
- Every time a valid card/tag read or PIN input, the relay will operate, for the pre-set relay pulse time.
- Relay setting-toggle mode
- Every time a valid card/tag read or PIN input, the relay changes state, which will not turn back until read card/tag or input PIN again

9.6 Modify User PIN (no need enter programming mode)
- *, read user card, press old PIN, #, new PIN # new PIN #
- Or *, press ID number # old PIN# new PIN # new PIN #

10. Alarm Function

10.1 Anti-Tamper Alarm
- If the device is disassembled illegally, the buzzer and the external alarm will operate.

10.2 Door Contact Alarm
- When connected with door contact: if the door is opened illegally, the buzzer and the external alarm will operate.

10.3 The Anti-Duress Alarm
- Preset the anti-duress card/input 8-digit anti duress PIN and press #.

- The corresponding lock will open, at the same time, the external alarm will operate, but the device buzzer will not operate.

10.4 Remove Alarm
- Read valid user card, manager card or input master code, then alarm will be removed. The alarm will time out automatically after 1 min.

11. Multi Working Mode

There are 3 working modes with this device.

1. Wiegand Reader

2. Standalone for single door

3. Anti-passback for single door

The factory default is Standalone for single door (we can change the default model according to customer order). User can modify the working mode, when the device reset to factory default, the setting is still valid.

11.1 Wiegand Reader Mode
In this mode, the access control works as reader, connected with the common access controller, it has following function:

- Modify master pin

- Set facility code

- Set the card transmission format

- Set the keypad transmission format

- Set optional setting

- Anti-Tamper alarm

When LED level is low, indicator light (LED) will turn into green, after 30 seconds or LED level rising, LED will back to normal.

When BZ level is low, the buzzer will beep, after 30 seconds or BZ level rising, the buzzer will back to normal.

When it used as the reader, both card number and keypad transmits in Wiegand format, the output data are shown by the low level of DO&D1 wire:

D0: Low level means 0, green wire

D1: Low level means 1, white wire

The Pulse width of low level is 100uS, bit period is 1.6mS

The digits of card number can be set to 26-37 bit, should be matched with the controller. (Factory default is 26Bit)

Keypad transmission can be set in the following 3 modes (modes can be set by user)

Model 0: Virtual Card Number

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

Format: Decimal card number with 10 digits, Facility code (1st~4th digit)+PIN Code (5th-10th digit)

Facility code is any digits between 0~15, PIN code is 4~6 digits

Example: facility code: 15
PIN code: 9999
Press 9999 #, then output format will be: 0015009999
PIN code: 999999
Press 999999#, then output format will be 0015999999

Model 1: 4 Bit

The output data is provided in following format after every key is pressed:

KEY	OUTPUT IN HEX	OUTPUT IN BINARY
0	0	0000
1	1	0001
2	2	0010
3	3	0011
4	4	0100
5	5	0101
6	6	0110
7	7	0111
8	8	1000
9	9	1001
*	A	1010
#	B	1011

Model 2: 8 Bit

The output data is transmitted in following format after every key is pressed:

KEY	OUTPUT IN HEX	OUTPUT IN BINARY
0	0	11110000
1	1	11100001
2	2	11010010
3	3	11000011
4	4	10110100
5	5	10100101
6	6	10010110
7	7	10000111
8	8	01111000
9	9	01101001
*	A	01011010
#	B	01001011

11.2 Stand alone for single door

In this mode, the device supports connecting external card reader for exiting door. The users of Zone 1 or external can open the door by valid card of PIN.
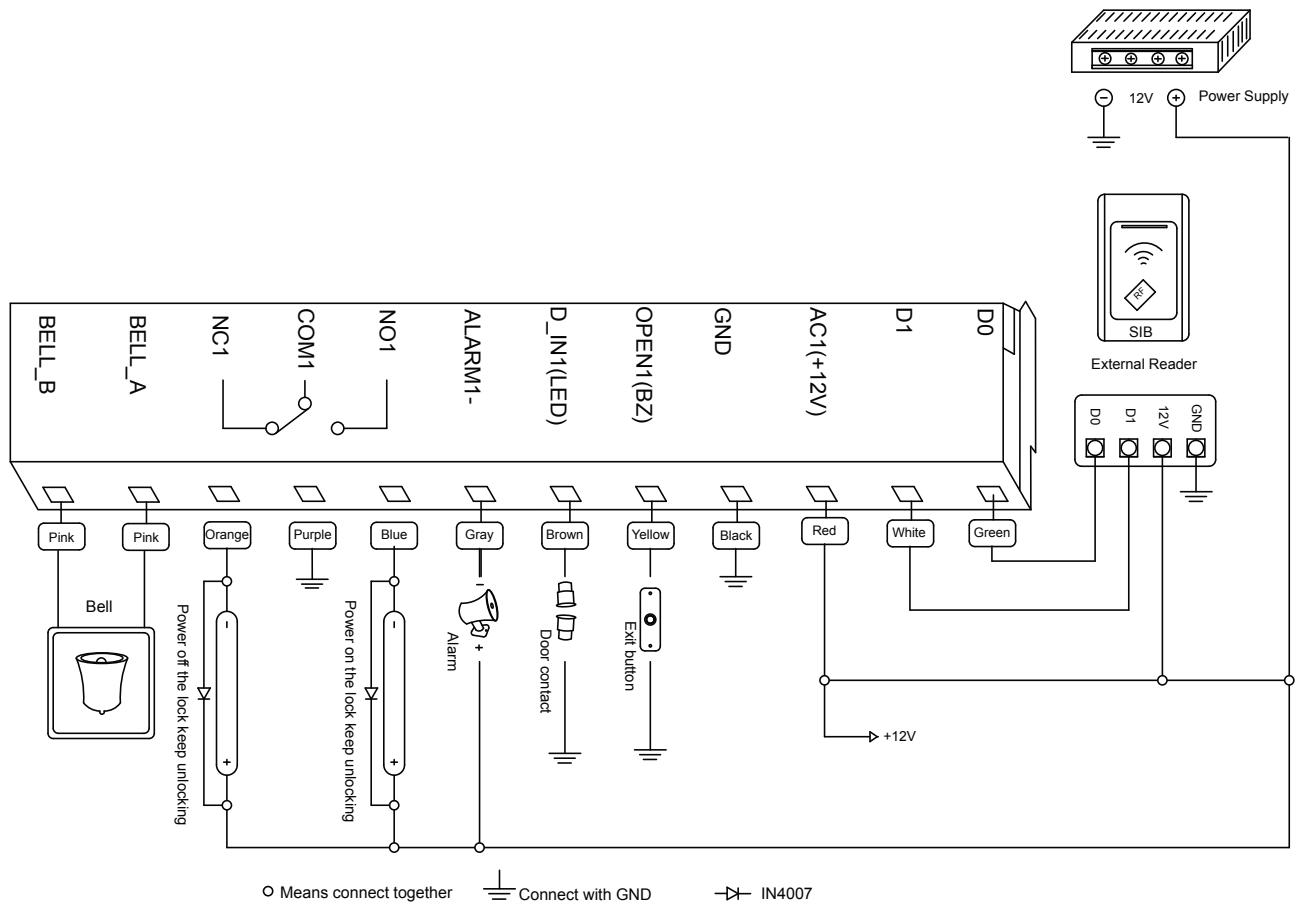
11.3 Anti-passback for single door

In this mode, this unit install outside is for entering door, external reader inside for exiting door, the users can only enter door when read valid card on the machine, and exit from the inside external reader. If without the entering record from the machine, the users can not exit from the inside reader, also the Users can't enter in twice without the first exit record.

Remark: this is only for card users of Zone 1,PIN users of Zone 1 an all users of Zone 1 are invalid.
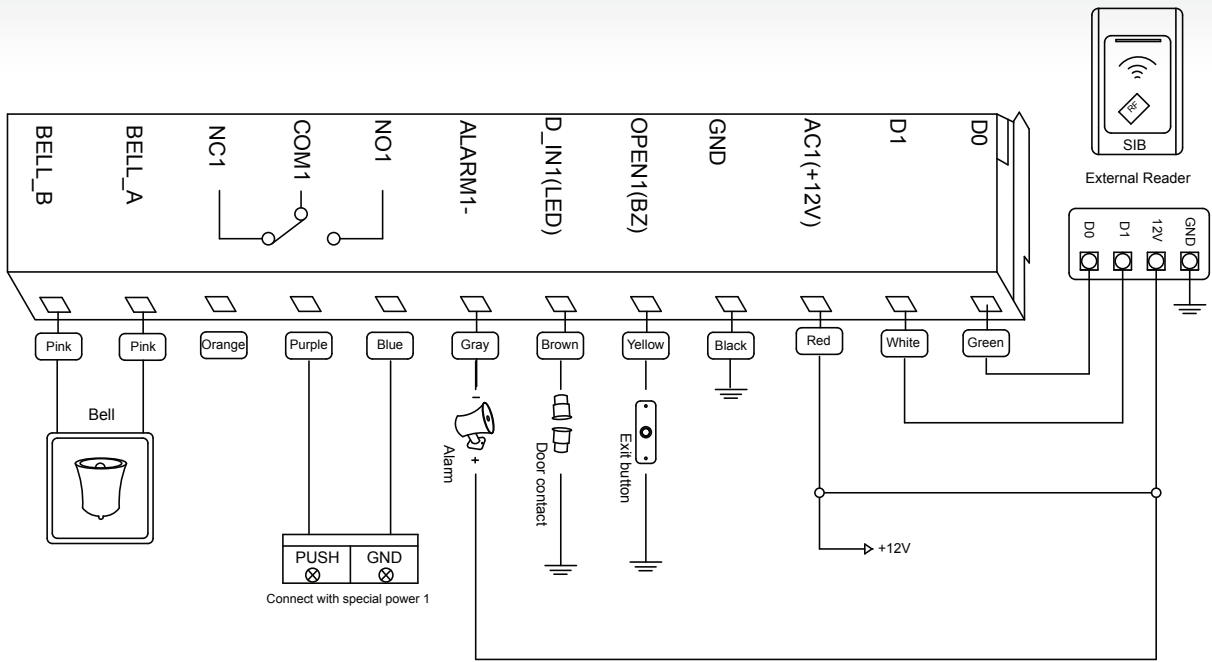
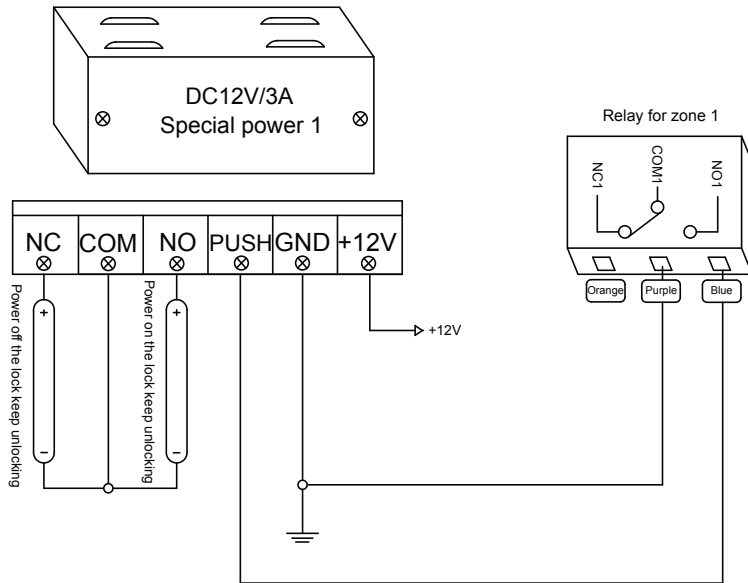# 12. Diagrams for Working Modes

DC12V common power

Mode Standalone for single door diagram

Mode Anti-passback for single door diagram

BELL_B | BELL_A | NC1 | COM1 | NO1 | ALARM1- | D_IN1(LED) | OPEN1(BZ) | GND | AC1(+12V) | D1 | D0

Pink | Pink | Orange | Purple | Blue | Gray | Brown | Yellow | Black | Red | White | Green

External Reader

SIB

D0 | D1 | 12V | GND

Bell

Alarm

Door contact

Exit button

PUSH | GND

Connect with special power 1

+12V

O Means connect together   ⏚ Connect with GND   ▷⊢ IN4007

DC12V/3A
Special power 1

Relay for zone 1

NC1 | COM1 | NO1

Orange | Purple | Blue

NC | COM | NO | PUSH | GND | +12V

Power off the lock keep unlocking
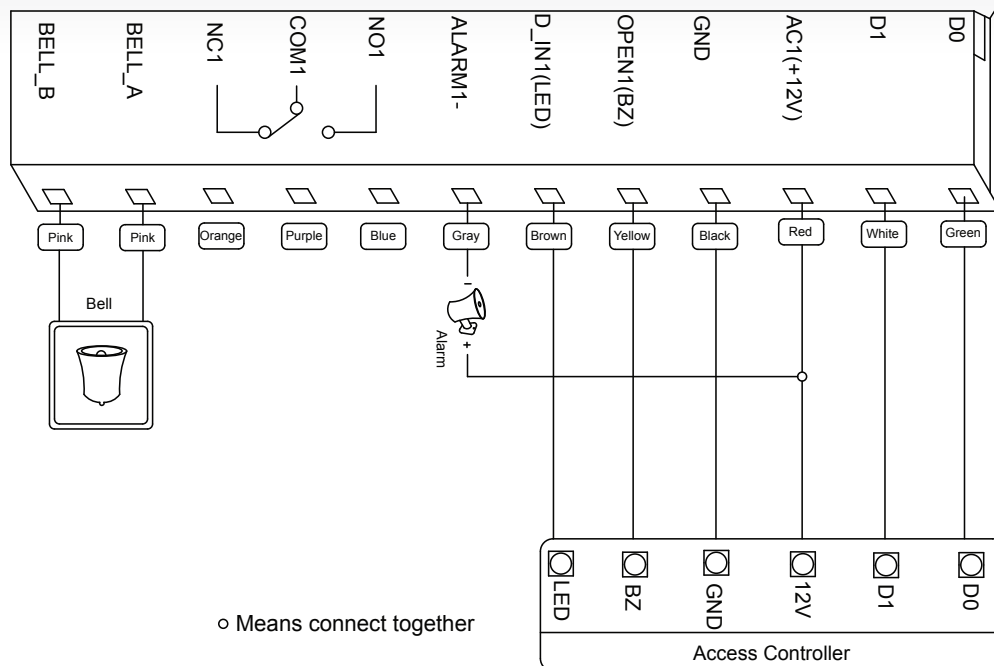
Power on the lock keep unlocking

+12V

special power with lock 1 diagram

DC12V special power   Mode Standalone for single door diagram

Mode Anti-passback for single door diagram

Mode Wiegand reader diagram

13 Example Operations

13.1 Modify master code as 201200

press * 999999 # 0 0 201100 # 201100 #

13.2 Set Anti-duress PIN of Zone 1 as 12012000

press * 201100 # 0 5 12012000 #

13.3 Add last 8 digit card number as 00967865 and 86998736 user of Zone 1

press * 201100 # 1 1 00967865 # 86998736 #

13.4 Add first 10 digit card number as 0098786500 and 8699873600 user of Zone 2 (not available)

press * 201100 # 2 1 0098786500 # 8699873600 #

13.5 Add ID user 006, PIN 201200, Zone 2 user (not available)

press * 201100 # 2 1 6 # 201200 #

13.6 Set open mode of Zone 1 as card+PIN

press * 201100 # 1 3 1 #

13.7 Rapid increase consecutive numbers 1000 cards (start with 00987865 ID is 005)

press * 201100 # 1 7 05 # 00987865 # 1000 #

13.8 Set working mode as reader mode

press * 201100 # 3 1 0 #

13.9 Set card output format as WG34

press * 201100 # 3 2 34 #

13.10 Set master open lock 1

press * 201100 # 5 1

14. Simple Troubleshooting

CODE	FAULT	FAULT CAUSE	SOLUTIONS
1	Close Read range	Quality of card	Use original card
2	Problem in PIN setting	1. PIN is not standard 2. Set Password at reader mode	1. PIN shouldn't be 1234 2. PIN is 4 to 6 digits 3. Don't set PIN at reader mode
3	PIN can't open door	1 use PIN 1234 2 entry mode setting	1. 1234 is original PIN, can't open the door, should be modified as other PIN 2. Set open mode as entry by card or PIN.
4	Alarms at normal condition	While installation, light leak under bottom	While installation, device should closed to the wall
5			
6	No responds after card reading	Units are not in ready mode	Press * key, light flash, units back to ready mode
7	Keypad light is not bright	Mode of keypad light setting is wrong	1. Set keypad light as shine or auto 2. Under auto mode, light shine after press keypad, delay 30 seconds
8	Can't enter master mode	Forget master code	Reset to Factory Default, master code will be 999999, only installer data is restored, user data will not be affected

15. To Reset to Factory Default

a. Disconnect power from the unit

b. Press and hold # key whilst powering the unit back up

c. On hearing two "Di" release # key, system is now back factory settings

Please note only installer data is restored, user data will not be affected.

Push Buttons   Keypads   Strikes   Magnetic Locks   Key Switches   Relays & Timers   Access Control

CAMDEN DOOR CONTROLS

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