



SOYAL AR-837-EA Graphic Display Multi-Function Proximity Controller Instruction Manual

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SOYAL[®]

AR-837-EA Graphic Display Multi-Function Proximity Controller Instruction Manual

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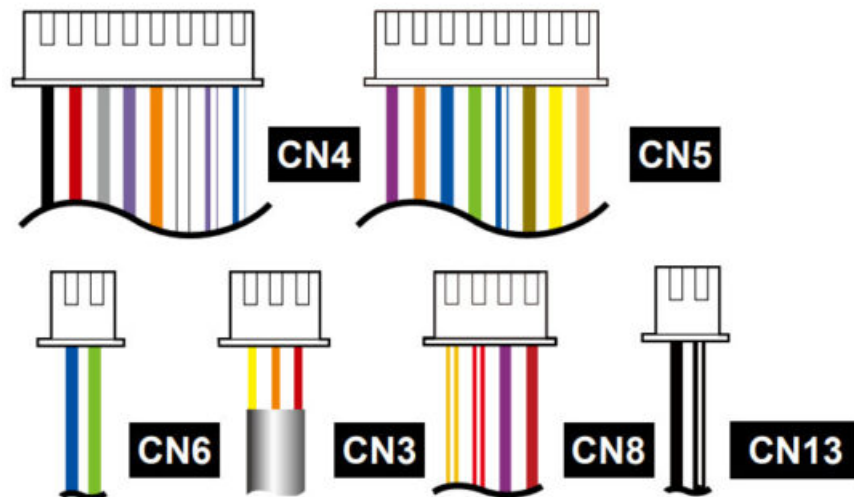
Contents

AR-837-EA: Face recognition

1. Products



2. Terminal Cables



3. Tools

Screws



Water proof Strip



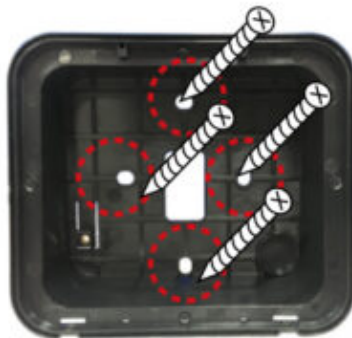
4. Optional

- Ethernet: DMOD-NETMA10
(TCP/IP Module included RJ45 Connector)
- Or
- DMOD-NETMA11
(TCP/IP Module with POE function)
- Any Wiegand Output Module (CN10)
- AR-MDL-721V (Voice Module)
- AR-321 L485-5V (TTY to RS-485 Converter)

Installation

Installation Method

A-1.Surface Mounted



A-2.Embedded

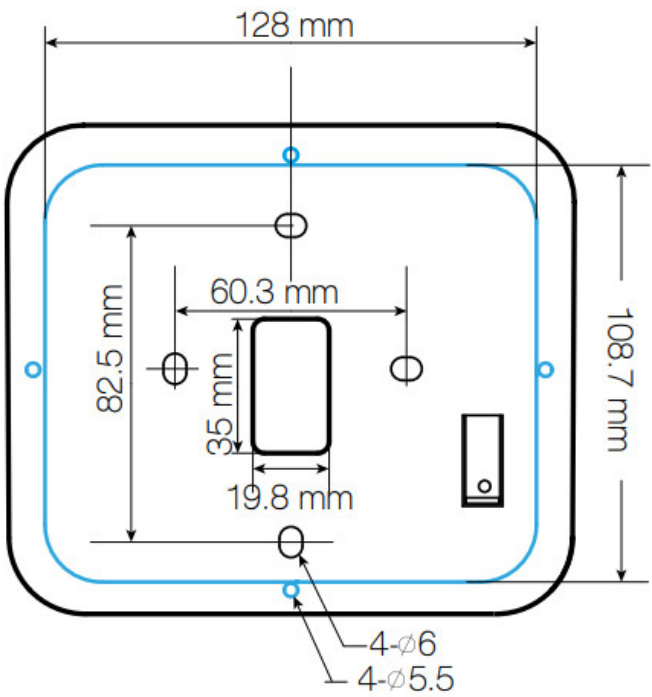
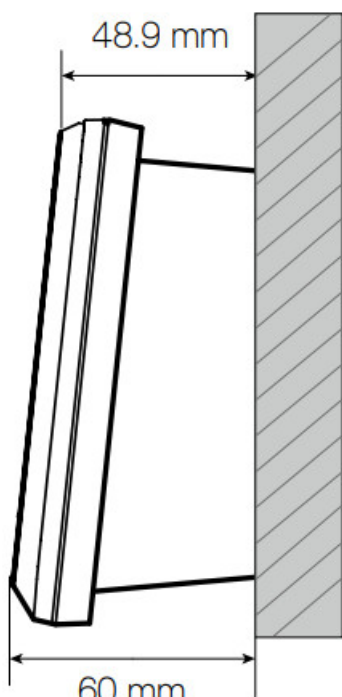


B.

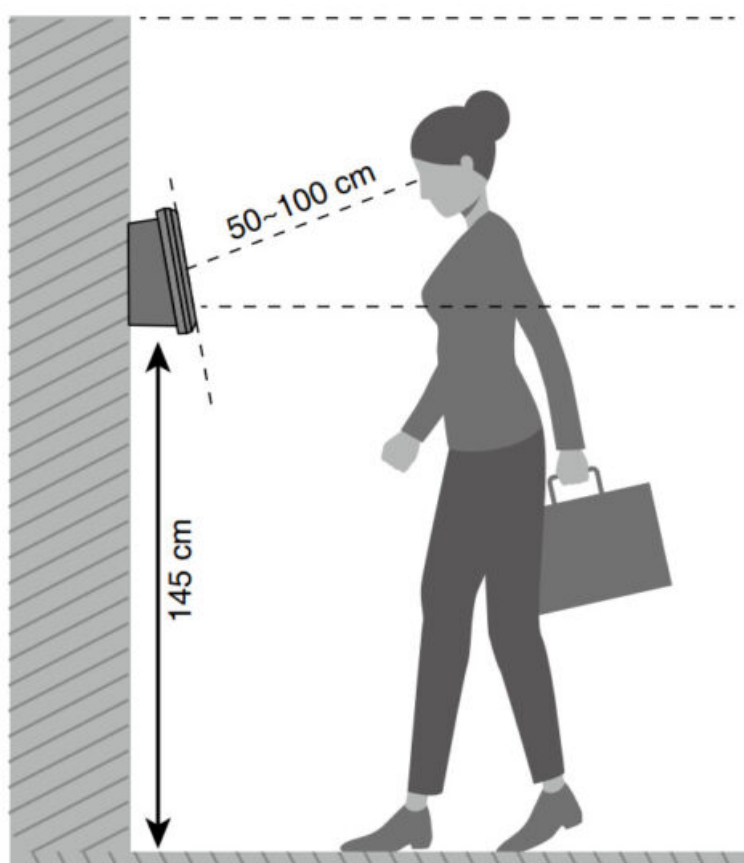


- A-1. Surface Mounted: Use a screwdriver to screw the mounting plate to the wall.
- A-2. Embedded: To dig a hole for 128mmx109mm; and then, use a screwdriver to screw the mounting plate to the wall.
- Pull cable ends through the access hole in the mounting plate.
- Attach AR-837-EA to the mounting plate and install screws (supplied) into the holes at the bottom with the Allen key.
- Apply power. LED (green) will light up with one beep.

Dimension (mm)

 128 mm 108.7 mm 82.5 mm 60.3 mm 35 mm 19.8 mm 4-φ6 4-φ5.5	 48.9 mm 60 mm
• Surface mounting hole(Front View) • Flush-mounting hole(Front View)	• Surface mounting hole (Side view)

Installation Guide



Surface / Flush-mounted Multifunctional Face & RFID Recognition Controller

Notice

1. **Tubing:** The communication wires and power line should NOT be bound in the same conduit or tubing.
2. **Wire selection:** Use AWG 22-24 Shielded Twist Pair to avoid star wiring, CAT 5 cable for TCP/IP connection
3. **Power supply:** Don't equip the reader and lock with the same power supply. The power for the reader may be unstable when the lock is activating, which may cause a malfunction in the reader.

The standard installation: The door relay and lock use the same power supply, and the reader should use another independent power supply.

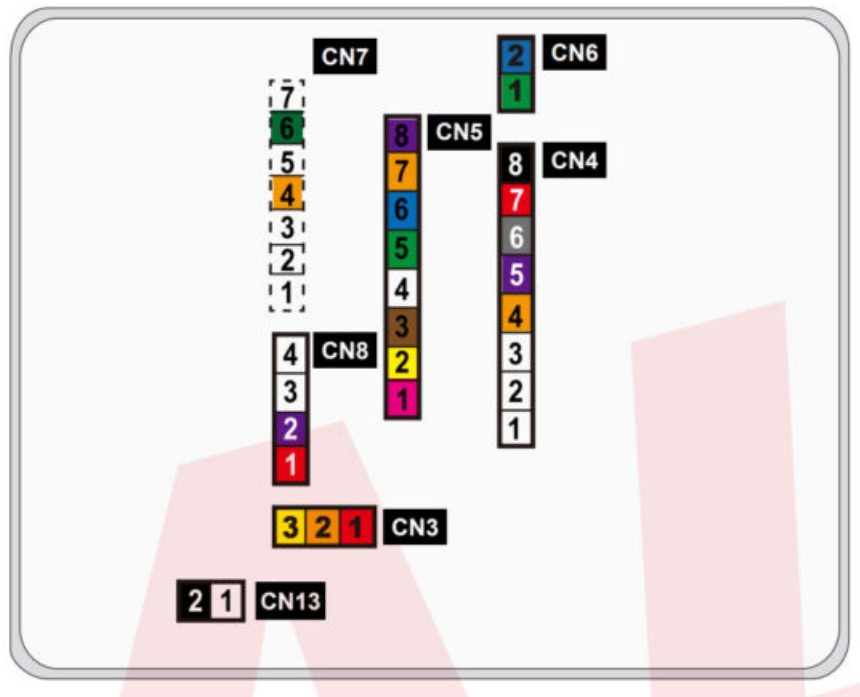
Connector Table (1)

Cable: CN3

Wire Application	Wire	Color	Description
Anti-Tamper Switch	1	Red	N.C.
	2	Orange	COM
	3	Yellow	N.O.

Cable: CN4

Wire Application	Wire	Color 'Description	
Lock Relay	1	Blue White (N.O.)DC24V1Amp	
	2	Purple White (N.C.)DC24V1Amp	
Lock Relay COM	3	White	(COM)DC24V1Amp
Door Contact	4	Orange	Negative Trigger Input
Exit Switch	5	Purple	Negative Trigger Input
Alarm Relay	6	Gray	N.D./N.C. Optional (by jumper)
Power	7	Thick Red	DC 12V
	8	Thick Black	DC OV



Cable: CN6

Wire Application	Wire	Color	Description
RS-485 for Lift Controller	1	Thick Green	RS-485(B-)
	2	Thick Blue	RS-485(A+)

Cable: CN5

Wire Application	Wire	Color	Description
Beeper	1	Pink	Beeper Output 5V/100mA, Low
LED	2	Yellow	Red LED Output 5V/20mA, Max
	3	Brown	Green LED Output 5V/20mA, Max
Door Output	4	Blue White	Transistor Output Max. 12V/100mA (Open Collector Active Low)
Wiegand	5	Thin Green	Wiegand DAT: 0 Input
	6	Thin Blue	Wiegand DAT: 1 Input
WG Door Contact	7	Orange	Negative Trigger Input
WG Exit Switch	8	Purple	Negative Trigger Input

Cable: CN8

Wire Application	Wire	Color	Description
Reserved	1	Red	—
Security trigger signal	2	Purple	Security trigger signal Output
Arming	3	Red White	Arming Output
Duress	4	Yellow White	Duress Output

Cable: CN13

Wire Application	Wire	Color	Description
Door Bell	1	Black White	Transistor Output Max. 12V/100mA (Open Collector Active Low)
	2	Black	DC OV

Cable: CN7

Wire Application	Wire	Color	Description
	1	—	—
	2	—	—
TCP/IP Output	3	Orange White	Net – TX+
	4	Orange	Net – TX-
	5	Green White	Net – RX+
	6	Green	Net – RX-
	7	—	—

Cable: CN9

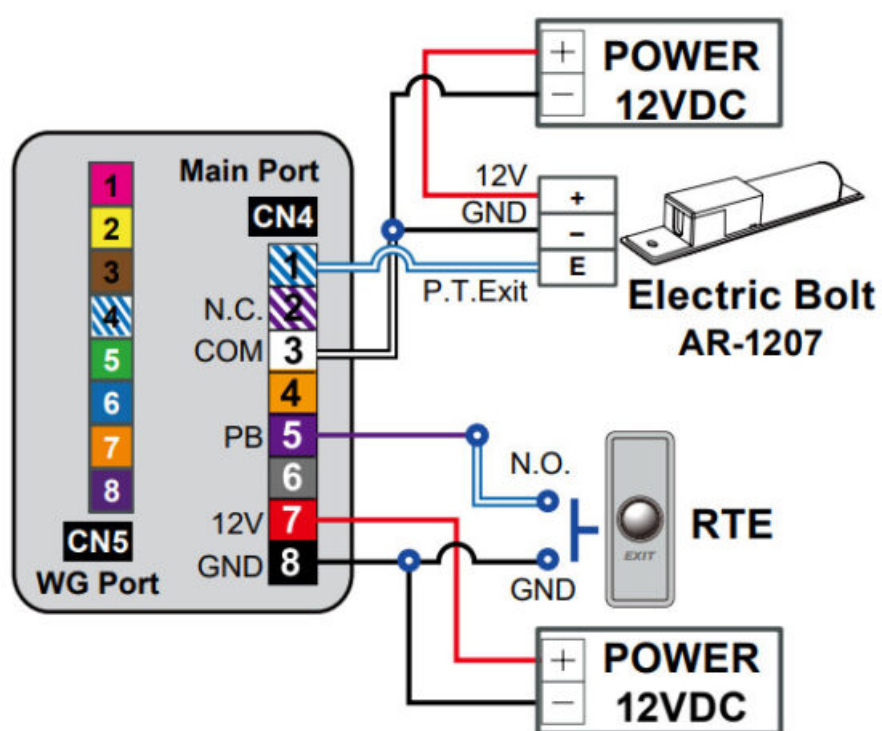
Wire Application	Wire	Color	Description
Voice Module (*Required speaker 8Ω / 1.5W (Max. 2W)	1	Black	DC OV
	2	Yellow	TX
	3	White	TE
	4	Orange	RX
	5	Red	DC 5V
	6	Blue	

Cable: CN10

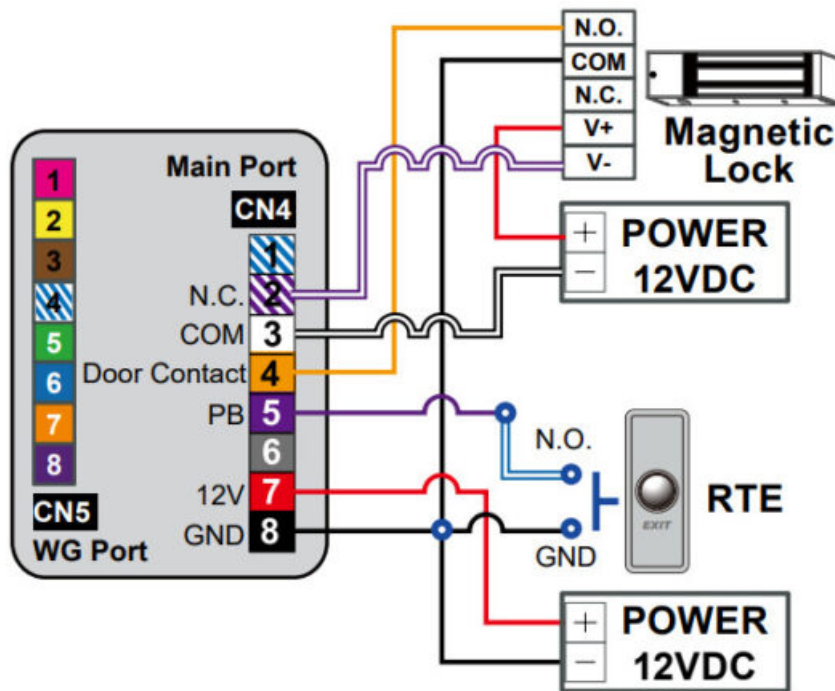
Wire Application Wire		Color	Description
HID RF Module	1	Orange	ANT 1
	2	Purple	ANT 2
	3	Black	DC OV
	4	Red	DC 5V
	5	Blue	Wiegand DAT: 1 Input
	6	Green	Wiegand DAT: 0 Input
	7	White	1MM

Wiring Diagram

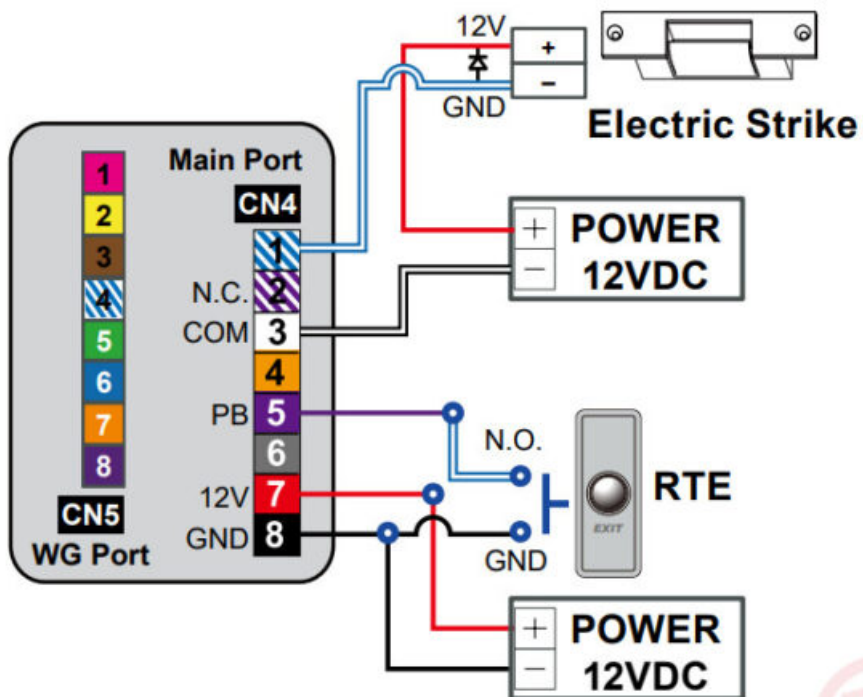
Connect to Electric Bolt



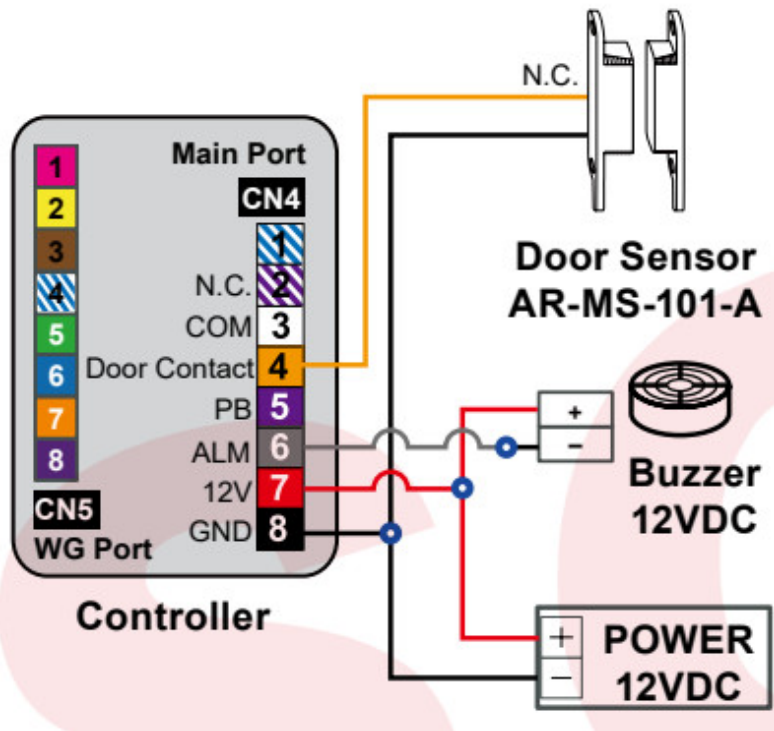
Connect to Magnetic Lock



Connect to Electric Strike

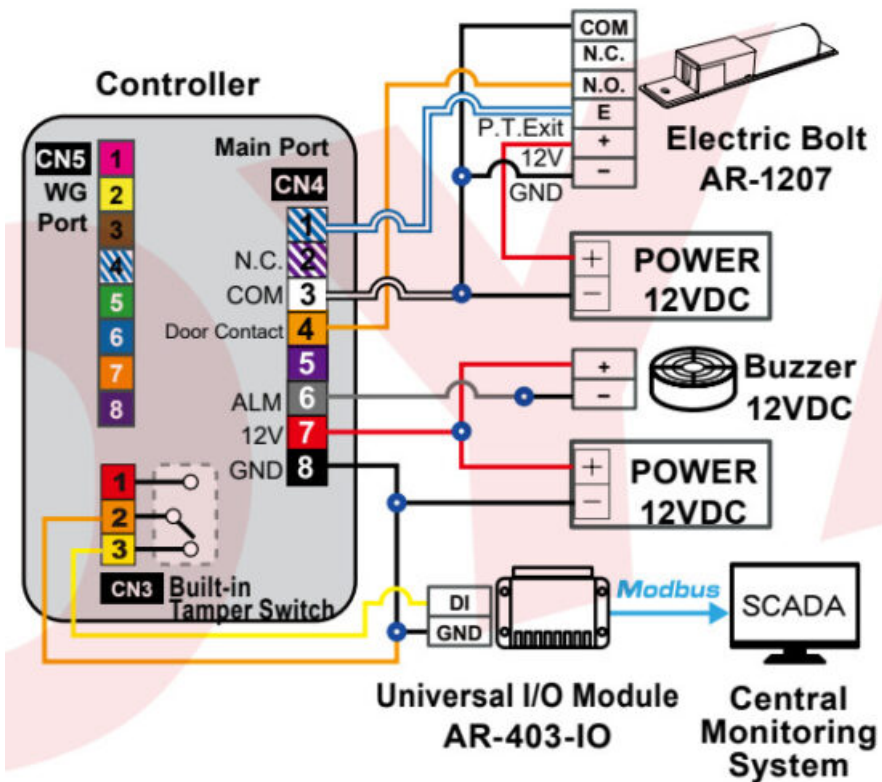


Door Open Too Long Alarm Wiring Method (External Door Sensor)



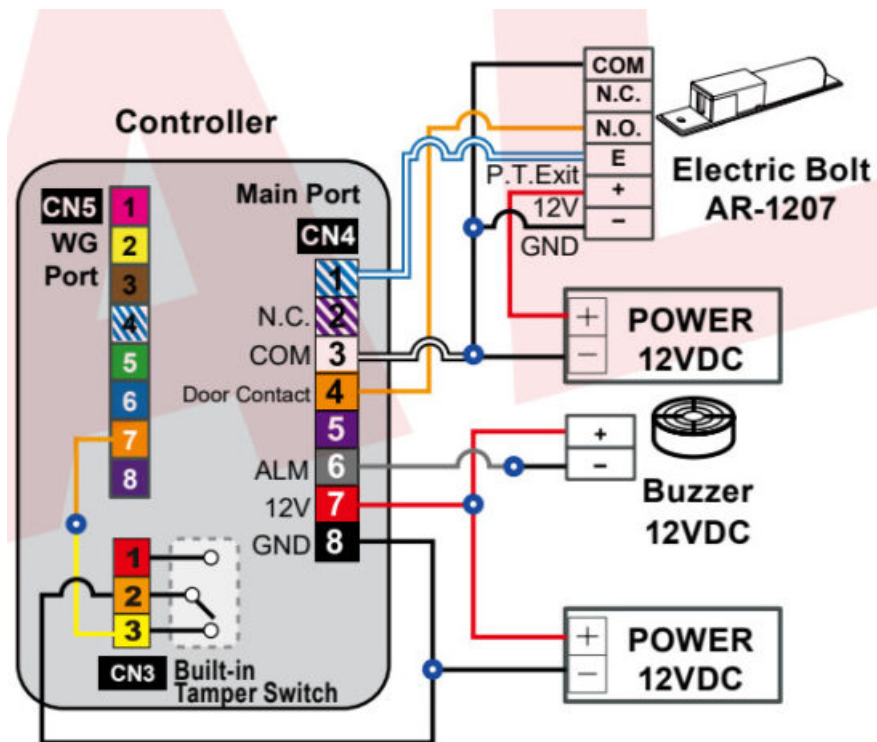
Tamper-Switch Alarm Wiring Method

(Connect to Central Monitoring System through Modbus via Universal I/O Module)



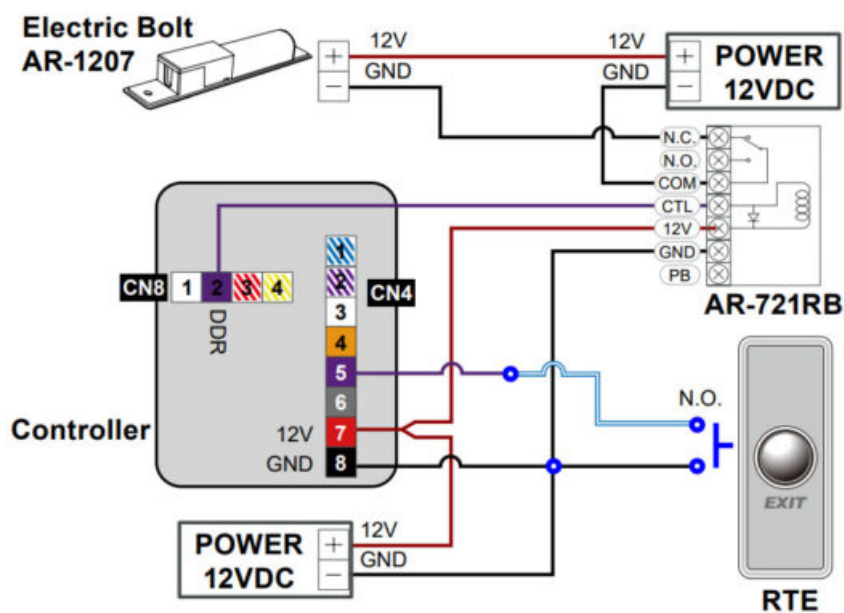
Tamper-Switch Alarm Wiring Method

(WG Port Door Sensor Wiring Method)



※ The Wiring of Enable “Share Door Relay” (Set up via the parameters setting Window of 701ServerSQL)

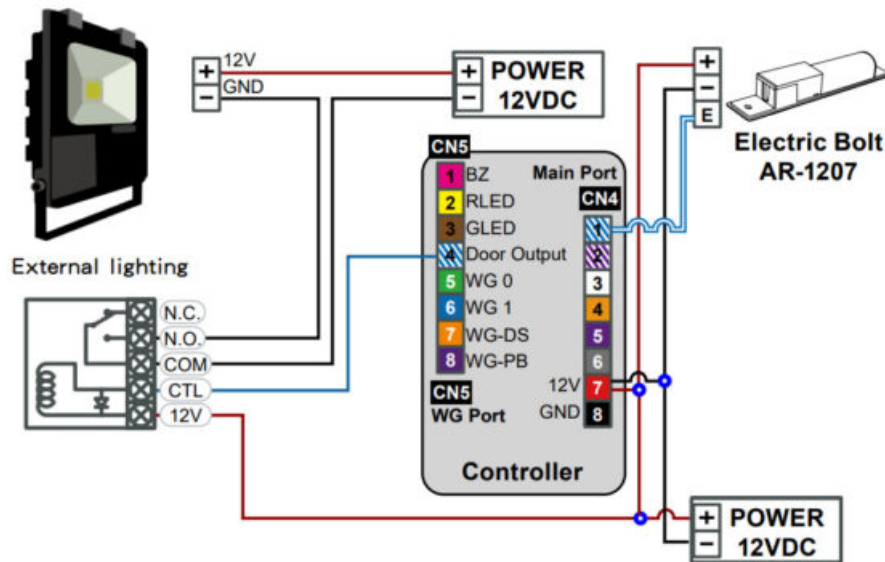
Strengthen security with AR-721RB



※ This wiring method is not eligible for the “Share Door Relay” function (set up via parameter setting of 701ServerSQL). If there is external wiring to the Wiegand reader, WG Port must enable Digital Relay Output to enable the “Share Door Relay” function.

Connect to Reader

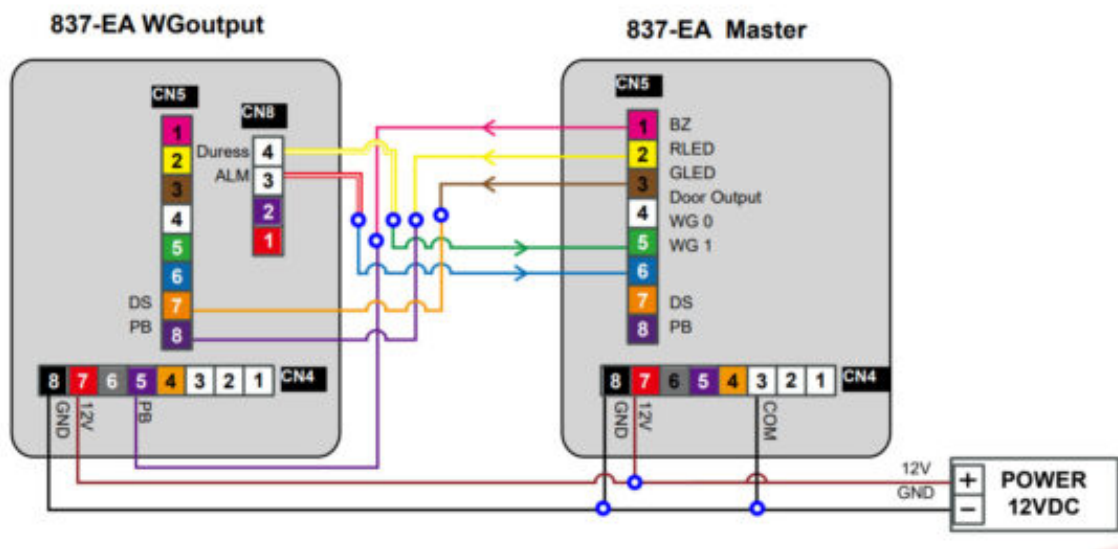
(Connecting the external LED as a backlight requires a special firmware update and WG Slave Mode will be disabled.)



※ The Wiring of Disable “Share Door Relay” (Set up via the parameters setting Window of 701ServerSQL

AR-837-EA becomes WG mode

(28 * 000 #)



1. When AR-837-EA becomes WG mode, it can be used with any controller.
2. Two AR-837-EA can be separately set as Master and WG Slave readers for Anti-pass back access in entry and exit.

※Using Rule :

Face Recognition for both entry and exit: Both AR-837-EA Master mode and AR-837-EA WG Slave mode must be stored all the same face data and real or visual card number. Card: Can pass WG message to the controller.

3. When entering the Parameter Setting Window on 701Server, the device can be changed to WG Slave Mode by Enabling the “Ev5 WG out / Hv3 Lift out” Option.

Duress Code
☐ None English Manual
☐ Date Time Format(DD/MM)
☐ Enable Black Tag
☐ Reset Antipass(TZ61)
☐ Alarming if Expiried
☒ Ev5 WG out / Hv3 Lift out
☐ Free RF Check at Finger Acces:
☐ Lock Keyboard
☐ Enable duty shift table
☐ Show WG Port message on LCI
☐ Dupl. check at enroll Finger
 Master
 Free Zone
 Alarm Schedule
 Duty Shift 721Ev2
 Lift Control Time (Sec.)
 Body Temperature Hi
 Area Code (none Polling)
 RS485 - 1
☒ Lift Controller ☐ Host Comm. Port
☐ LED Panel ☐ Line Printer
 RS485 - 2
☒ 3DO-1500
☐ Face-EA
☐ --
☐ FP9000 Photo/CMOS

Programming

A. Keyboard Lock/ Unlock

- **Lock/ Unlock**

Press and simultaneously lock the keyboard. Press simultaneously again to unlock.

B. Entering and Exiting Programming Mode

- **Entering**

Input *123456 # or * P P P P P P #

[e.g.] The Default Value= 123456. If already changed the Master Code= 876112, input * 876112 # → Access programming mode P.S.If no instruction is entered within **30 sec.**, it will automatically leave the programming mode.

- **Exiting** Press the * * repeatedly **6** Quit or **7** Quit and Arming (Please refer to alarm/arming setting)

- **Changing the Master Code**

Access programming mode → 5,, Tools 2paster Code → Input the 6-digit new master code → Succeeded

C. Initial setup

- **Language Setting**

Access programming mode → 5 Tools → 1 Language → 0 EN → Succeeded → Initial system...

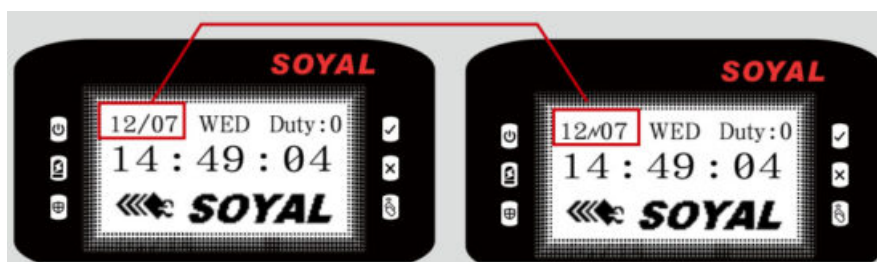
- **Node ID of Reader Setting**

Access programming mode — 3 Parameters[1] → 1 Node ID → **Input New Node ID : 1-254** (default value:001)
 → **Main Door Number : 0-255 —0 WG1 Door Number : 0-255-0 Show UID (0=No, 1=WG, 2=ABA, 3=HEX)**
 → **Enable DHCP(0:No, 1:En, 2=Exit)** → Succeeded

Function Description of Front Panel & Indicator



- The system will automatically exit Programming Mode when inactivating for 30 seconds.
- LED status indicates the controller's mode and status.
 - OK (green) – blinking constantly when operating in Programming Mode
 - or flashing an existed card in card learn mode, it comes 2 beeps warning and LCD panel displays "Same Card: user address/card number"
 - Error (red) – invalid card with 2 beeps warning and LCD panel displays "Card Number Err!"
 - or in anti-pass-back mode, when violates the access, it comes one beep warning, and the LCD panel displays "Anti-pass Error!"
 - Arming (green) – arming on status Alarm (red)
 - any abnormal condition occurs
- The keypad will be locked up for 30 sec. when incorrect pin code or master code is constantly entered.
- Maximum error input of pin code and master code can be changed via the software 701Server (default: 5 times)



Networking: / and interactively flash between the Month and DAY.

[e.g.] 12/07←→12 07

Stand-alone: No flashing [e.g.] 12/07 (←Reference to picture)

Manu Tree

1. Add/ Delete

- Add > Card ID
- Add > RF Learn

3. Suspend > Address
4. Suspend > ID #
5. Delete > Address
6. Delete > ID #
7. Recover > Address
8. Recover > ID #
9. Antipass Group

2. User Setting

1. Password
2. Access Mode
3. Extend Options
4. Single Floor
5. Multi Floor
6. Enroll Face
7. Delete Face

3. Parameters[1]

1. Node ID
2. OnOff OpenZone
3. Door Relay Tm
4. Door Close Tm
5. Alarm Relay Tm
6. Alarm Delay Tm
7. Arming Delay Tm
8. Arming PWD

4. Parameters[2]

1. Auto Relock
2. Egress(R.T.E)
3. Miscellaneous
4. Force Open
5. Close & Stop
6. Anti-pass-back
7. Duress Code
8. Password Mode
9. Factory Reset

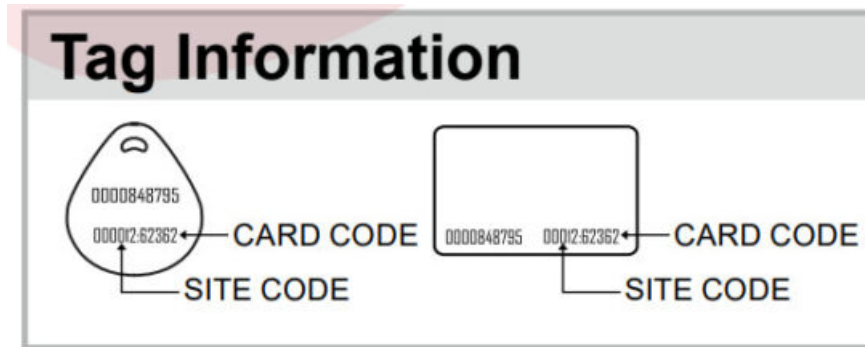
5. Tools

1. Language
2. Master Code
3. Master Range
4. Terminal RS-485
5. Ext.Comm CN11
6. Open Time Zone
7. Information
8. Clock Setting

- 9. Daily Alarm
- 0. UART Port CN9
- 6. Quit
- 7. Quit & Arming

D. Adding and Deleting Tag

✧ User capacity: 16384 (00000~16383)



- **Adding Tag by Tag ID**

Access programming mode → 1 Add/Delete → 1 Add → Card ID → **Input 5-digit user address** → **Input Site Code** → **Input Card Code**

- **Adding Tag by RF Learn Function**

Access programming mode → 1 Add/Delete → 2 Add → RF-Learn → **Input 5-digit user address**
→ **Input Tag Units(pcs)** → **Close Tag into RF Area**

✧If the batch of tags is Sequential, input Tag Units(pcs) in the quantity of the tags and present the tag with the lowest number to the controller for adding all the tag data; otherwise, the tags must be presented to the controller individually

- **Suspend User Address**

Access programming mode → 1 Add/Delete → 2 Suspend → Addr → **Input Start address** → **Input End address**

- **Suspend Tag by Tag ID**

Access programming mode → 1 Add/Delete → 4 Suspend → ID # → **Input Site Code** → **Input Card Code**

- **Recover User Address**

Access programming mode → 1 Add/Delete → 7 Delete → Addr → **Input Start address** → **Input End address**

- **Recover Tag by Tag ID**

Access programming mode → 1 Add/Delete → 8 Delete → ID # → **Input Site Code** → **Input Card Code**

- **Deleting User Address**

Access programming mode → 1 Add/Delete → 5 Delete → Addr → **Input Start address** → **Input End address**

- **Deleting Tag by Tag ID**

Access programming mode → 1 Add/Delete → 6 Delete → ID # → **Input Site Code** → **Input Card Code**

- **Setting up the access mode**

Access programming mode → 2 User Setting → 2 Access Mode → **Input User Address** → 0: Invalid; 1:

Card; 2: Card or PIN; 3: Card & PIN

E. PIN Code

Access programming mode → **2** User Setting → **1** Enroll Face → **Input 5-digit user address** → **Input 4-digit PIN (0001~9999)** → Succeeded Or via 701Client set it on the Users screen

F. Enroll/Delete Face

- **Adding**

Access programming mode → **2** User Setting → **6** Delete Face → Key in 5-digit user address → Follow the instruction on LCD Screen to enroll face → Succeeded

- **Deleting**

Access programming mode → **2** User Setting → **7** Delete FP → Key in 5-digit user address → Succeeded P.S.

If want to delete all users' face data' FP, key in **99999 #**

G. Access Mode

Access programming mode → **2** User Setting

→ **2** Access Mode

→ Key in 5-digit user address (00000~08999)

→ **0: Invalid; 1:Card; 2: Card or PIN; 3: Card and PIN (837-EA:** → Face Identify: 0: Must; 1: Ignore)

→ Succeeded

Access Mode		Face Identify (837-EA Only)		Result (837-EA Only)
Hardware	701Client	Hardware	701Client	
0:Invalid		0: Must	☐ Just Face ☐ Just card control	Invalid User
		1: Ignore	☒ Just Face ☒ Just card control	
1:Card		0: Must	☐ Just Face ☐ Just card control	Face+Card
		1: Ignore	☒ Just Face ☒ Just card control	1. Card Only 2. Face Only
2:Card or PIN		0: Must	☐ Just Face ☐ Just card control	1.Face+Card 2.Face+PIN 3.Card+Face+PIN 4.Card+Face+Card 5.PIN+Face+PIN 6.PIN+Face+Card
		1: Ignore	☒ Just Face ☒ Just card control	1. Card Only 2. PIN Only 3. Face Only
3:Card and PIN		0: Must	☐ Just Face ☐ Just card control	Face+Card+PIN
		1: Ignore	☒ Just Face ☒ Just card control	1.Card+PIN 2.Face+PIN

H. Arming Password

Access programming mode → 3 Parameters[1] → 8 Arming PWD → **Input 4-digit PIN (0001~9999; Default: 1234)** → Succeeded Or via 701Server and set it on AR-829E screen

I. Arming Delay Time

Access programming mode → 3 Parameters[1] → 7 ArmingDelayTm → **Enter armed sta. Delay time(Sec), Range:000~255; Armed pulse out-put time (10ms) , Range, 000~255** → Succeeded

J. Duress Code

Access programming mode → 4 Parameters[2] → 7 Duress Code → **4 sets (select one)** → **Input 4-digit PIN (0001~9999)** → Succeeded Or via 701Server to set it on the AR- 829E-V5 screen

※Duress Code is only available in networking mode. It will substitute a personal pin code and send the message of Duress to the computer as a warning signal.

K. Terminal Port

Access programming mode → **5 Tools** → **4 Terminal Port** → **0:Lift ; 1:Host ; 2:LED ; 3:PRN (default value:1)** → **Baud Selection (default value:9600)** → **Succeeded**

L. Setting up the alarm/arming

Conditions:

1. Arming enabled
2. Alarm system connected

Situations:

1. **The door is open over time:** The door is open longer than door relay time plus door close time.
2. **Force open** (Opened without a valid user card): Access by force or illegal procedure.
3. **The door position is abnormal:** Happens when the power is off and then on again, besides, the reader was on arming before the power went off.

Enable/Disable the arming status:

Standby Mode			
Card only		Card or PIN	Card and PIN
Open the door	No open the door	Input user address → Input	Present the tag to reader → Input
Present the tag to reader → Input	* → Input 4-digit arming PWD	4-digit individual PWD → # →	4-digit individual PWD → # →
4-digit arming PWD → #	→ Present the tag to reader	Input 4-digit arming PWD → #	Input 4-digit arming PWD → #
Access Programming mode			
Enable: Access programming mode → 7 Quit & Arming		Disable: Access programming mode → 6 Quit	

❖ [Use FP] can substitute for [Induct valid card].

M. Anti-pass-back

While connecting with AR-721-U, AR-737-H/U(WG mode), and AR-661-U for the anti-pass-back function, the access mode must be “Card” only.

• Device enables

Access programming mode → **4 Parameters[2]** → **6 Anti-pass-back** → master controller select [1: Yes] → WG select [1: Yes]

• Card user enable

Access programming mode → **1 Add/ Delete** → **9 Antipass Group** → **Input 5-digit starting user address** → **Input 5-digit ending user address** → must select [1: Yes]

N. Lift control

[e.g.] Connect with AR-401-IO-0016R to control which floor the user will be able to access. (BAUD9600)

Setting Lift control

Access programming mode → **5 Tools** → **4 Terminal Port** → **0 Lift Controller** → **Baud Selection 0 9600**

Access programming mode → **5 Tools** → **5 Terminal Port** → **1 Lift Controller**

(need to use AR-321L485-5V)

Set	Floor/ Stop															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Single floor

Access programming mode → **2 User Setting** → **4 Single Floor** → **Input 5-digit user address** → **Input single floor number: 1~64**

Multi floors

Access programming mode → **2 User Setting** → **5 Multi Floor** → **Input 5-digit user address** → **Select range: 1 or 2 or 3 or 4** → **Input 16 digits multi floors number [0:disable, 1: enable]**

[e.g.] Set NO. 114, can use it through the 8 F and 16F:

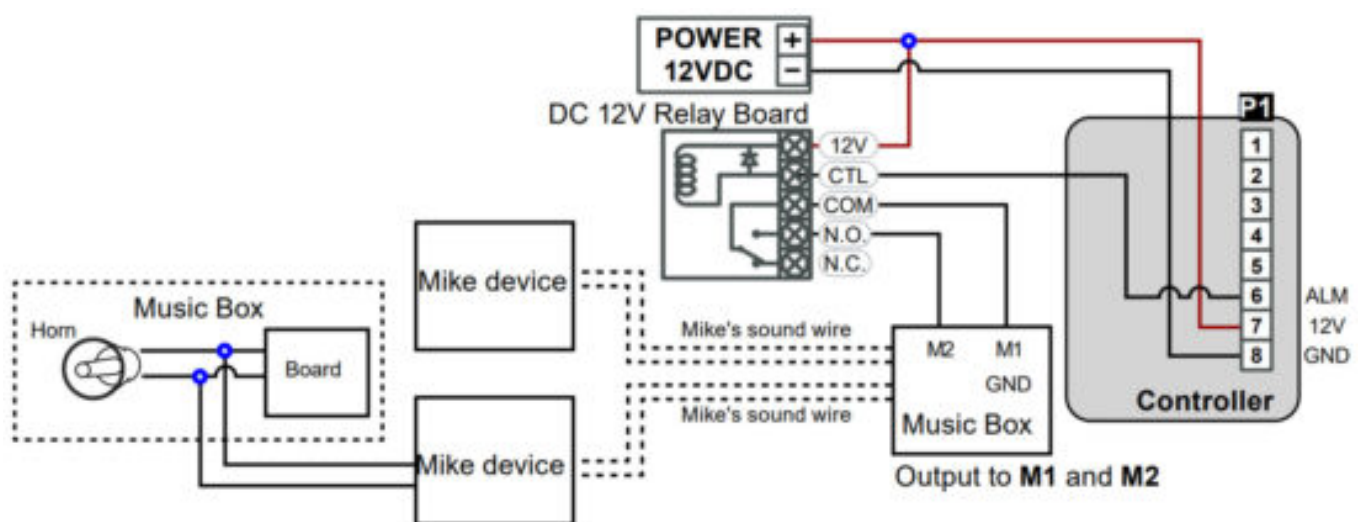
Access programming mode → **2 User Setting** → **5 Multi Floor** → **114** **#** → **1** **#** → **0000000100000001** **#**

O. Alarm Clock (for Factory)

Access programming mode → **5 Tools** → **9 Daily Alarm** → Set (00~15) → **Set Start Tm (24 Hours); Set Effect Sec.**

(Seconds as the bell time, Range:1~255) → **Set Weekday (0:disable, 1: enable)** → **Succeeded**

Hardware installation



P. OpenZone

Access programming mode → **3 Parameters[1]** → **2 OnOff OpenZone** → **Main Controller Auto Open Zone**

(0:disable, 1:enable) → Open Door mm. During Open Zone (0:No, 1:Yes) → WG1 Port Auto Open Zone(0:disable,1:enable) → Open Door Imm.During Open Zone(0:No, 1:Yes) → Succeeded

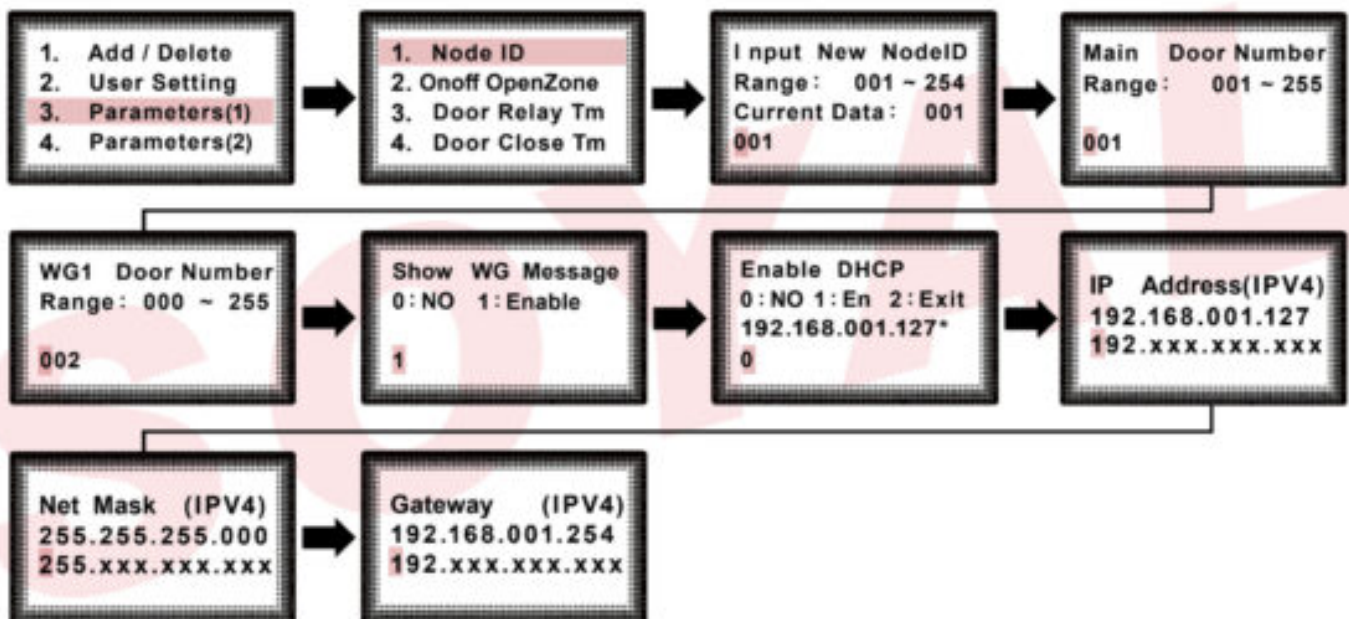
Q. Open TimeZone

Access programming mode → 5 Tools → 6 Open TimeZone → Set (00~15) → Time (24 Hours) → Main Port(0:disable,1:enable) ; WG Port(0:disable,1:enable) → Weekday(0:disable,1:enable) → Succeeded

Parameter Setting Menu

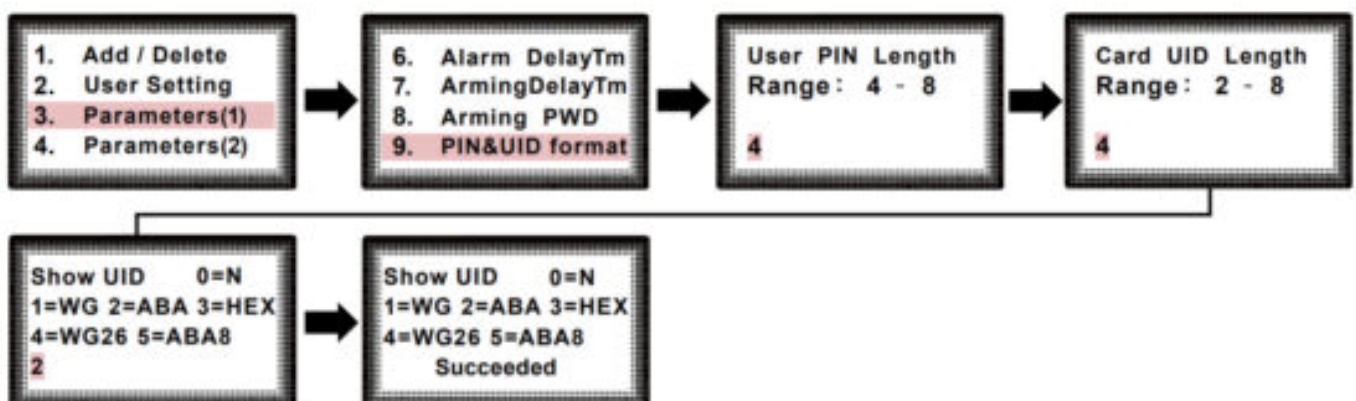
IP Address Config

Access programming mode → 3 Parameters[1] → 1 Node ID → Enter New Node ID → Main Door Number Range → WG1 Door Number Range → Show WG Message → Enable DHCP → please enter IP Address(IPV4) → please enter Net Mask(IPV4) → please enter Gatewa(IPV4) → Succeeded



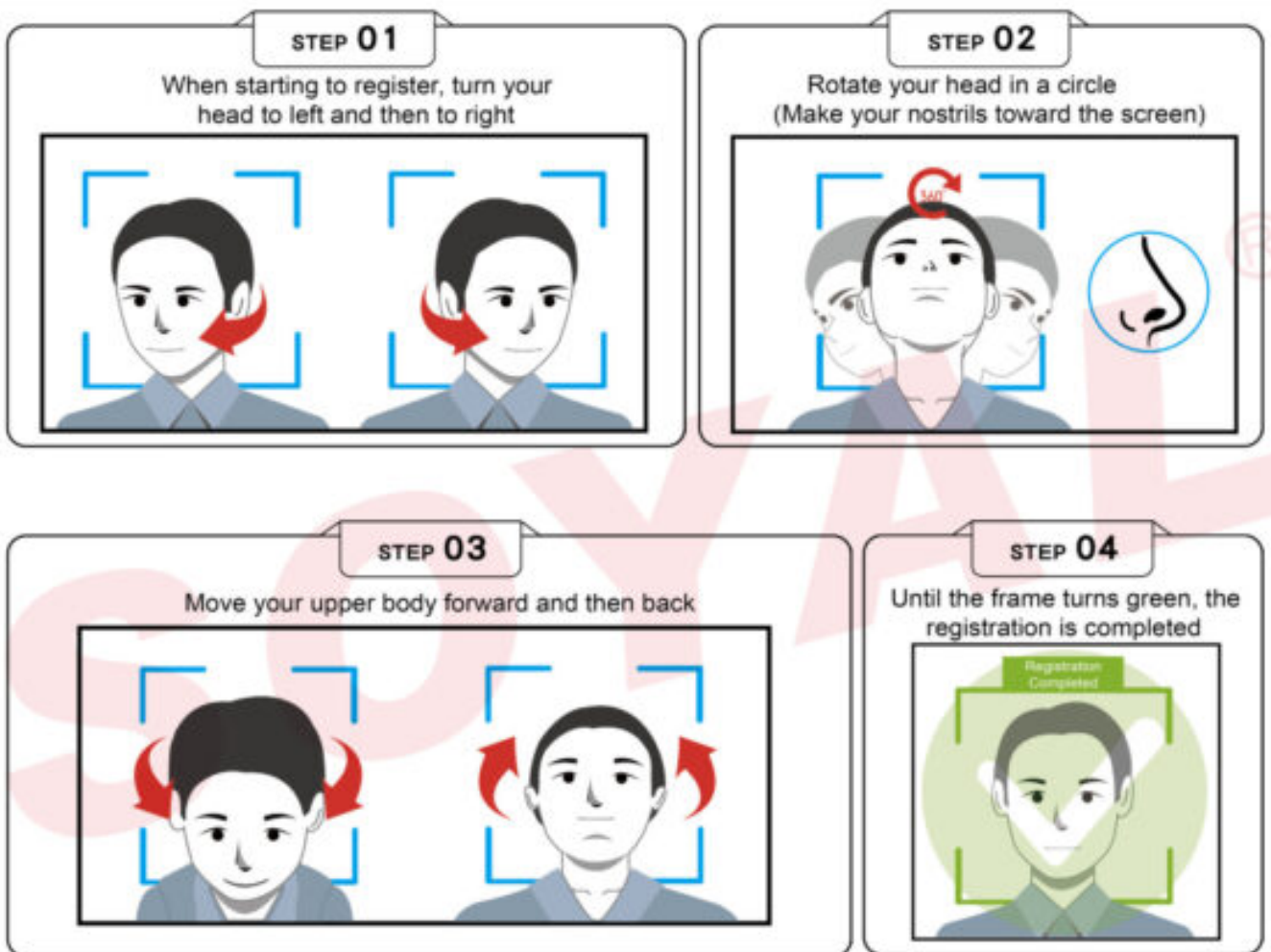
Set card display mode

Access programming mode → 3 Parameters[1] → 9 PIN&UID format → User PIN Length → Card UID Length → Show UID → Succeeded



Face Enrollment Tips

- The face should be close to the LCD screen, The size of the face image is half of the LCD that will be more easier to register successfully

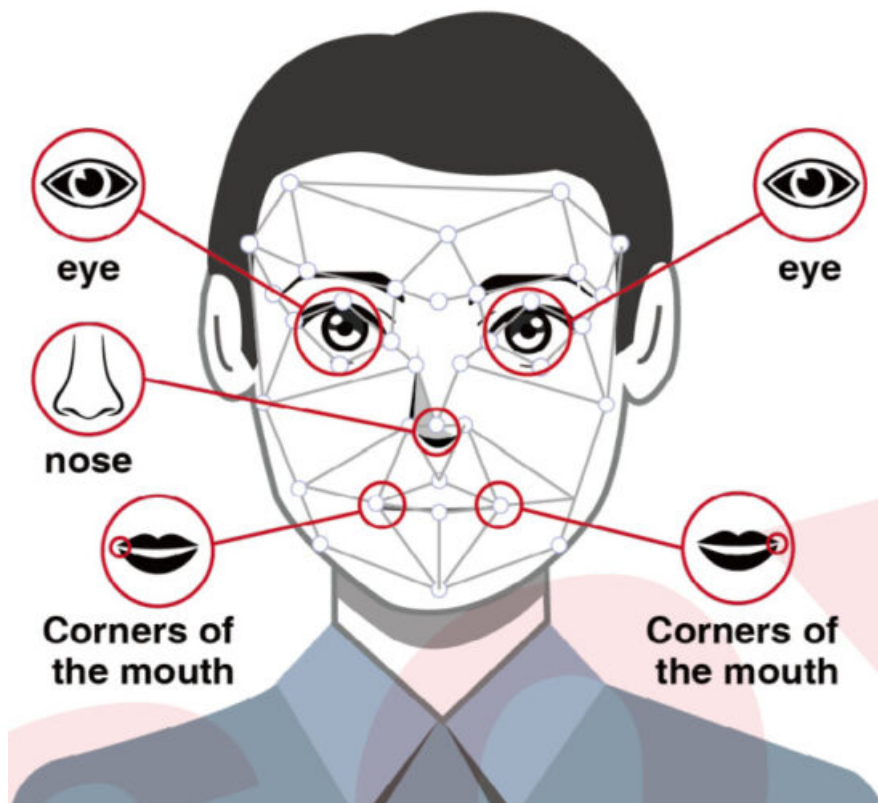


• Face Enrollment Procedure

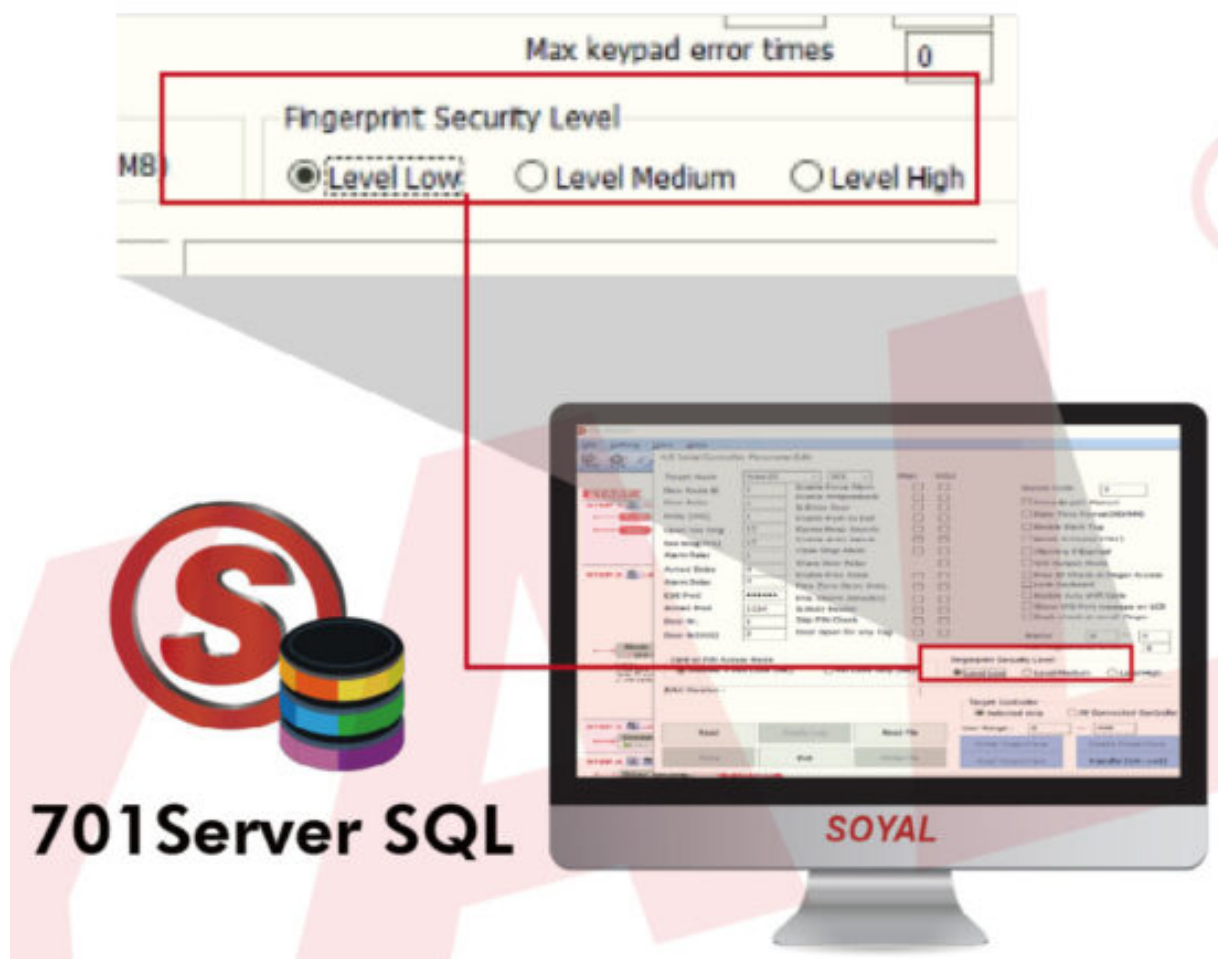


Notes and Tips for Registration and Recognition of Wearing Face Mask Detection Mode

(—) When registering face data, the face mask could not be worn.
Collecting facial features



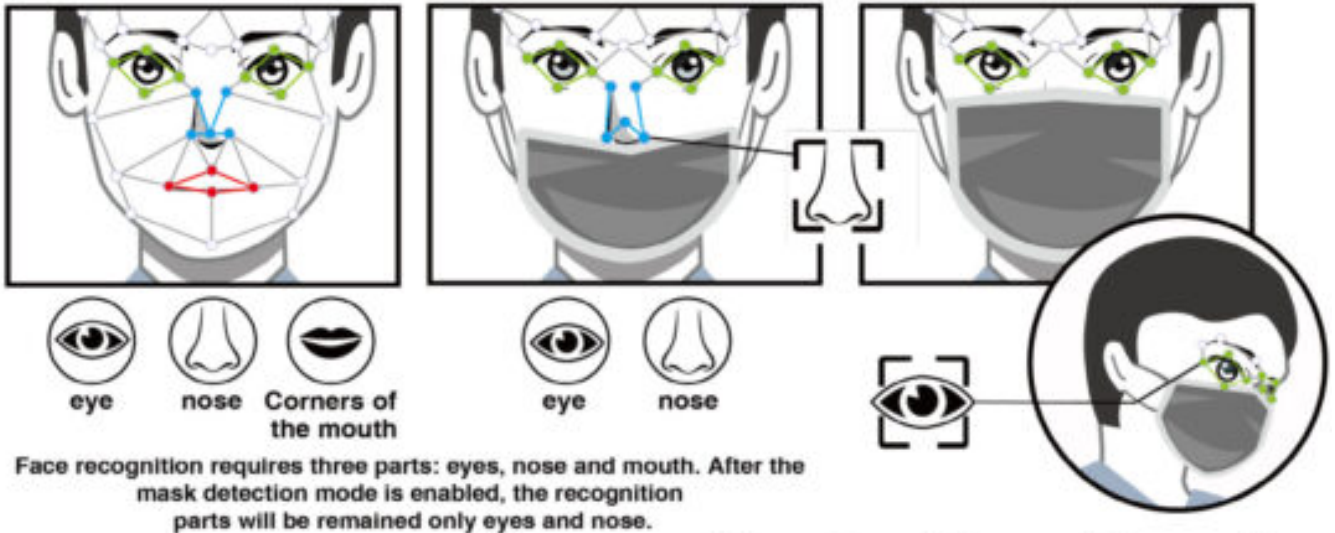
(=) Setting the security level of the face controller to [Level Low] will enable the face mask detection mode



(=) Emphasizing 3D model recognition and trying to collect more images around the eyes when registering face data.

Without Wearing Face Mask

Exposing the nose bridge as possible can largely increase the successful recognition rate and speed.



If the nose is completely wrapped when recognizing the face, please try to make the front and side of the eyes clearer when registering the face.

Documents / Resources



[SOYAL AR-837-EA Graphic Display Multi-Function Proximity Controller](#) [pdf] Instruction Manual
AR-837-EA, Graphic Display Multi-Function Proximity Controller, AR-837-EA Graphic Display Multi-Function Proximity Controller