

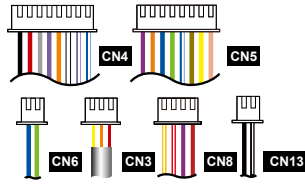
Contents

AR-837-EF:Fingerprint

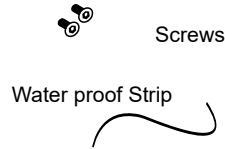
1 Products



2 Terminal Cables



3 Tools



4 Optional

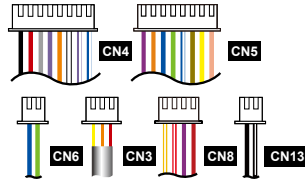
- AR-837i (TCP/IP Module)
- AR-WG-HID (HID RF Module)
- AR-MDL-721V (Voice Module)

AR-837-E/ EE

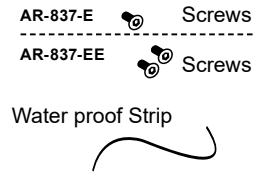
1 Products



2 Terminal Cables



3 Tools

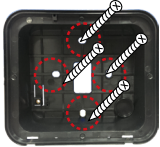


4 Optional

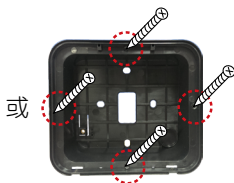
- AR-837i (TCP/IP Module)
- AR-WG-HID (HID RF Module)
- AR-MDL-721V (Voice Module)

Installation

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 837-E:85mmx113mm / 837-EF: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-E or AR-837-EF 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.

Notice

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

Connector Table (1)

Cable: CN4

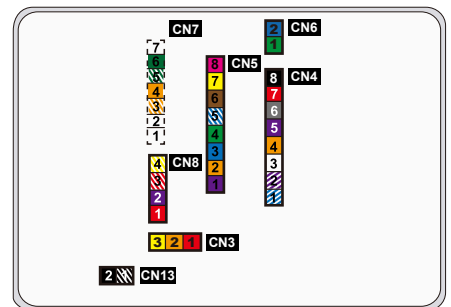
Wire Application	Wire	Color	Description
Lock Relay	1	Blue White	(N.O.)DC24V1Amp
	2	Purple White	(N.C.)DC24V1Amp
Lock Relay COM	3	White	(COM)DC24V1Amp
Door Contact	4	Orange	Negative Trigger Input
Exit Switch	5	Purple	Negative Trigger Input
Alarm Relay	6	Gray	N.O./N.C. Optional (by jumper)
Power	7	Thick Red	DC 12V
	8	Thick Black	DC 0V

Cable: CN5

Wire Application	Wire	Color	Description
Beeper	1	Pink	Beeper Output 5V/100mA, Low
	2	Yellow	Red LED Output 5V/20mA, Max
LED	3	Brown	Green LED Output 5V/20mA, Max
	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: CN6

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



Cable: CN3

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

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 0V

Connector Table (2): Optional

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: CN10

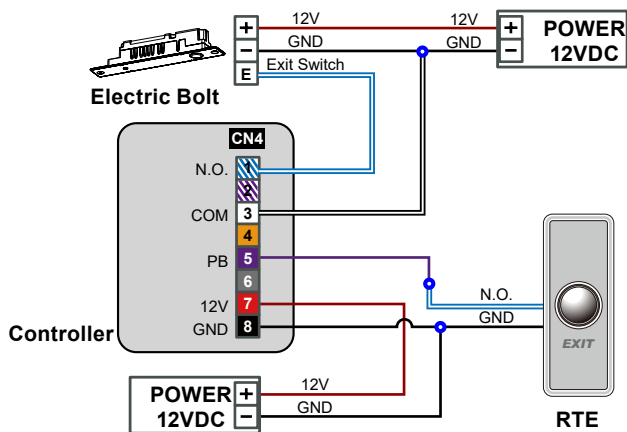
Wire Application	Wire	Color	Description
HID RF Module	1	Orange	ANT 1
	2	Purple	ANT 2
	3	Black	DC 0V
	4	Red	DC 5V
	5	Blue	Wiegand DAT: 1 Input
	6	Green	Wiegand DAT: 0 Input
	7	White	--

Cable: CN9

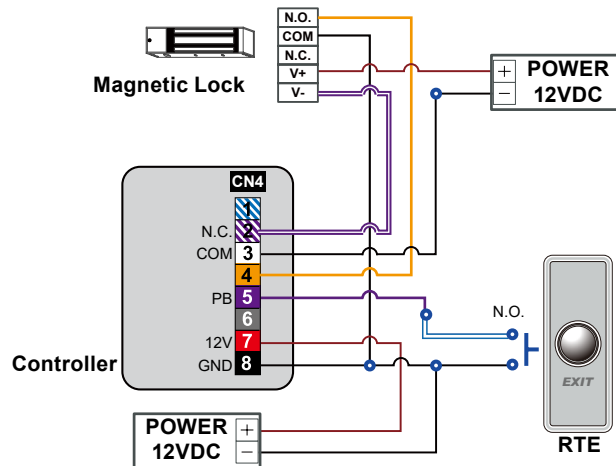
Wire Application	Wire	Color	Description
Voice Module	1	Black	DC 0V
(*Required speaker 8Ω / 1.5W (Max. 2W)	2	Yellow	TX
	3	White	TE
	4	Orange	RX
	5	Red	DC 5V
	6	Blue	--

Wiring Diagram

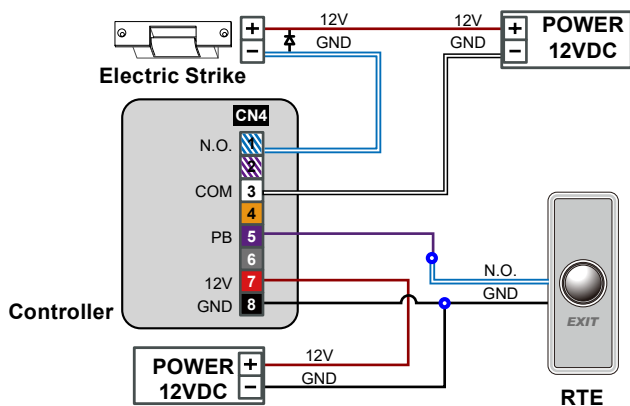
Connect to Electric Bolt



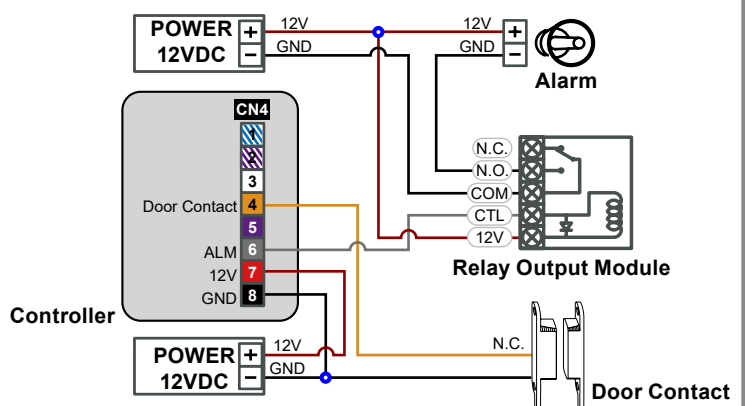
Connect to Magnetic Lock



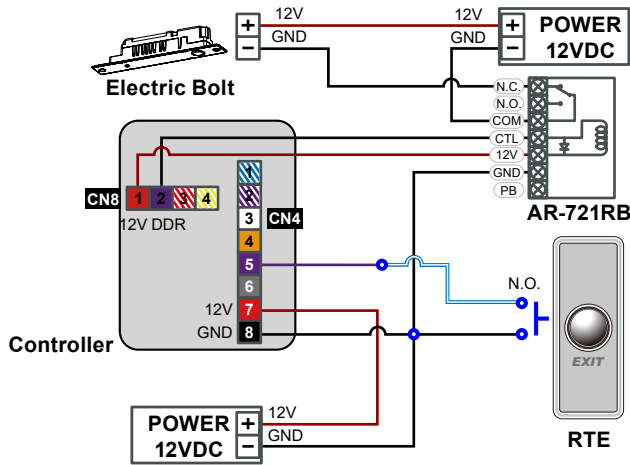
Connect to Electric Strike



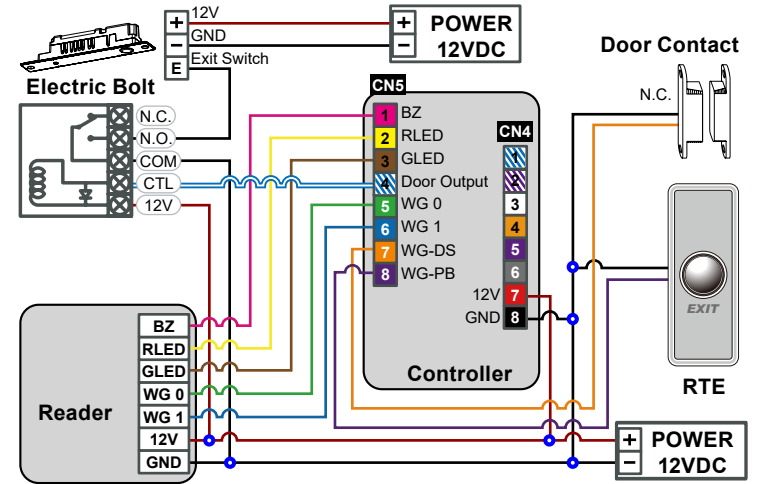
Connect to Door Contact



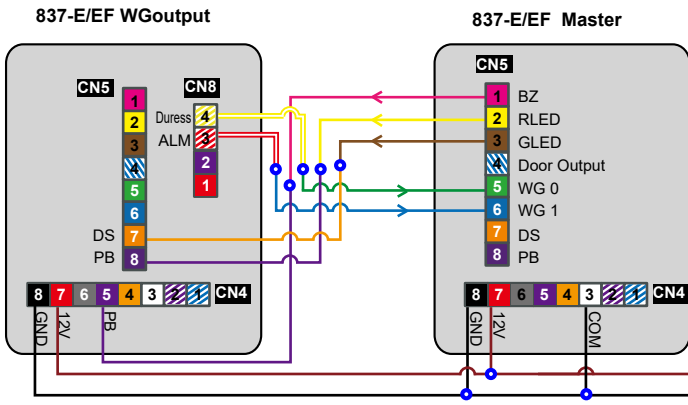
Strengthen security with AR-721RB



Connect to Reader



AR-837-E/EF become WG mode (28 * 000 #)



1. When AR-837-E/EF become WG mode, it can be used with any controllers.

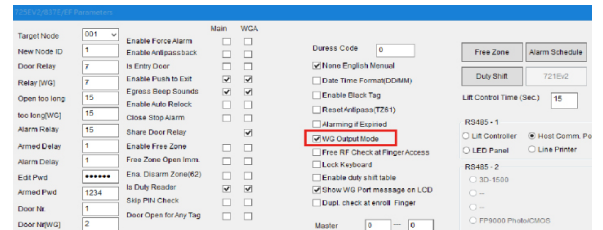
2. AR-837-E/EF support Anti-pass-back by finger or card.

※Using Rule :

Finger : Both AR-837-E/EF Master mode and AR-837-E/EF WG mode must store all the same FP data and real or visual card number.

Card : Can pass WG message to controller.

3. When enter the Parameter Setting Window on 701Server, the device can be changed to WG Slave Mode by Enabling "WG Output Mode" Option.



Programming

A. Keyboard Lock/ Unlock

• Lock/ Unlock

Press * and # simultaneously to lock keyboard. Press simultaneously again to unlock.

B. Entering and Exiting Programming Mode

• Entering

Input *123456# or *PPPPPP#

[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 → 2 Master Code → Input the 6-digit new master code → Succeeded

C. Initial setup

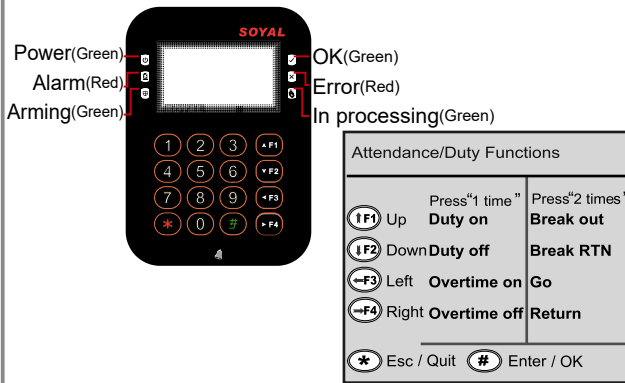
• Language Setting

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

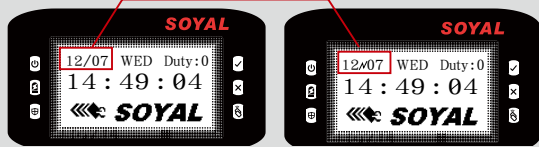
• Node ID of Reader Setting

Access programming mode → 3 Parameters[1] → 1 Node ID → Input New Node ID : 1~254 (default value:001) → Main Door Number : 0~255
→ WG1 Door Number : 0~255 → 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



- System will automatically exit Programming Mode when inactivating for 30 seconds.
- LED status indicates 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 LCD panel displays "Anti-pass Error!"
 - Arming (green) – arming on status
 - Alarm (red) – any abnormal condition occurs
- Keypad will be locked up 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
- Suspend > Address
- Suspend > ID #
- Delete > Address
- Delete > ID #
- Recover > Address
- Recover > ID #
- Antipass Group

2. User Setting

- Password
- Access Mode
- Extend Options
- Single Floor
- Multi Floor
- Enroll Finger
- Delete Finger

3. Parameters[1]

- Node ID
- OnOff OpenZone
- Door Relay Tm
- Door Close Tm
- Alarm Relay Tm
- Alarm Delay Tm
- Arming Delay Tm
- Arming PWD

4. Parameters[2]

- Auto Relock
- Egress(R.T.E)
- Miscellaneous
- Force Open
- Close & Stop
- Anti-pass-back
- Duress Code
- Password Mode
- Factory Reset

5. Tools

- Language
- Master Code
- Master Range
- Terminal RS-485
- Ext.Comm CN11
- Open Time Zone
- Informations
- Clock Setting
- Daily Alarm

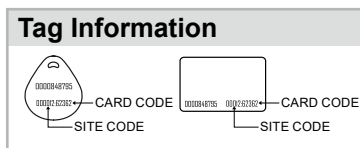
- UART Port CN9
- Event Logs

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 are **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 → 3 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 Password → Input 5-digit user address → Input 4-digit PIN (0001~9999) → Succeeded
Or via 701Client set it on Users screen

F. Adding / Deleting Fingerprint

• **Adding**
Access programming mode → 2 User Setting → 6 Enroll FP → Key in 5-digit user address → 1 or 2 different fingers on the sensor lens → Succeeded
P.S. The AR-837EF(9000DO) needs to collect twice for each fingerprint ; however, AR-837EF(1500DO) needs to collect three times for each fingerprint.

• **Deleting**
Access programming mode → 2 User Setting → 7 Delete FP → Key in 5-digit user address → Succeeded
P.S. If you want to delete all users' 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 (837EF: → Finger Identify: 0: Must ; 1: Ignore)
→ Succeeded

Access Mode	Finger Identify (837EF Only)		Result (837EF Only)
	Hardware	701Client	
0:Invalid	0: Must	<input type="checkbox"/> Just fingerprint <input type="checkbox"/> Just card control	Invalid User
	1: Ignore	<input checked="" type="checkbox"/> Just fingerprint <input checked="" type="checkbox"/> Just card control	
1:Card	0: Must	<input type="checkbox"/> Just fingerprint <input type="checkbox"/> Just card control	Finger+Card
	1: Ignore	<input checked="" type="checkbox"/> Just fingerprint <input checked="" type="checkbox"/> Just card control	1. Card Only 2. Finger Only
2:Card or PIN	0: Must	<input type="checkbox"/> Just fingerprint <input type="checkbox"/> Just card control	1. Finger+Card 2. Finger+PIN 3. Card+Finger+PIN 4. Card+Finger+Card 5. PIN+Finger+PIN 6. PIN+Finger+Card
	1: Ignore	<input checked="" type="checkbox"/> Just fingerprint <input checked="" type="checkbox"/> Just card control	1. Card Only 2. PIN Only 3. Finger Only
3:Card and PIN	0: Must	<input type="checkbox"/> Just fingerprint <input type="checkbox"/> Just card control	Finger+Card+PIN
	1: Ignore	<input checked="" type="checkbox"/> Just fingerprint <input checked="" type="checkbox"/> Just card control	1. Card+PIN 2. Finger+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 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 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. **Door is open overtime:** 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. **Door position is abnormal:** Happening when power is off and then on again, besides, reader was on arming before power went off.

• **Enable/Disable the arming status:**

Standby Mode			
Card only		Card or PIN	
Open the door	No open the door	Input user address → Input	Card and PIN
Present the tag to reader → Input	* → Input 4-digit arming PWD	4-digit individual PWD → # →	Present the tag to reader → Input
4-digit arming PWD → #	→ Present the tag to reader	Input 4-digit arming PWD → #	4-digit individual 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 anti-pass-back function, the access mode must be "Card" only.

• **Device enable**

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-401RO16B 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 725L485)

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]**

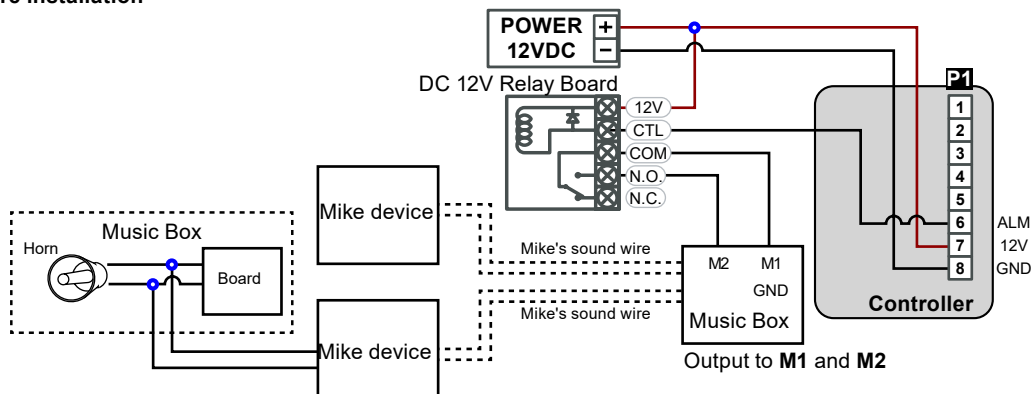
[e.g.] Set NO. 114, can use it through the 8 F and 16F:

Access programming mode → 2 User Setting → 5 Multi Floor → 114 # → 1 # → 00000010000001 #

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 Imm. 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

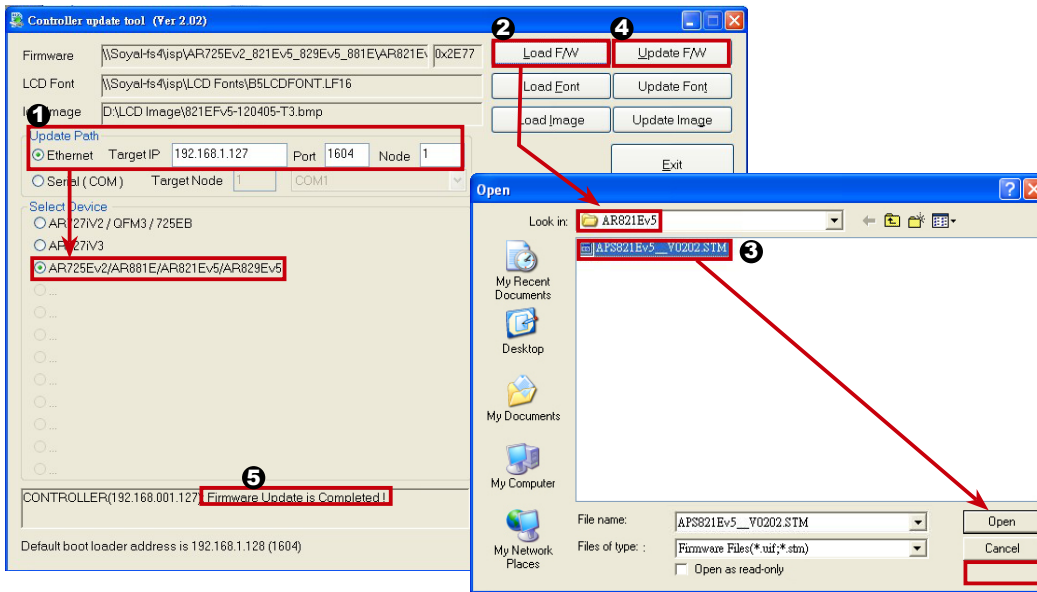
Q. Open TimeZone

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

Firmware Upgrade

Get the upgrade software from SOYAL or our distributor and run "UdpUpdater" software

- **Execute the software**  The software is within SOYAL CD or please login the SOYAL website to download



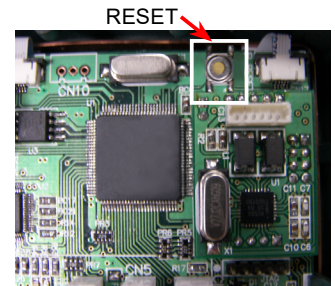
The image shows two screenshots from a Windows environment. The top screenshot is the 'Controller update tool (Ver 2.02)' application. It has several fields: 'Firmware' (pointing to a path), 'LCD Font' (pointing to a path), 'Image' (pointing to a path), 'Update Path' (with 'Ethernet' selected, 'Target IP' 192.168.1.127, 'Port' 1604, and 'Node' 1), and 'Select Device' (with 'AR725Ev2/AR881E/AR821Ev5/AR829Ev5' selected). There are buttons for 'Load F/W', 'Update F/W', 'Load Font', 'Update Font', 'Load Image', and 'Update Image'. The bottom screenshot is a file explorer window showing the 'AR821Ev5' folder. A file named 'AFS821Ev5_V0202.STM' is selected. Red arrows and numbers (1-5) indicate the steps described in the text.

- **Update the firmware**
[Please login the SOYAL website to download the new ISP Firmware.]
 1. Input the Target Address and Port
 2. [Load F/W] open the documents that have the new ISP Firmware
 3. Click the new ISP Firmware and [Open] it
 4. Click [Update F/W] to start the firmware update
 5. Till the screen shown [Firmware Update is Complete]

Restoring Factory Settings

Reset all device parameters and user card data

- **Reset all device parameters and user card data:**
 Access programming mode → **4** Parameters2 → **9** Factory Reset → **0 : System Param ; 1 : User Setting ; 2 : System & User**
- **Reset IP Setting:**
 When the device's power is on, press the [RESET] button on the main board until the ERR (Red) LED of screen lights up. (Refere to the picture beside)

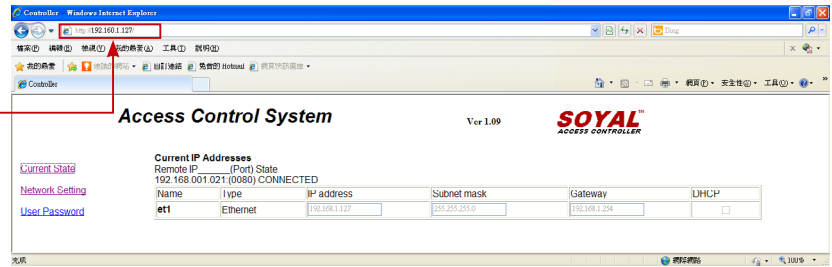


- ※ After operation as above, you will hear a long reminder sound, and wait until the sound disappears, and then reset the power of the controller. The device will be restored to factory settings.
 - ※ After having done the "Factory Reset," the External Communication Port must be reset. Or the biometric sensor won't be functional.
- 5 Tools → 5 Ext. Comm Port (0:FP-200 ; 1:Lift ; 2:Vein2000 ; 3:FP-9000 ; 4:Reserved)**

IP Setting

- Open your Web Browser and input factory default IP address: <http://192.168.1.127>

If the IP address of AR-837 (E/EF) has been changed, we must enter the new IP address.



- Page menu

[Current Status](#)

← Monitor the on-line computer

[Network Setting](#)

← IP Setting

[User Password](#)

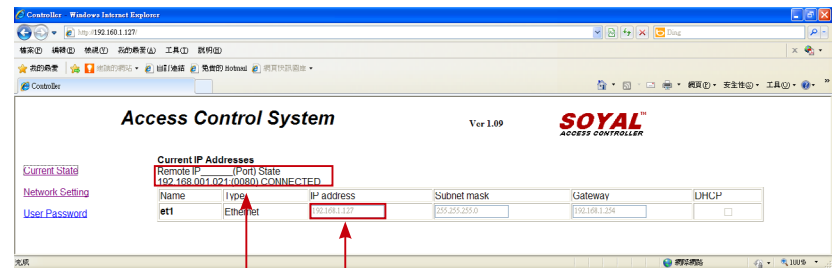
← Change the Log-in information

- Current State

Online Status is able to monitor and show which computer is linking on Ethernet Module

Show which computer is linking on Ethernet Module.

Current IP address of the AR-837 (E/F)



- Log-in User Password

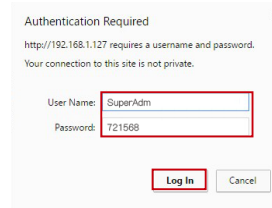
When you choose the "Networking Setting" or "User Password" at first.

Log-in window will pop out and please input

※ At the Factory Default

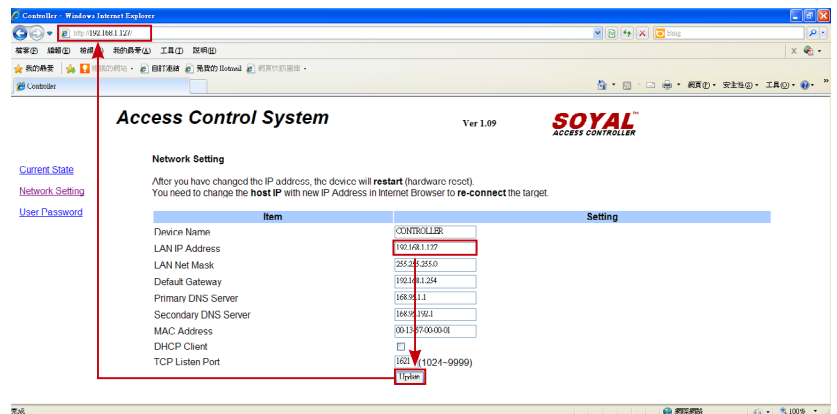
User name: SuperAdm

Password: 721568



- Networking Setting

You will find initial IP Address 192.168.1.127 and check MAC Address is identical to the sticker on Ethernet Module device. Please alter the IP address as you want, and then click "Update" button. After updating the IP, please re-connect the Web Browser by the new IP address.



- User Password

Change the log-in password to lock the IP setting of Ethernet Module.

The password is composed of 10 characters at most which can be either A~Z or 0~9.

