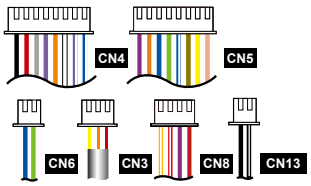
Contents

AR-837-EL:

1 Products

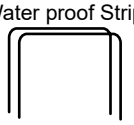
2 Terminal Cables



3 Tools

Screws

Water proof Strip X2



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-321L485-5V (TTL to RS-485 Converter)

Key Features

- Support both 125kHz and 13.56MHz dual frequency RFID
- Scan QR Code to easily open the door!
- Support Date Limit or Frequency limit of QR Code access, with higher security!
- Scan QR Code image on smartphones or printed on paper, with E Series controller to quickly scan QR Code
- It is convenient for you to obtain the permission of access control, not only able to scan QR Code, but also supports EM and Mifare cards.
- It is suitable for places that require the use of regular and short-term access, such as visitor systems, temporary building permit, dormitory, suite management, and etc.

Specification

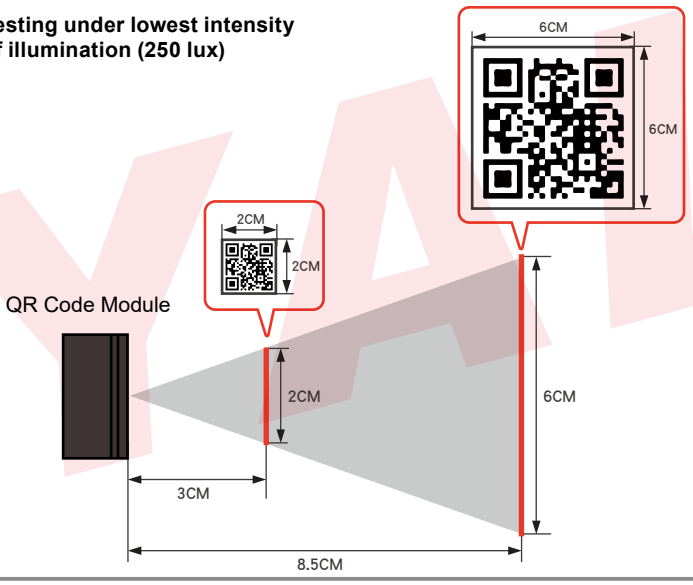
QRCode supported format:
(The standard firmware supports QR Code format as below and other QR Code format can be supported by customized firmware.)

- QRCo08A12345678
- QRCo10A1234567890
- QRCo14A12345678901234
- QRCo55W1234556789
- QRCo08H33CDAB88
- QRCo16H001122334455667788

Type of Bar Code	Density	Min. distance	Max. distance
Code 39	0.125 mm (5 mils)	4.0 cm	9.0 cm
	0.375 mm (15 mils)	4.0 cm	25.0 cm
UPC/EAN	0.375 mm (15 mils)	4.0 cm	25.0 cm
Code93	0.254 mm (10 mils)	4.0 cm	21.0 cm

QR Code Scan Area

Testing under lowest intensity of illumination (250 lux)

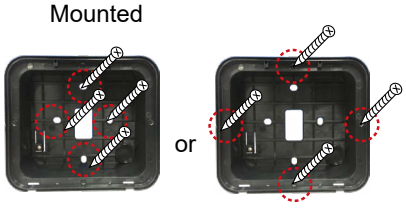


Installation

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 AR-837-EL: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-EL 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

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 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.

QR Code Access Controller

V200515

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
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: CN6

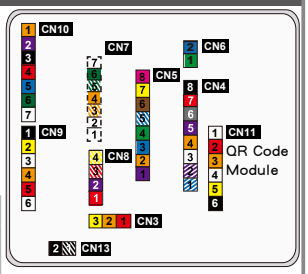
Wire Application	Wire	Color	Description
RS-485 for Lift Controller	1	Thick Green	RS-485(B-)
	2	Thick Blue	RS-485(A+)

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: CN9

Wire Application	Wire	Color	Description
UART Port for extension module and functions. support TTL to RS485 function with AR-321L485-5V for voice module(*Required speaker 8Ω / 1.5W (Max. 2W), lift control module, swipe card automatically printed data on line printer, LED board, bluetooth module, etc	1	Black	DC 0V
	2	Yellow	TX
	3	White	TE
	4	Orange	RX
	5	Red	DC 5V
	6	Blue	--

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

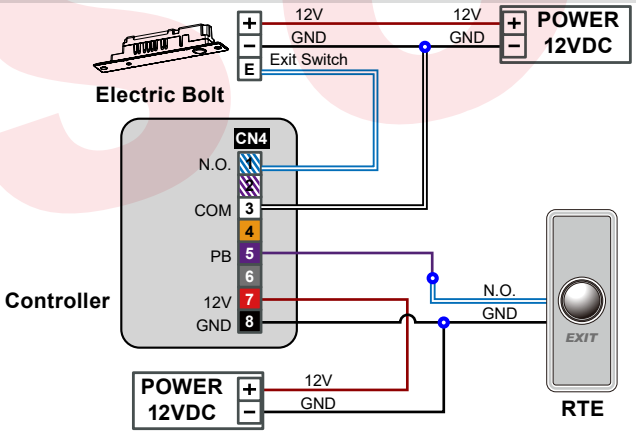
Wire Application	Wire	Color	Description
	1	---	---
	2	---	---
TCP/IP Output	3	Orange White	Net - TX+
	4	Orange	Net - TX-
	5	Green White	Net - RX+
	6	Gerrn	Net - RX-
	7	---	---

Cable: CN10

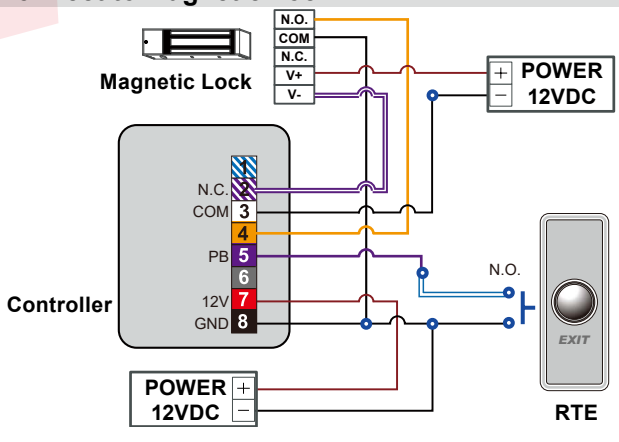
Wire Application	Wire	Color	Description
Blutooth Module, RFID Module, etc	1	Orange	ANT 1
	2	Purple	ANT 2
	3	Black	DC 0V
	4	Red	DC 5V
	5	Blue	Wiegand DAT: 1 Input
	6	Green	Wiegand DAT: 0 Input
	7	White	--

Wiring Diagram

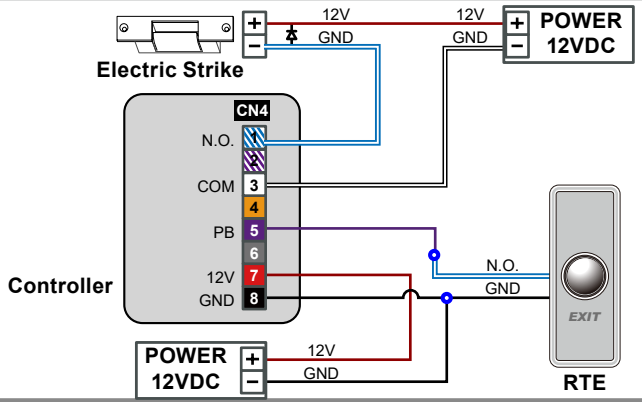
Connect to Electric Bolt



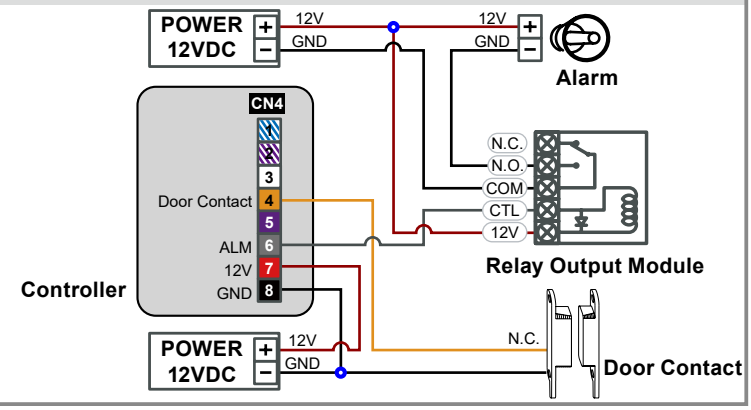
Connect to Magnetic Lock



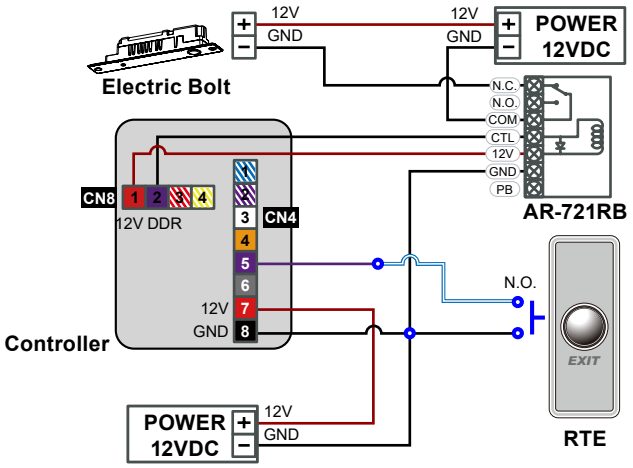
Connect to Electric Strike



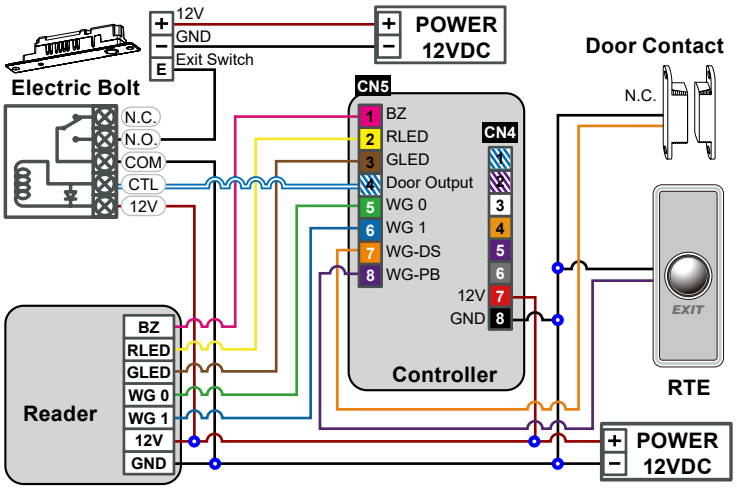
Connect to Door Contact



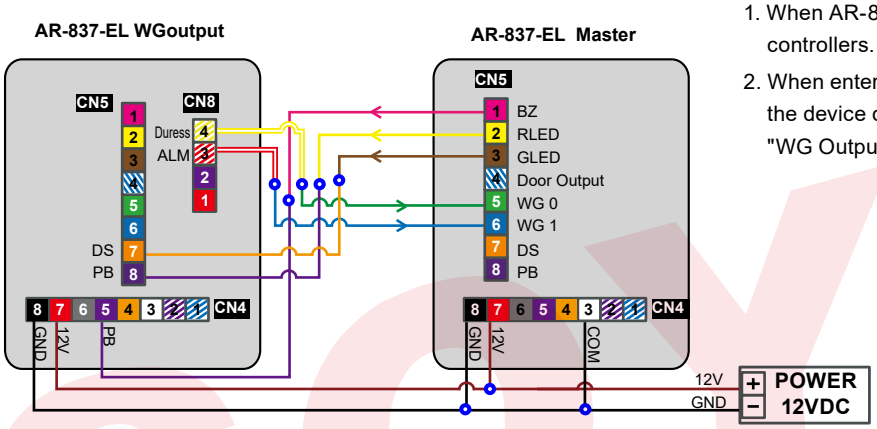
Strengthen security with AR-721RB



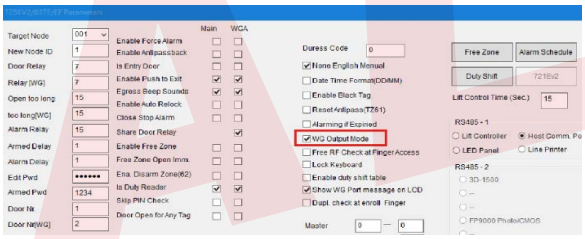
Connect to Reader



AR-837-EL become WG mode (28 * 000 #)



1. When AR-837-EL become WG mode,it can be used with any controllers.
2. 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)

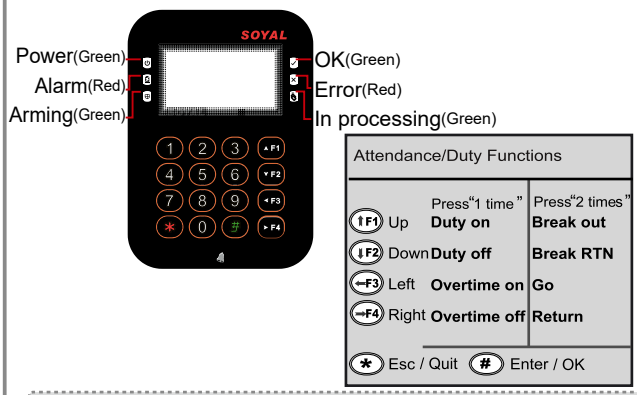
- **Changing the Master Code**
  Access programming mode → 5 Tools → 2 Master Code → Input the 6-digit new master code → Succeeded

C. Initial setup

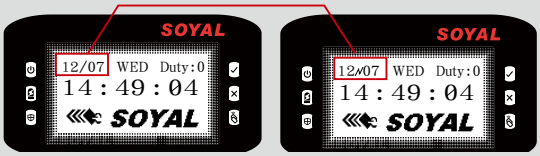
- **Language Setting**
  Access programming mode → 5 Tools → 1 Language → 0 EN → Succeeded → Initial system...

- **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



1. System will automatically exit Programming Mode when inactivating for 30 seconds.
2. 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
3. Keypad will be locked up 30 sec. when incorrect pin code or master code is constantly entered.
4. 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
1. Add > Card ID
2. 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 Finger
7. Delete Finger

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. Informations
8. Clock Setting
9. Daily Alarm

0. UART Port CN9
A. Event Logs

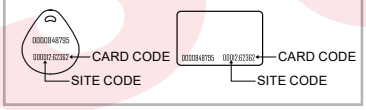
6. Quit

7. Quit & Arming

D. Adding and Deleting Tag

※ User capacity: 16384 (00000~16383)

Tag Information



- **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. Access Mode

Access programming mode → 2 User Setting→ Access Mode→ Key in 5-digit user address (00000~08999)
→ **0: Invalid; 1:Card; 2: Card or PIN; 3: Card and PIN** → Succeeded

※ If you choose an Access Mode that requires a PIN, Please follow the quick command 4. Parameters(2)> 3. Miscellaneous and Pay attention to the choices in Time attendances / miscellaneous settings:
Main controller skip PIN check. Select 0: NO
WG1 Port skip PIN check. Select 0: NO
If the PIN setting and the Access mode do not match, it will affect the controller's interpretation error and prevent access.

G. 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

H. 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

I. 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.

J. 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

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

※ **[Use FP] can substitute for [Induct valid card].**

L. 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]

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

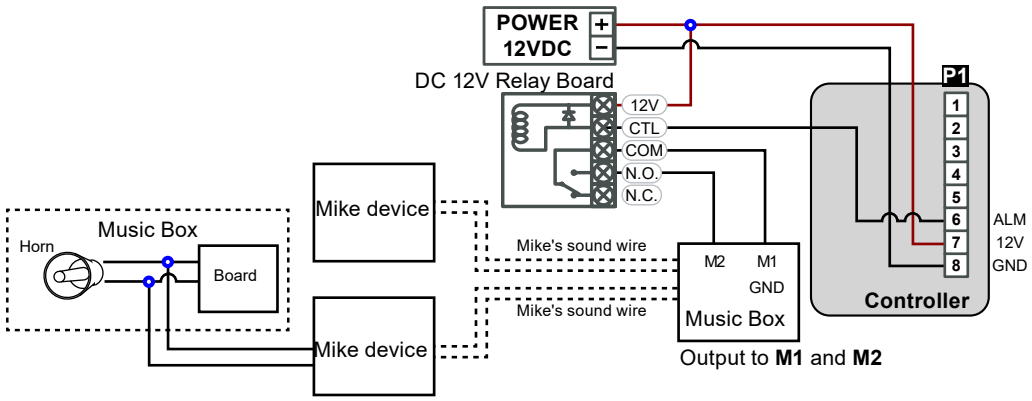
- **Single floor**
  Access programming mode → 2 User Setting → 4 Single Floor → **Input 5-digit user address** → **Input single floor number: 1~64**

- **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** #

N. 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**



O. 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

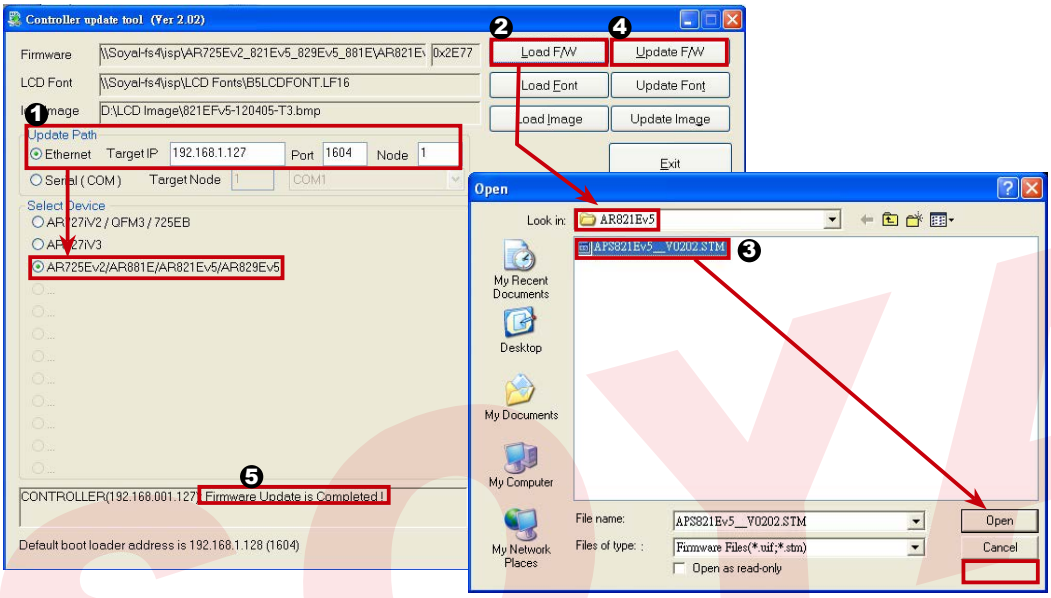
P. Open TimeZone

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



- **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

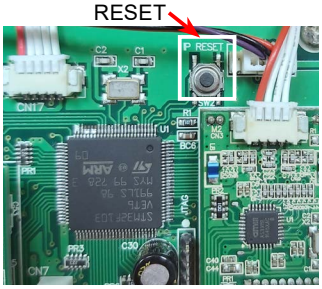
Reset all device parameters and user card data

- **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 untill 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.

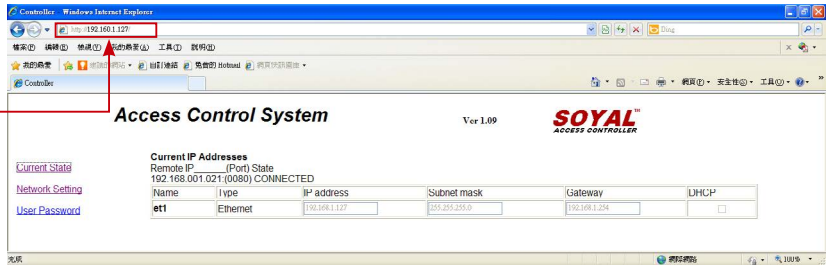
※ After having done the "Factory Reset," the External Communication Port must be reset. Or the biometric sensor won't be functional.

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-EL has be changed, we must enter the new IP address.

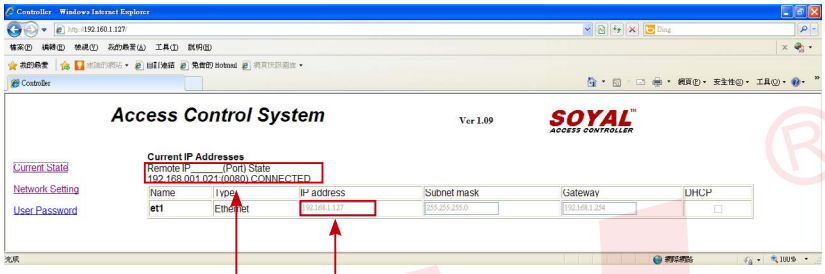


- **Page menu**

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-EL

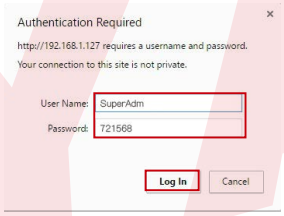
- **Log-in User Password**

When you choose the "Networking Setting" or "User Password" at first. Log-in window will pop out and please input

※ At the Factory Default

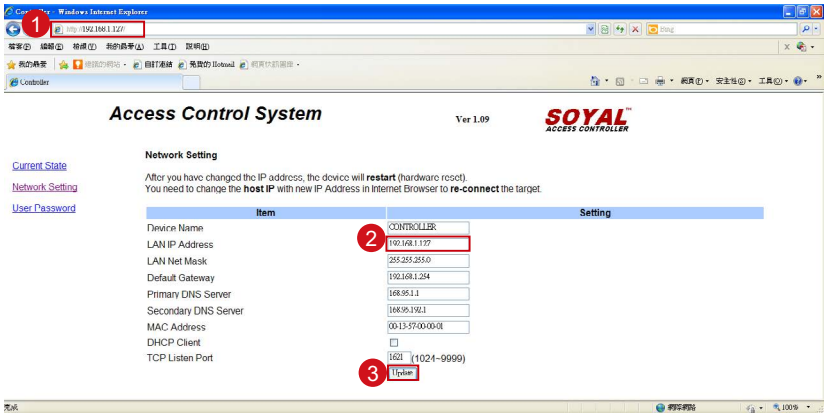
User name: SuperAdm

Password: 721568



- **Networking Setting**

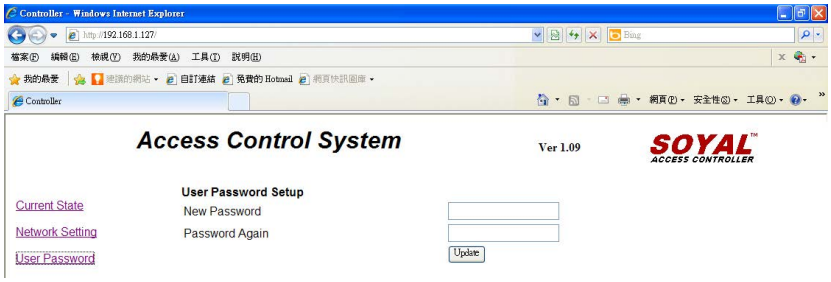
You will find initial IP Address 192.168.1.127 and check MAC Address is identical to the sticker on Ethernet Module device. Please alter the IP address as you want, and then click “Update” button. After updating the IP, please re-connect the Web Browser by the new IP address.



- **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.

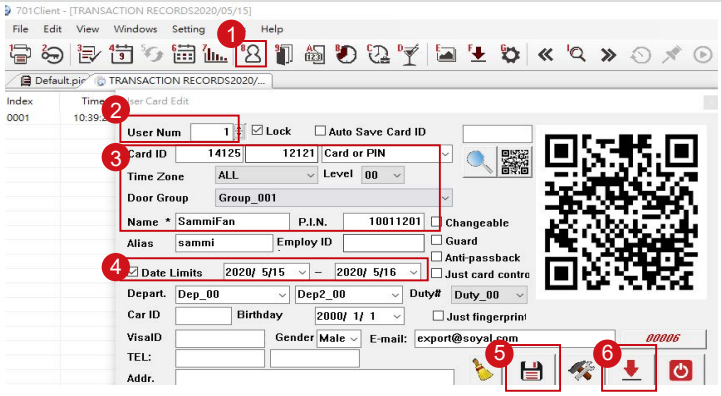


Setting Process of Generating / Receiving QR Code

Generate QR Code on 701 Client software

- **Configure Email Server data on "User level Menu"**

Step.1 Click "8 User Cards Edit"
Step.2 Select User Number one,
Step.3 Fill in Card ID ,Select the specific Door Group , Fill in "User Name"
Step.4 Assign the date limits, enter start date, enter expired date
Step.5 Click Save button. The new QR code badge is generated.
Step.6 Click " download" button to download the user data to Controller.



Receiving QR Code ways

- **Save QR Code Image to the folder**

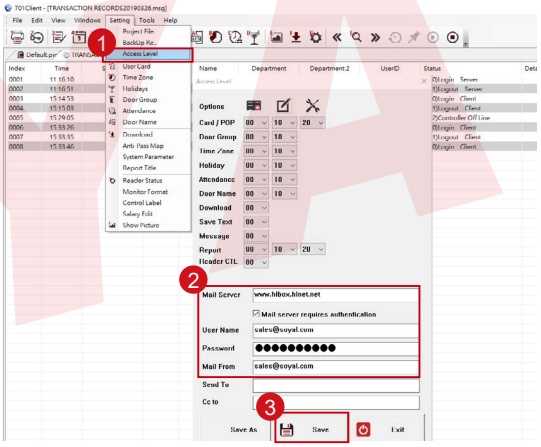
When clicking the button whether or not you configure Email, QR code image will be saved to the path of C:\Program Files (x86)\701Client\PopGra with the filed name QRCodeXXXX.jpg (XXXX mean User Address)

- **Send out QR Code via Email**

1. Configure Email Server data on "User level Menu"

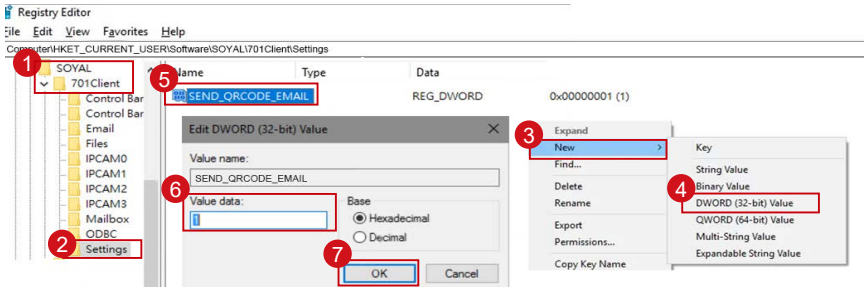
Step.1 Click " Access Level "
Step.2 Setting Mail Server ,User Name (Email Username), Password (Email Password) ,Mail From (Email Address)
Step.3 Save after sending

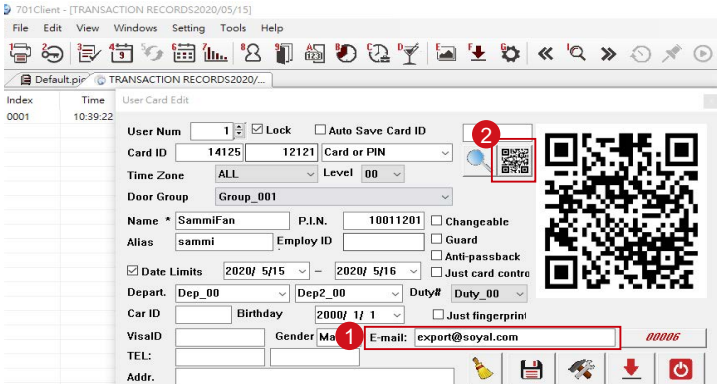
＊**Note:** The personal email such as Gmail / Hotmail that don't support E-mail Server setting don't support the function of sending our QR Code on 701Client Software



2. Enter to "Registry Editor" to configure Email Value

Add "SEND_QRCODE_EMAIL" under Settings/701Client/SOYAL,and Set its value to 1



3. Fill in the assigned E-mail address; after click the button, QR Code image will be sent to the assigned E-mail address.

Step.1 Fill the E-mail address that needs to receive the QR Code.
Step.2 Finally Click the QR Code Button,then the QR Code image will be sent to the assigned E-mail address,and also save to the image file under the path of C:\Program Files (x86)\701Client\ PopGra.