SOYAL AR-837-EL LCD Access Controller Instruction Manual

QR Code Access Controller
AR-837-EL
V220322

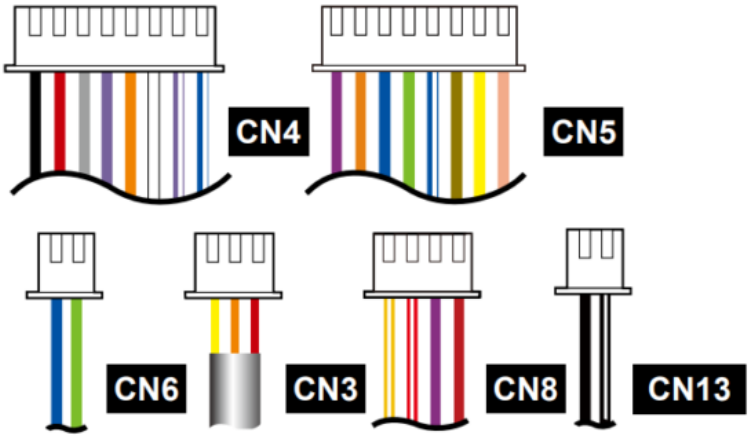
Contents

Contents

AR-837-EL:

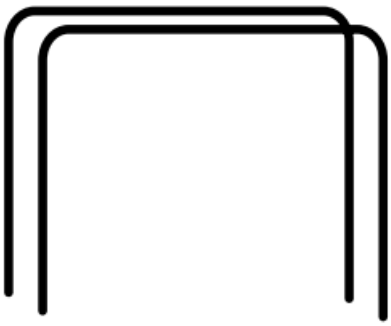
2 Terminal Cables

1.



3 Tools Screws

Waterproof Strip X2



4 Optional

- Ethernet:
  DMOD-NETMA10 (TCP/IP Module included RJ45 Connector)
  or
  DMOD-NETMA11 or (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 images on smartphones or printed on paper, with an 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 permits, dormitories, suite management, etc.

Specification

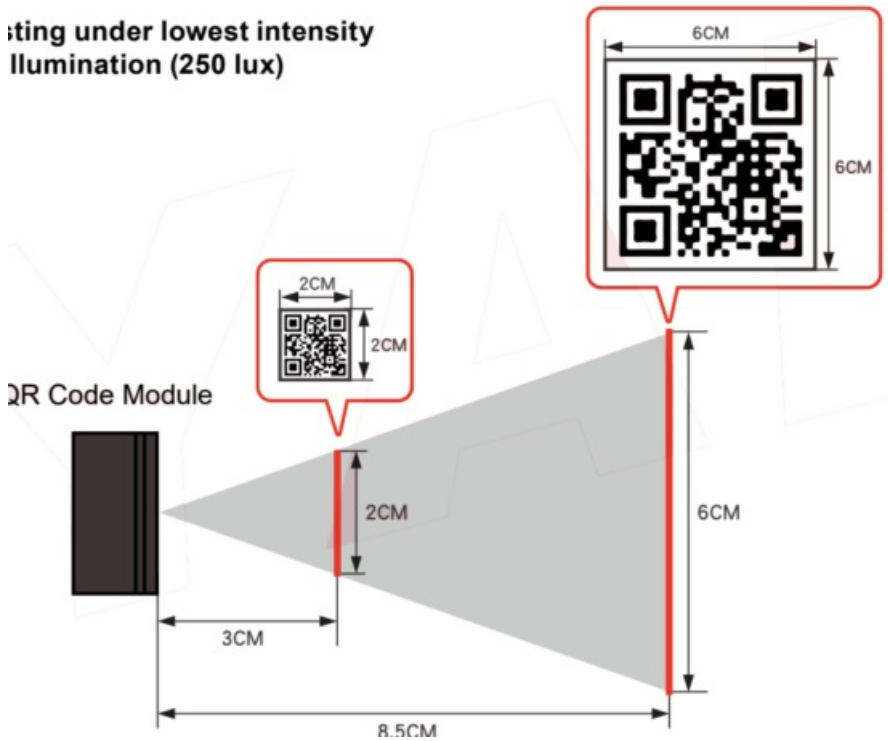
QRCode supported format:
(The standard firmware supports QR Code format as below and other QR Code formats can be supported by customized firmware.)

- QRCo08A12345678
- QRCo10A1234567890
- QRCo14A12345678901234
- QRCo55W1234556789
- QRCo08H33CDAB88
- QRCo16H0011223344556677 88

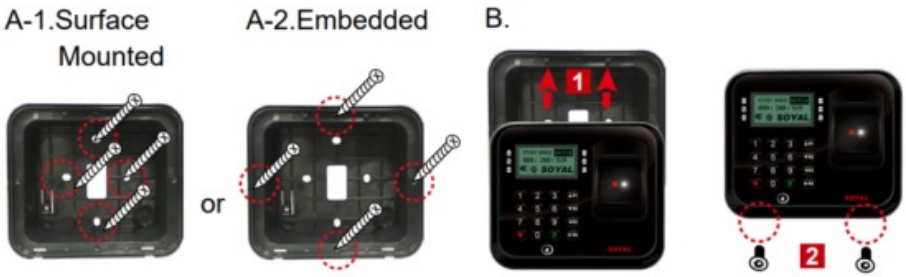
Type of Bar Code	Density	Min. distance	M
Code 39	0.125 mm (5 mils)	4.0 cm	9
	0.375 mm (15 mils)	4.0 cm	2
UPC/EAN	0.375 mm (15 mils)	4.0 cm	2
Code93	0.254 mm (10 mils)	4.0 cm	2

QR Code Scan Area

Testing under the lowest intensity of illumination (250 lux)



Installation

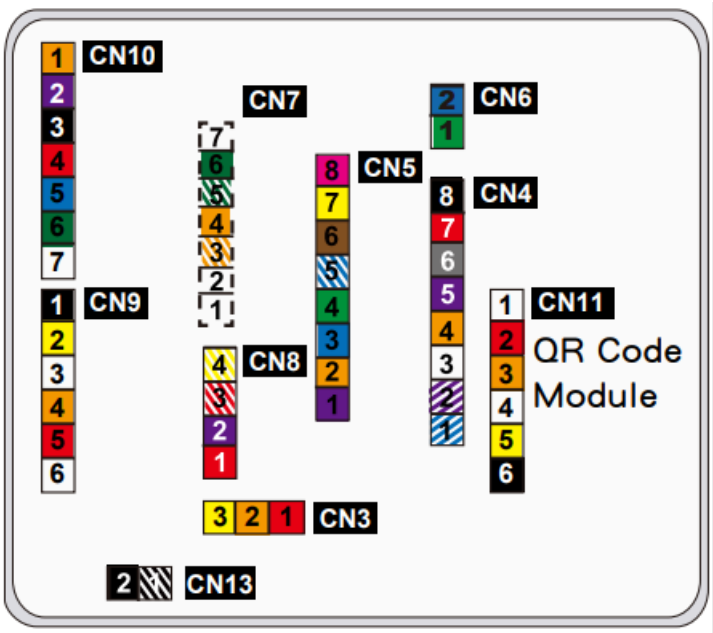


- A-1. Surface Mounted: Use a screwdriver to screw the mounting plate to the wall. A-2. Embedded: To dig a hole for AR-837-EL:128mmx109mm; and then, use a screwdriver to screw the mounting plate to the wall.
- Pull cable ends through the access hole in the mounting plate.
- Attach AR-837-EL to the mounting 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 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: 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
LED	2	Yellow	Red LED Output 5
	3	Brown	Green LED Outpu
Door Output	4	Blue White	Transistor Output (Open Collector A
Wiegand	5	Thin Green	Wiegand DAT: 0 Ir
	6	Thin Blue	Wiegand DAT: 1 Ir
WG Door Contact	7	Orange	Negative Trigger I
WG Exit Switch	8	Purple	Negative Trigger I

Cable: `CN6`

Wire Application	Wire	Color
RS-485 for Lift Controller	1	Thick Green
	2	Thick Blue

Cable: `CN3`

Wire Application	Wire	Color	D
Anti-Tamper Switch	1	Red	N
	2	Orange	C
	3	Yellow	N

Cable: `CN8`

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

Cable: `CN9`

Wire Application	Wire	Col
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 online printer, LED board, Bluetooth module, etc	1	Bla
	2	Yell
	3	Wh
	4	Ora
	5	Red
	6	Blu

Cable: `CN13`

Wire Application	Wire	Color	Description
Door Bell	1	Black White	Transistor Output Max. 12V/100mA (Open Collector A
	2	Black	DC 0V

Connector Table (2): Optional

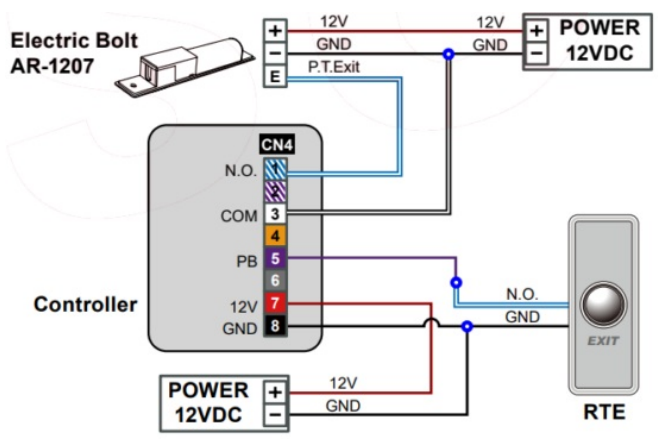
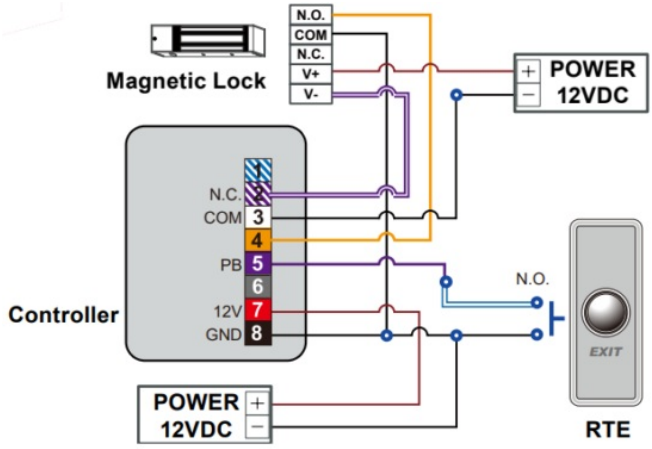
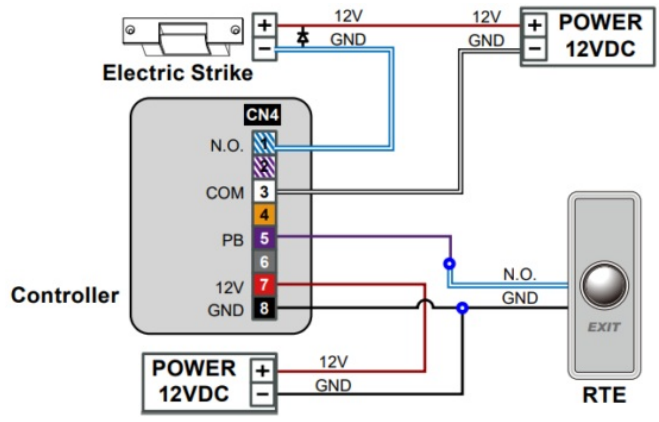
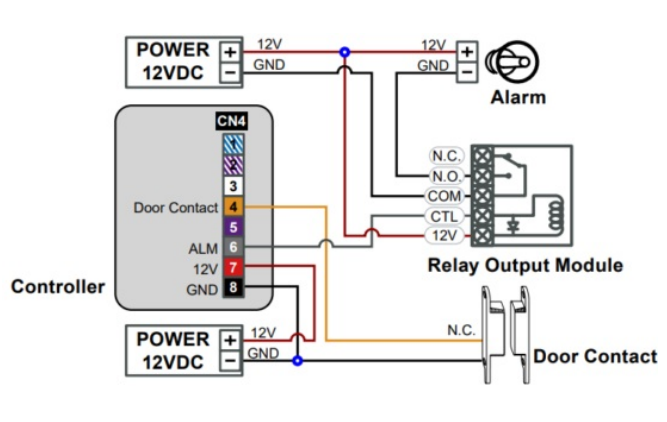
Cable: `CN7`

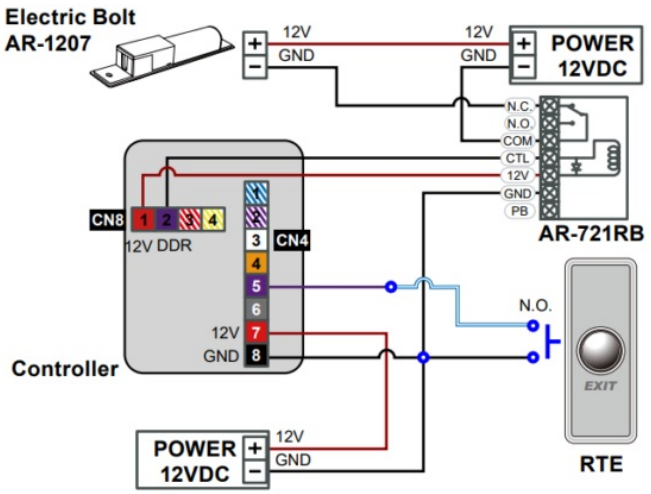
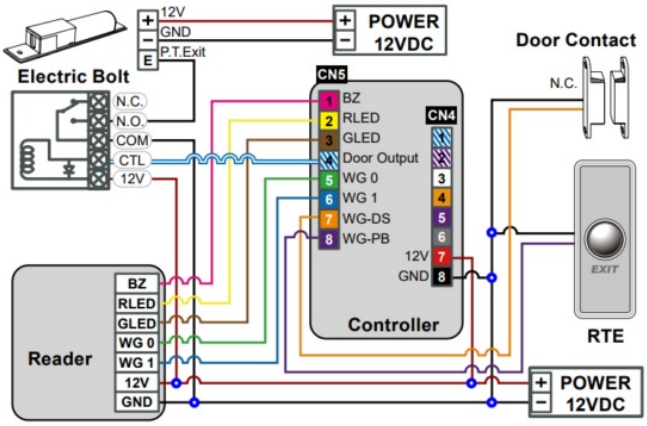
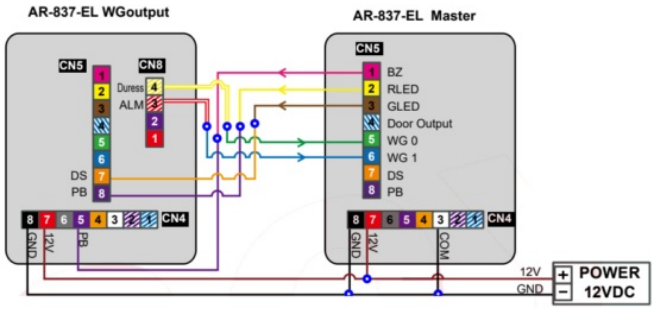
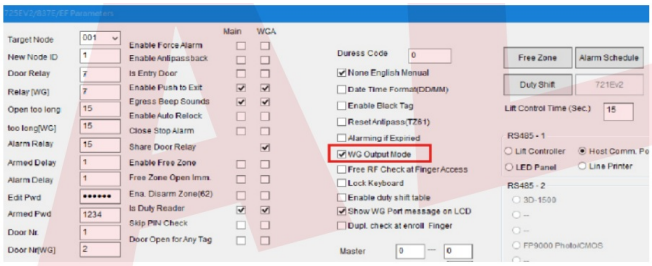
Wire Application	Wire	Color	Descri
	1	—	—
	2	—	—
TCP/IP Output	3	Orange White	Net – T
	4	Orange	Net – T
	5	Green White	Net – F
	6	Gerry	Net – F
	7	—	—

Cable: CN10

Wire Application	Wire	Color	Description
	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 becomes WG mode (28 * 000 #)	
	1. When AR-837-EL becomes WG mode, it can be used with any controller. 2. When entering the Parameter Setting Window on 701Server, the device can be changed to WG Slave M ode by Enabling the “WG Output Mode” Option. 

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 *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 → Quit 6 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. The system will automatically exit Programming Mode when inactivating for 30 seconds.
2. 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 with 2 beeps warning, and an LCD panel displays "Same Card: user address/card number"

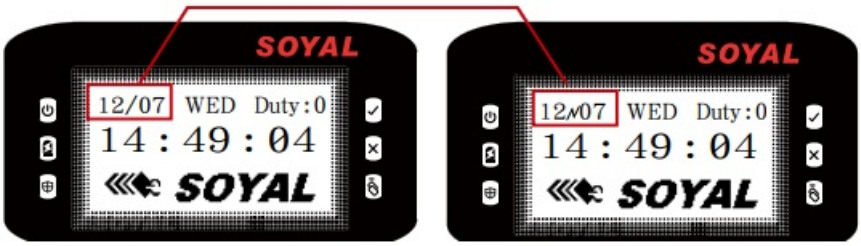
   Error (red)

   – 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
3. The keypad will be locked up for 30 sec. when an 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 〆 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

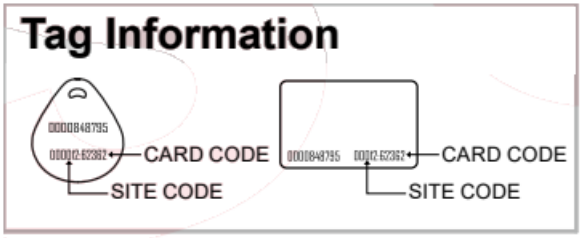
0. UART Port CN9
A. Event Logs

6. Quit

7. Quit & Arming

D. Adding and Deleting Tag

※ User capacity: 16384 (00000~16383)



- **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 → 3 Suspend -> Addr → Input Start to 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 to 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 to 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 the 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. Parameters(2)> . Miscellaneous and Pay attention to the choices in Time attendances/miscellaneous settings:
The main controller skips the 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 the 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 → Succeed
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 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.
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 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. Door position is abnormal: Happens when 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
Open the door	No open the door	**Input user address** - **4-digit individual PW** **Input 4-digit arming**
Present the tag to the reader → **Input 4-digit arming PWD →#**	* → **Input 4-digit arming PWD** → Present the tag to the reader	
Access Programming mode		
Enable: Access programming mode → 7 Quit & Arming		**Disable:** Access prog

❖ [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 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 Antipas Group → **Input 5-digit starting user address** → **Input 5-digit ending user addres**s → 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
	0	0	0	0	0	0	0	1	0	0
2	17	18	19	20	21	22	23	24	25	26
	0	0	0	0	0	0	0	0	0	0
3	33	34	35	36	37	38	39	40	41	42
	0	0	0	0	0	0	0	0	0	0
4	49	50	51	52	53	54	55	56	57	58
	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**

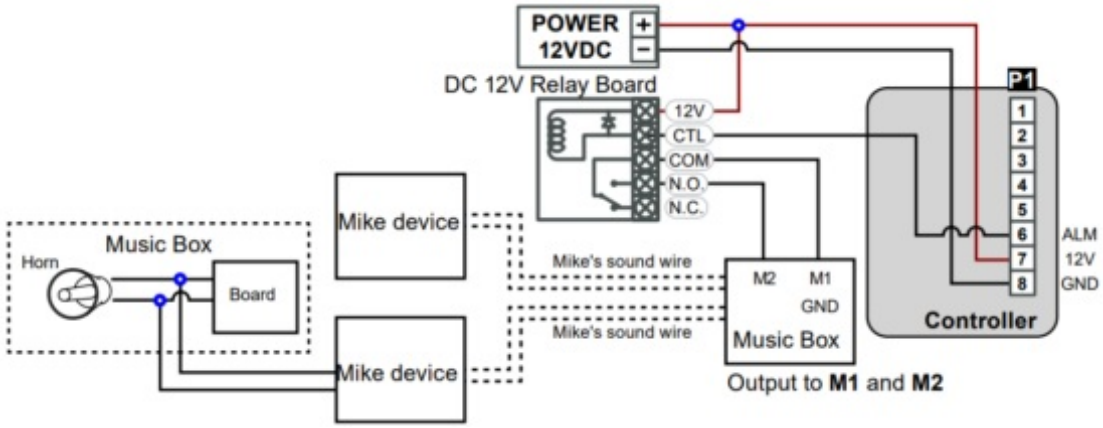
  multi floors number [0:disable, 1: enable]

  [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



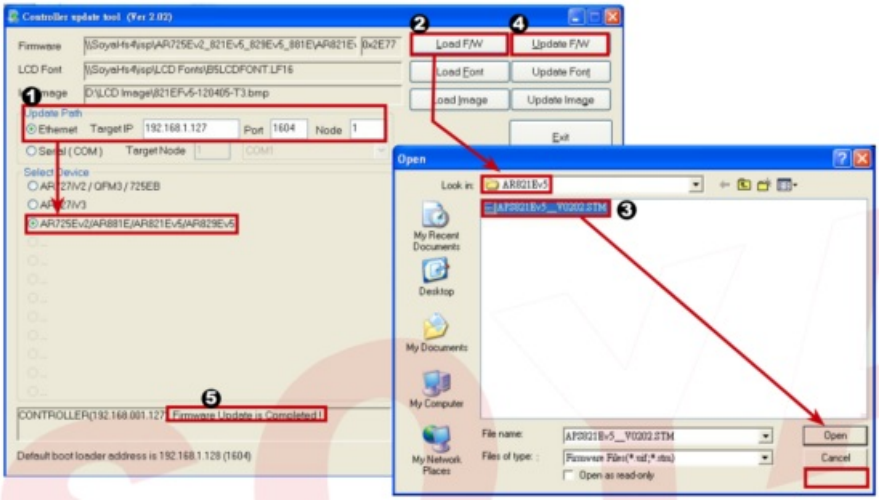
O. OpenZone
Access programming mode → 3 Parameters[1] → 2 OnOff OpenZone → **Main Controller Auto Open Zone (0:disable, 1:enable) →**
Open Door Imm. During Open Zone (0:No, 1:Yes) → WG1 Port Auto Open Zone (0:disable, 1:enable) → Open Door Imm. During
Open Zone (0:No, 1:Yes) → Succeeded
P. Open TimeZone
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 the "UdpUpdater" software

Execute the software 

The software is within SOYAL CD or pleases log in to the SOYAL website to download



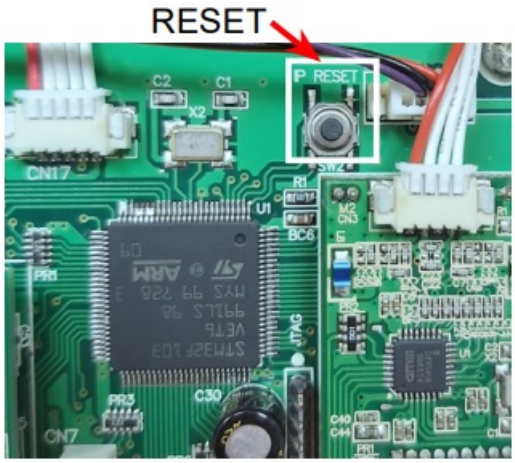
- **Update the firmware**

  [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

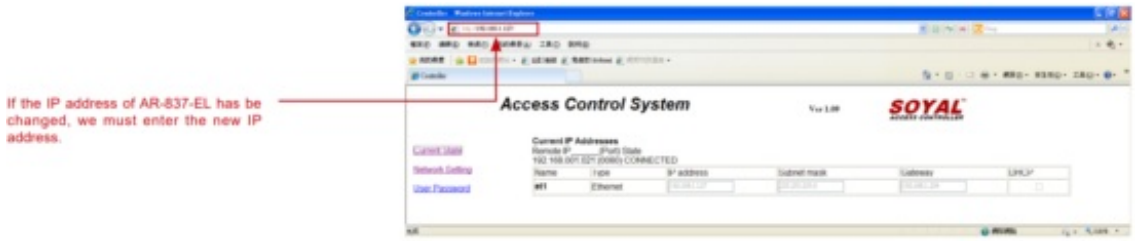
- **Reset IP Setting:**

  When the device's power is on, press the the RESET button on the mainboard until the ERR (Red) LED of the screen lights up. (Refer to the picture beside)

※ After the operation as above, you will hear a long reminder sound, 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 the factory default IP address: http://192.168.1.127**

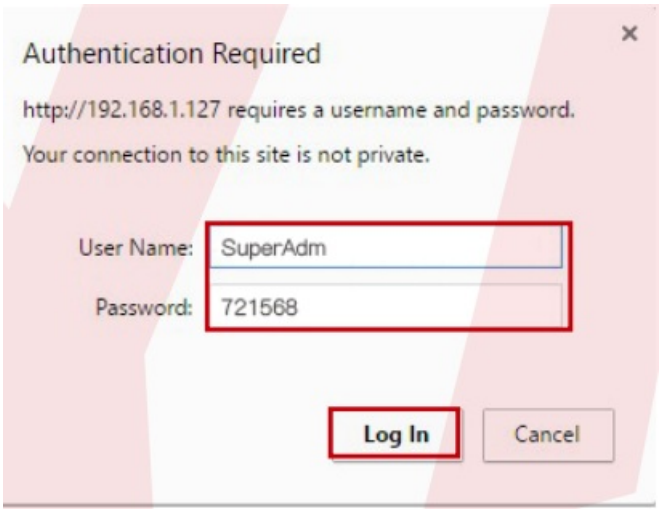


- **Page menu**

- **Current State**

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

- **Log-in User Password**



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

The Log-in window will pop out and please input

※ At the Factory Default

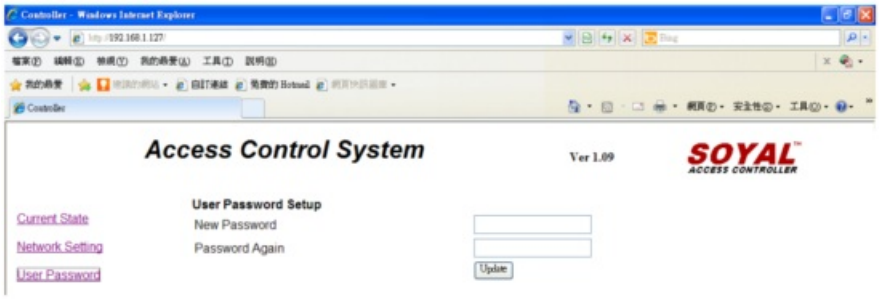
User name: SuperAdm

Password: 721568

- **Networking Setting**

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

- **User Password**

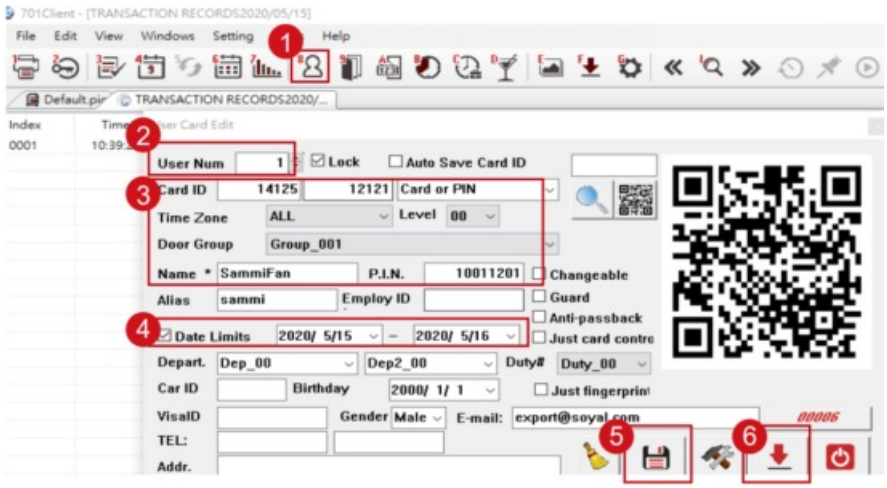


Change the log-in password to lock the IP setting of the Ethernet Module.

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

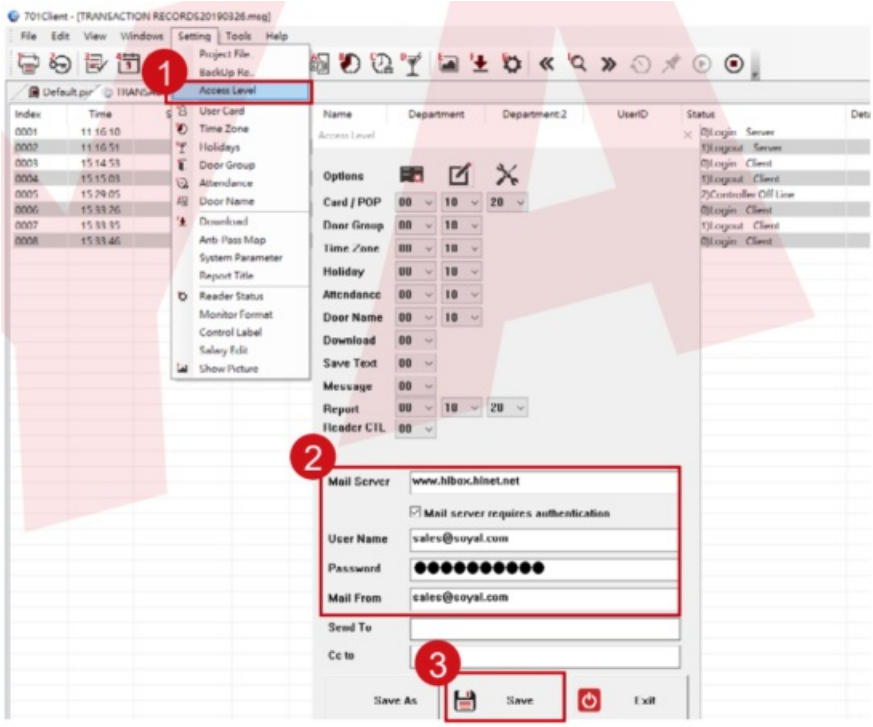


Configure Email Server data on the “User-level Menu”
Step.1 Click “8 User Cards Edit”
Step.2 Select User Number one,
Step.3 Fill in Card ID, Select the specific Door Group, and Fill in “User Name”
Step.4 Assign the date limits, enter a start date, enter an expired date
Step.5 Click the Save button. The new QR code badge is generated.
Step.6 Click the “ 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, the QR code image will be saved to the path of C:\Program Files (x86)\701Client\PopGra with the filed name QRCodeXXXX.jpg (XXXX means User Address)
- **Send out QR Code via Email**

1. **Configure Email Server data on the "User-level Menu"**

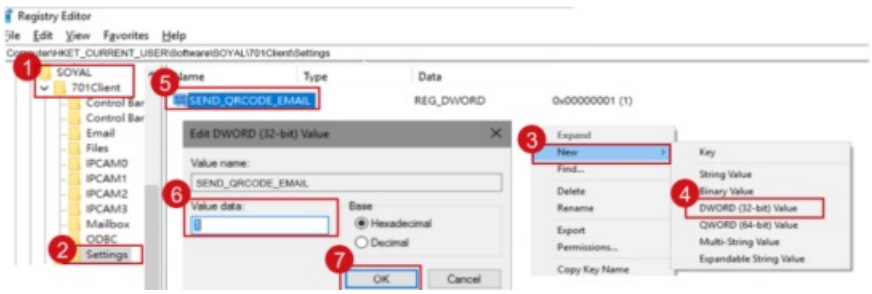


   Step.1 Click " Access Level "

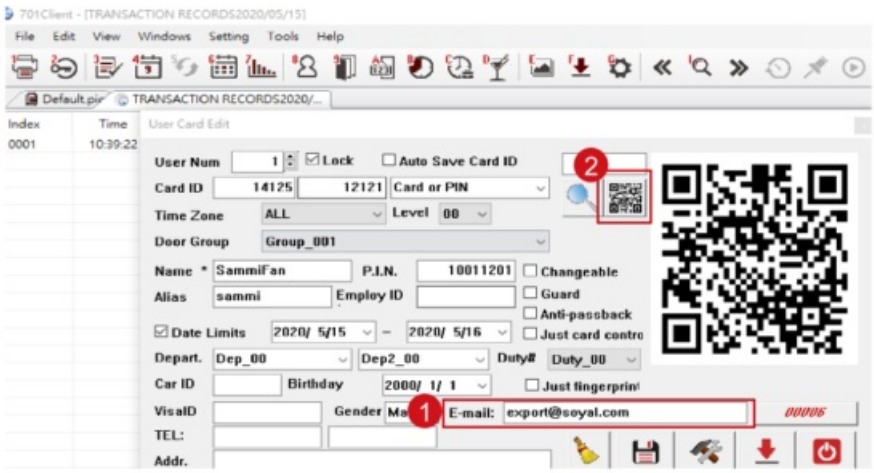
   Step.2 Setting Mail Server, User Name (Email Username), Password (Email Password), Mail From (Email Address)

   Step.3 Save after sending

   Note: The personal email such as Gmail / Hotmail that don't support the E-mail Server setting doesn't support the function of sending our QR Code on 701Client Software
2. **Enter "Registry Editor" to configure Email Value**



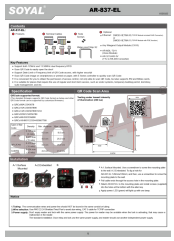
   Add "SEND_QRCODE_EMAIL" under Settings/701Client/SOYAL,and Set its value to 1
3. **Fill in the assigned E-mail address; after clicking the button, the QR Code image will be sent to the assigned E-mail address.**



Step.1 Fill in 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.

Documents / Resources

	SOYAL AR-837-EL LCD Access Controller [pdf] Instruction Manual AR-837-EL, LCD Access Controller