SOYAL®
ACCESS CONTROL SYSTEM

# AR-837

V140217

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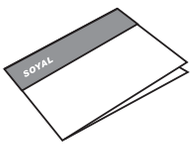
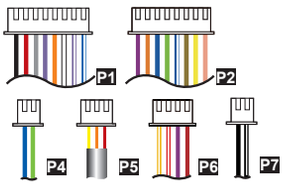
2 User Guide




3 Terminal Cables




4 Tools


Screws

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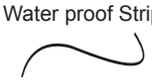
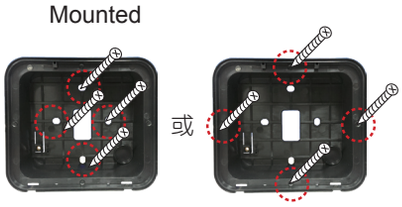


## Installation

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(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

**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.

## Connector Table (1)

### Cable: P1 CN4

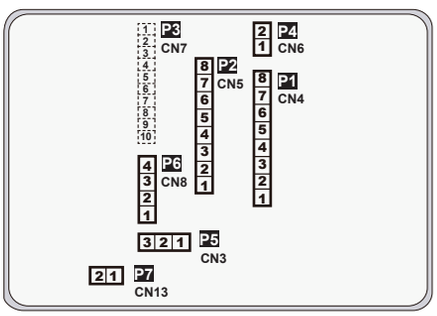
| Wire Application | Wire | Color | Description |
|---|---|---|---|
| Lock Relay | 1 | Blue White | (N.O.)DC24V1Amp |
| | 2 | Purple White | (N.C.)DC24V1Amp |
| Lock Relay COM | 3 | White | (COM)DC24V1Amp |
| Door Contact | 4 | Orange | Negative Trigger Input |
| Exit Switch | 5 | Purple | Negative Trigger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

### Cable: P2 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: P4 CN6

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




### Cable: P5 CN3

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

### Cable: P6 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: P7 CN13

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

# LCD / Biometrics Access Controller

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## Connector Table (2): Optional

### Cable: P3 CN7

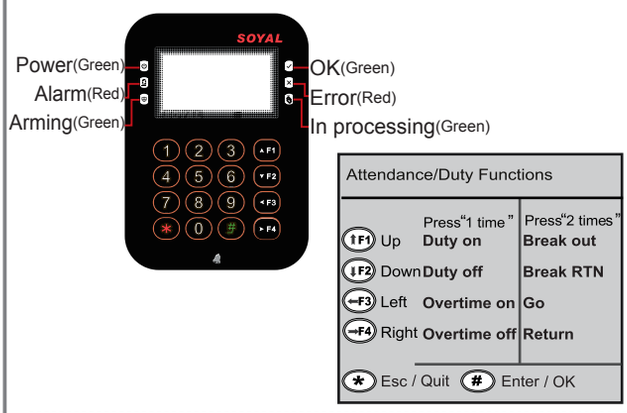
| Wire Application | Wire | Color | Description |
|---|---|---|---|
| TCP/IP Module | 1 | Black | DC 0V |
| | 2 | Red | DC 3.3V |
| | 3 | Black | DC 0V |
| | 4 | Blue | RSTN |
| | 5 | Green | IRQN |
| | 6 | Purple | NSS |
| | 7 | Brown | MISO |
| | 8 | White | MOSI |
| | 9 | Blue | CLK |
| | 10 | Black | DC 0V |

### Cable: P8

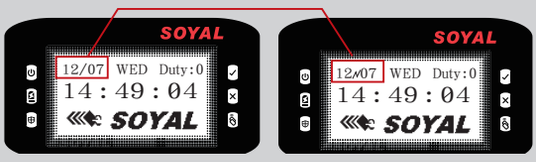
| Wire Application | Wire | Color | Description |
|---|---|---|---|
| HID RF Module | 1 | Orange | ANT 1 |
| | 2 | Purple | ANT 2 |
| | 3 | Black | DC 0V |
| | 4 | Red | DC 5V |
| | 5 | Blue | Wiegand DAT: 1 Input |
| | 6 | Green | Wiegand DAT: 0 Input |
| | 7 | White | -- |

### Cable: P9 CN9

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




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)



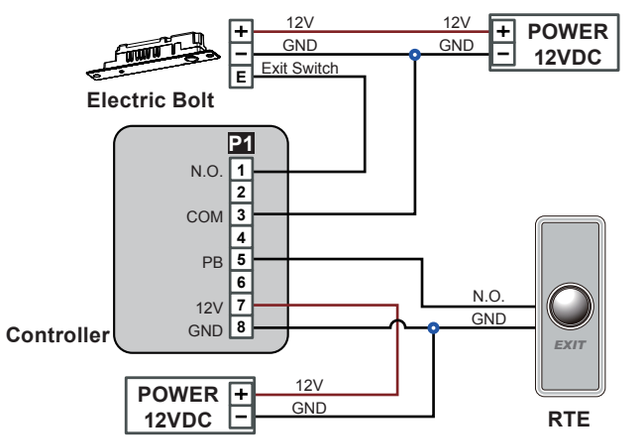

Networking : / and 〃 interactively flash between the Month and DAY.
[e.g.] 12/07←→12〃07

Stand-alone : No flashing [e.g.] 12/07

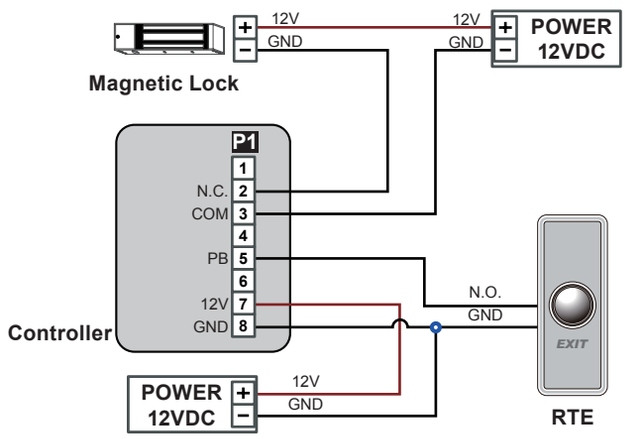
(←Reference to picture)

## Wiring Diagram

### Connect to Electric Bolt



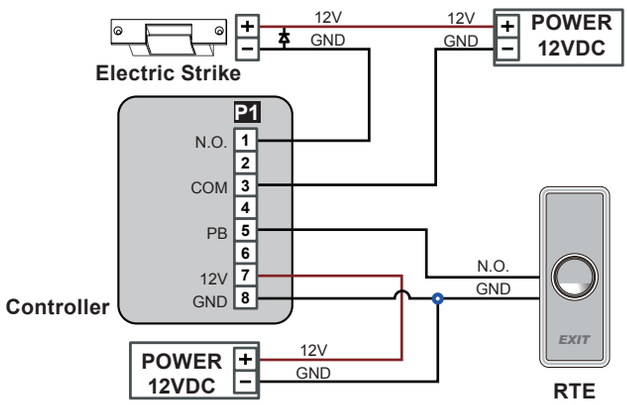

### Connect to Magnetic Lock



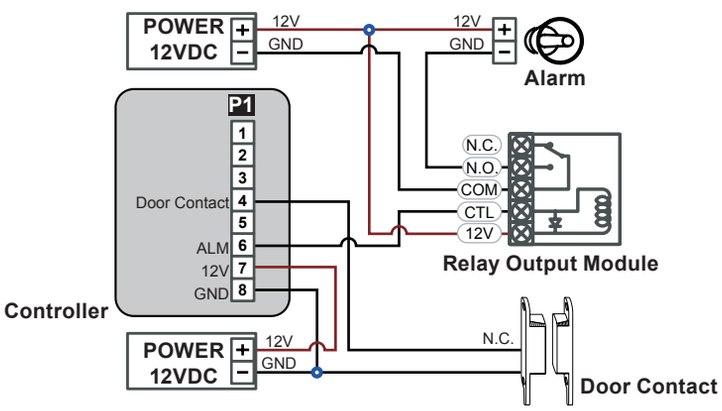
# AR-837



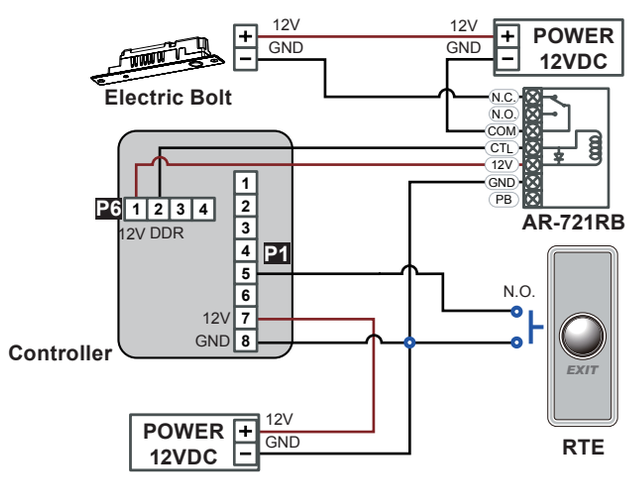
## Connect to Electric Strike



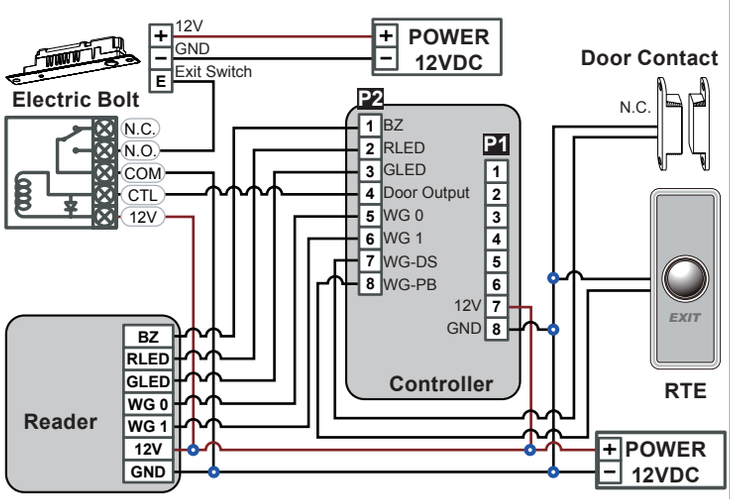

## Connect to Door Contact



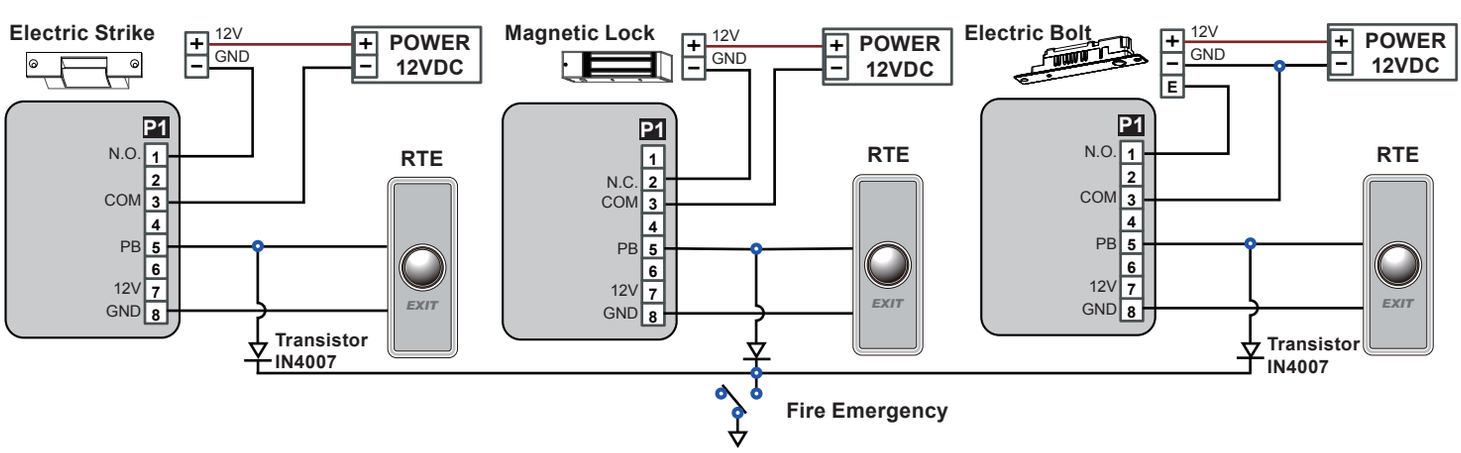

## Strengthen security with AR-721RB




## Connect to Reader




## In the event of a fire emergency, all doors can be opened by pressing the Fire Emergency switch.



# LCD / Biometrics Access Controller

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## 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

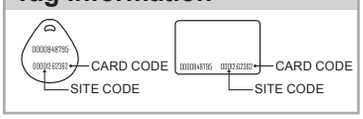
- **Language Setting**
  Access programming mode → 5 Tools → 1 Language → 0 EN → Succeeded → Initial system...

- **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

### 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. 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 needs to collect twice 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 | Hardware | 701Client | |
| 0:Invalid | | 0: Must | ☐ Just fingerprint<br>☐ Just card control | Invalid User |
| | | 1: Ignore | ☑ Just fingerprint<br>☑ Just card control | |
| 1:Card | | 0: Must | ☐ Just fingerprint<br>☐ Just card control | Finger+Card |
| | | 1: Ignore | ☑ Just fingerprint<br>☑ Just card control | 1. Card Only<br>2. Finger Only |
| 2:Card or PIN | | 0: Must | ☐ Just fingerprint<br>☐ Just card control | 1. Finger+Card<br>2. Finger+PIN<br>3. Card+Finger+PIN<br>4. Card+Finger+Card<br>5. PIN+Finger+PIN<br>6. PIN+Finger+Card |
| | | 1: Ignore | ☑ Just fingerprint<br>☑ Just card control | 1. Card Only<br>2. PIN Only<br>3. Finger Only |
| 3:Card and PIN | | 0: Must | ☐ Just fingerprint<br>☐ Just card control | Finger+Card+PIN |
| | | 1: Ignore | ☑ Just fingerprint<br>☑ Just card control | 1. Card+PIN<br>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 | 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].**

## M. Anti-pass-back

While connecting with AR-721U, AR-737H/U(WG mode) and AR-661U 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]**

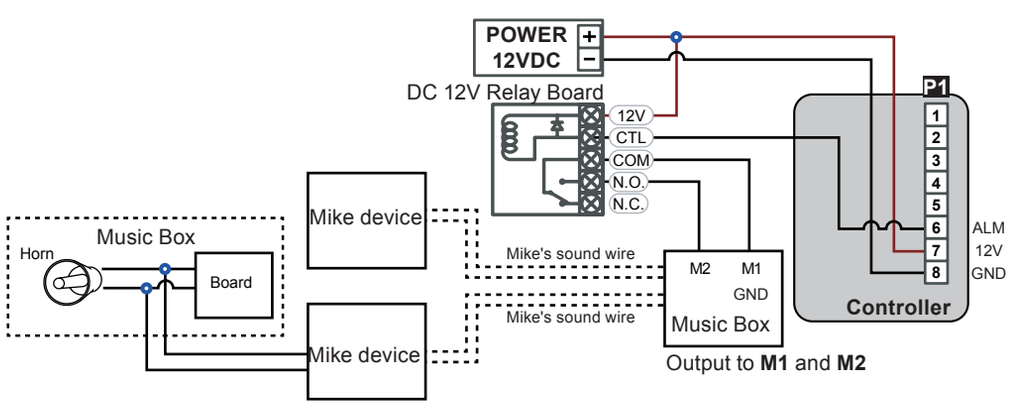
  [e.g.] Set NO. 114, can use it through the 8 F and 16F:

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

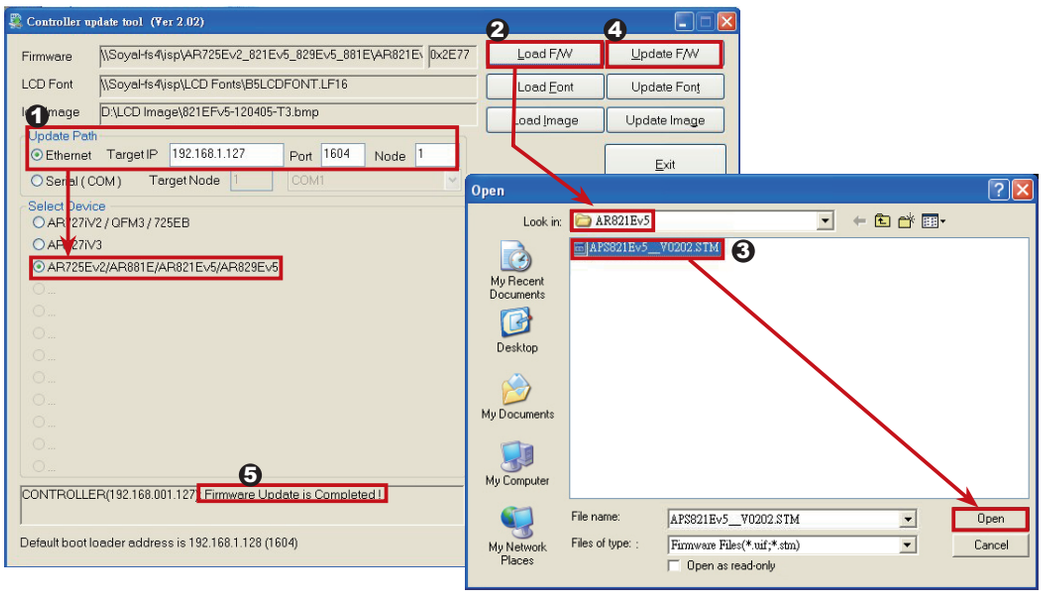
Access programming mode → 5 Tools → 6 Open TimeZone → **Set (00~15)** → **Time (24 Hours) ; Main Port (0:disable, 1: enable) ; WG Port (0:disable, 1: enable)** → **Weekday (0:disable, 1: enable)** → succeeded

## 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




- **Update the firmware**

  **[Please login the SOYAL website to download the new ISP**

  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

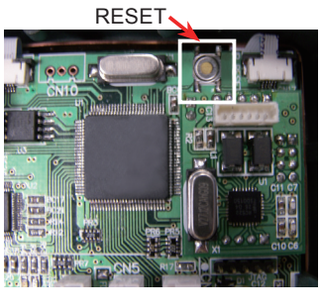
- **Reset all device parameters and user card data:**

  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 )**

## 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 Port
5. Ext.Comm Port
6. Open Time Zone
7. Informations
8. Clock Setting
9. Daily Alarm

**6. Quit**

**7. Quit & Arming**

# LCD / Biometrics Access Controller

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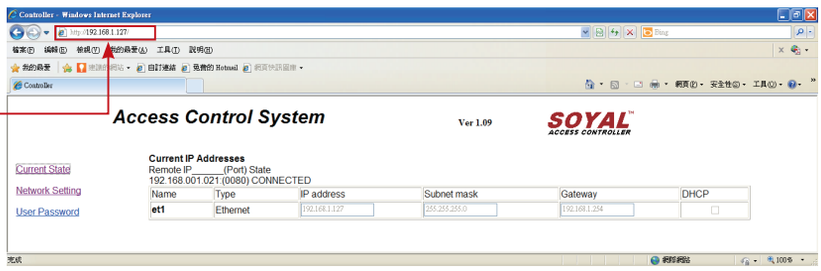
## IP Setting

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

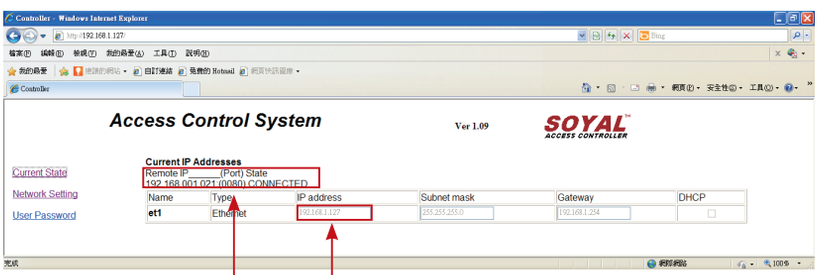



- **Page menu**

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 (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 as below

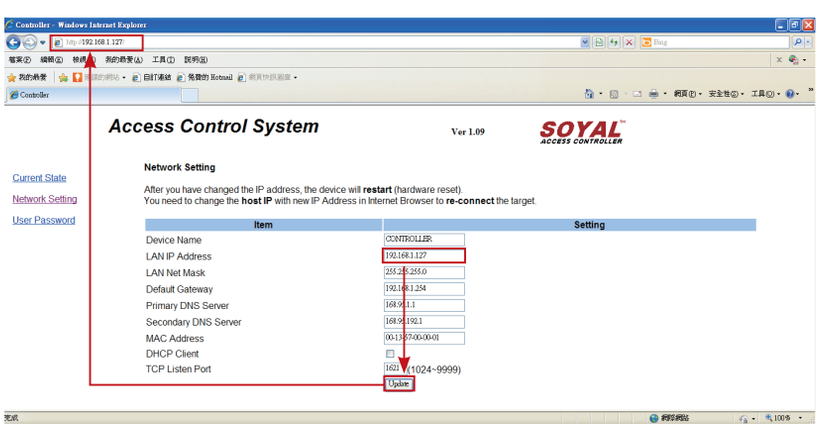
※ At the Factory Default Status

User name: admin

Password: None by default, so please just click “OK” to log-in


- **Networking Setting**

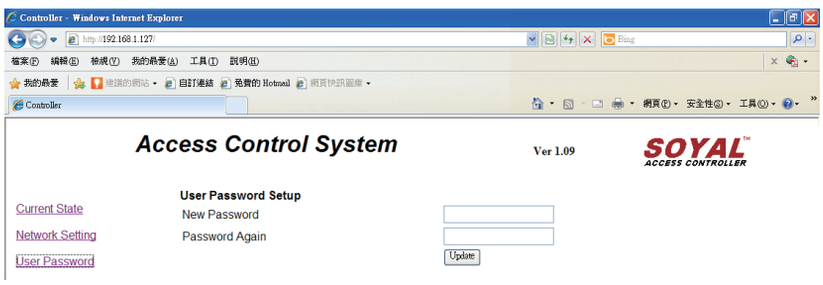
You will find initial IP Address 192.168.1.127 and check MAC Address is identical to the sticker on Ethernet Module device. Please alter the IP address as you want, and then click “Update” button. After updating the IP, please re-connect the Web Browser by the new IP address.




- **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.



**NOTICE :**
**The changes or modifications not expressly approved by the party responsible for compliance could void user's authority to operate the equipment.**

**IMPORTANT NOTE: To comply with the FCC RF exposure compliance requirements, the antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. No change to the antenna or the device is permitted. Any change to the antenna or the device could result in the device exceeding the RF exposure requirements and void user's authority to operate the device.**

**The equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communication. However, there is no grantee that interference will not occur in a particular installation. If this equipment dose cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on , the user is encouraged to try to correct the interference by one or more of the following measures:**

**--Reorient or relocate the receiving antenna.**
**--Increase the separation between the equipment and receiver.**
**--Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.**
**--Consult the dealer or an experienced radio/TV technician for help.**