**Contents**

**AR-837 (EF): Fingerprint**

1. **Products**
2. **Terminal Cables**
3. **Tools**

**AR-837 (E)/(EE)**

1. **Products**
2. **Terminal Cables**
3. **Tools**

**Installation**

A. **Surface Mounted**

- Use a screwdriver to screw the mounting plate to the wall.

B. **Embedded**

- To dig a hole for AR-837(E): 85mm x 113mm / AR-837(EF): 128mm x 109mm; 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: CN4**

<table>
<thead>
<tr>
<th>Wire Application</th>
<th>Wire</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock Relay</td>
<td>1</td>
<td>Blue White</td>
<td>(N.O.) DC24V 1Amp</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Purple White</td>
<td>(N.C.) DC24V 1Amp</td>
</tr>
<tr>
<td>Lock Relay COM</td>
<td>3</td>
<td>White</td>
<td>COM DC24V 1Amp</td>
</tr>
<tr>
<td>Door Contact</td>
<td>4</td>
<td>Orange</td>
<td>Negative Trigger Input</td>
</tr>
<tr>
<td>Exit Switch</td>
<td>5</td>
<td>Purple</td>
<td>Negative Trigger Input</td>
</tr>
<tr>
<td>Alarm Relay</td>
<td>6</td>
<td>Gray</td>
<td>N.O./N.C. Optional (by jumper)</td>
</tr>
<tr>
<td>Power</td>
<td>7</td>
<td>Thick Red</td>
<td>DC 12V</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Thick Black</td>
<td>DC 0V</td>
</tr>
</tbody>
</table>

**Cable: CN5**

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

**Cable: CN6**

<table>
<thead>
<tr>
<th>Wire Application</th>
<th>Wire</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS-485 for Lift Controller</td>
<td>1</td>
<td>Thick Green</td>
<td>RS-485(B-)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Thick Blue</td>
<td>RS-485(A+)</td>
</tr>
</tbody>
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**Cable: CN8**

<table>
<thead>
<tr>
<th>Wire Application</th>
<th>Wire</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anti-Tamper Switch</td>
<td>1</td>
<td>Red</td>
<td>N.C.</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Orange</td>
<td>COM</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Yellow</td>
<td>N.O.</td>
</tr>
<tr>
<td>Security trigger signal</td>
<td>1</td>
<td>Red</td>
<td>--</td>
</tr>
<tr>
<td>Arming</td>
<td>2</td>
<td>Purple</td>
<td>Security trigger signal Output</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Red White</td>
<td>Arming Output</td>
</tr>
<tr>
<td>Duress</td>
<td>4</td>
<td>Yellow White</td>
<td>Duress Output</td>
</tr>
</tbody>
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**Cable: CN13**

<table>
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<tr>
<th>Wire Application</th>
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<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Door Bell</td>
<td>1</td>
<td>Black White</td>
<td>Transistor Output Max. 12V/100mA (Open Collector Active Low)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Black</td>
<td>DC 0V</td>
</tr>
</tbody>
</table>
LCD / Biometrics Access Controller

Connector Table (2): Optional

<table>
<thead>
<tr>
<th>Cable: CN7</th>
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<th>Wire</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TCP/IP Output</td>
<td>1</td>
<td>Orange White</td>
<td>Net - TX+</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Orange</td>
<td>Net - TX-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>Orange White</td>
<td>Net - RX+</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>Orange</td>
<td>Net - RX-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>Green White</td>
<td>DC 0V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>Germ</td>
<td>DC 5V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cable: CN10</th>
<th>Wire Application</th>
<th>Wire</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HID RF Module</td>
<td>1</td>
<td>Orange</td>
<td>ANT 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Purple</td>
<td>ANT 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>Black</td>
<td>DC 0V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>Red</td>
<td>DC 5V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>Blue</td>
<td>Wiegand DAT: 1 Input</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>Green</td>
<td>Wiegand DAT: 0 Input</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
<td>White</td>
<td>--</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cable: CN9</th>
<th>Wire Application</th>
<th>Wire</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Voice Module</td>
<td>1</td>
<td>Black</td>
<td>DC 0V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Yellow</td>
<td>TX</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>White</td>
<td>TE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>Orange</td>
<td>RX</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>Red</td>
<td>DC 5V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>Blue</td>
<td>--</td>
</tr>
</tbody>
</table>

Wiring Diagram

**Connect to Electric Bolt**
- Electric Bolt
- Controller
  - 12V GND
  - 12V
  - POWER 12VDC
- Connect Switch
- PB
- Power 12VDC
- RTE

**Connect to Magnetic Lock**
- Magnetic Lock
- Controller
  - 12V GND
  - 12V
  - POWER 12VDC
- RTE

**Connect to Electric Strike**
- Electric Strike
- Controller
  - 12V GND
  - 12V
  - POWER 12VDC
- RTE

**Connect to Door Contact**
- Door Contact
- Controller
  - 12V GND
  - 12V
  - POWER 12VDC
  - Alarm
  - Relay Output Module
  - N.C.
  - Door Contact
Strengthen security with AR-721RB

Connect to Reader

AR-837(E/EF) become WG mode

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 # and * 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
   - Error (red) – invalid card with 2 beeps warning and LCD panel displays “Card Number Err!”
   - 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
   - 9. Factory Reset

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

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

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
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.
V180928

**Access Programming mode**

Enable: Access programming mode → 7 Quit & Arming

Disable: Access programming mode → 6 Quit

※ [Use FP] can substitute for [Inudcat 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**

- **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)

<table>
<thead>
<tr>
<th>Set Floor/Stop</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
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<tr>
<td>2</td>
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</tbody>
</table>

- **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:**  

- **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. (Refer 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.

**IP Setting**

- **Current Status**
  - Monitor the on-line computer.
  - Online Status is able to monitor and show which computer is linking on Ethernet Module.

- **Network Setting**
  - IP Setting.
  - Change the Log-in information.

- **User Password**
  - Change the Log-in information to lock the IP setting of Ethernet Module.

- **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 reconnect 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.