SOYAL®
ACCESS CONTROL SYSTEM

AR-821EF / AR-821EV

V091028

Contents

AR-821EF [Fingerprint]

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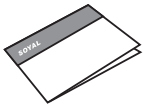
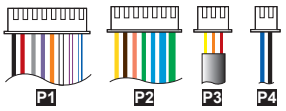
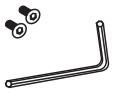


3 Terminal Cables



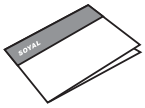
4 Allen Key and Screws



AR-821EV [Finger Vein]

1 Products

2 User Guide



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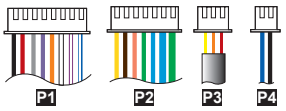

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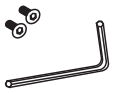
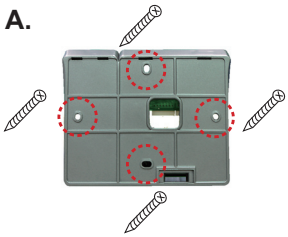
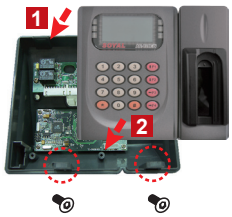


Installation

A.



B.

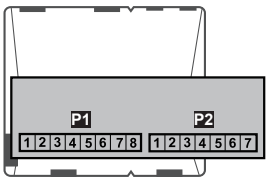


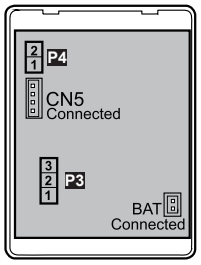
- Use a screwdriver to screw the mounting plate to the wall.
- Pull cables ends through the access hole in the mounting plate.
- Attach AR-821EF or AR-821EV to the mounting plate and install screws (supplied) into the holes at the bottom with the allen key (supplied).
- Apply power. LED (green) will light up with one beep.

Notice

1. **Tubing:** The communication wires and power line should not be housed in the same electrical conduit or tubing. They should always be installed in separate tubes.
2. **Cable selection:** Use AWG 22-24 “Shielded Twisted Pair” to avoid star wiring.
3. **Power supply:** Do not connect the reader and lock to the same power suppy. While the lock activates, it will cause the reader’s power to be unstable and affect the readers operation. The standard connection of power supply is to have the door relay and the lock use one supply; the reader uses an independent supply.

Connector Table





P1.

Wire Application	Wire	Color	Description
Door Relay	1	Blue White	(N.O.)DC24V1Amp
	2	Purple White	(N.C.)DC24V1Amp
Common-COM-Point	3	White	(COM)DC24V1Amp
Door Sensor	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

P2.

Wire Application	Wire	Color	Description
Networking	1	Thick Green	RS-485 (B-)
	2	Thick Blue	RS-485 (A+)
Wiegand	3	Blue	WG DAT: 1 Inpu ABA Clock Input
	4	Green	WG DAT: 0 Input ABA Data Input
Buzzer	5	Pink	Buzzer Output 5V/100mA, MAX
LED	6	Brown	LED Green Output 5V/20mA, MAX
	7	Yellow	LED Red Output 5V/20mA, MAX

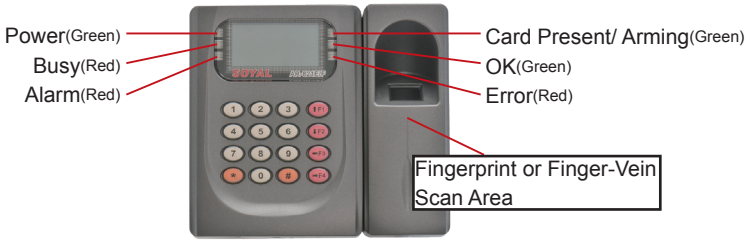
P3.

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

P4.

Wire Application	Wire	Color	Description
Serial Port	1	Black	Signal Ground
	2	Blue	TTL Serial Data Output in 4800, N, 8, 1

Front Panel & Indicator



Attendance/Duty Functions		
	Press“1 time”	Press“2 times”
F1 Up	Duty on	Break out
F2 Down	Duty off	Break RTN
F3 Left	Overtime on	Go
F4 Right	Overtime off	Return
* Esc / Quit	# Enter / OK	

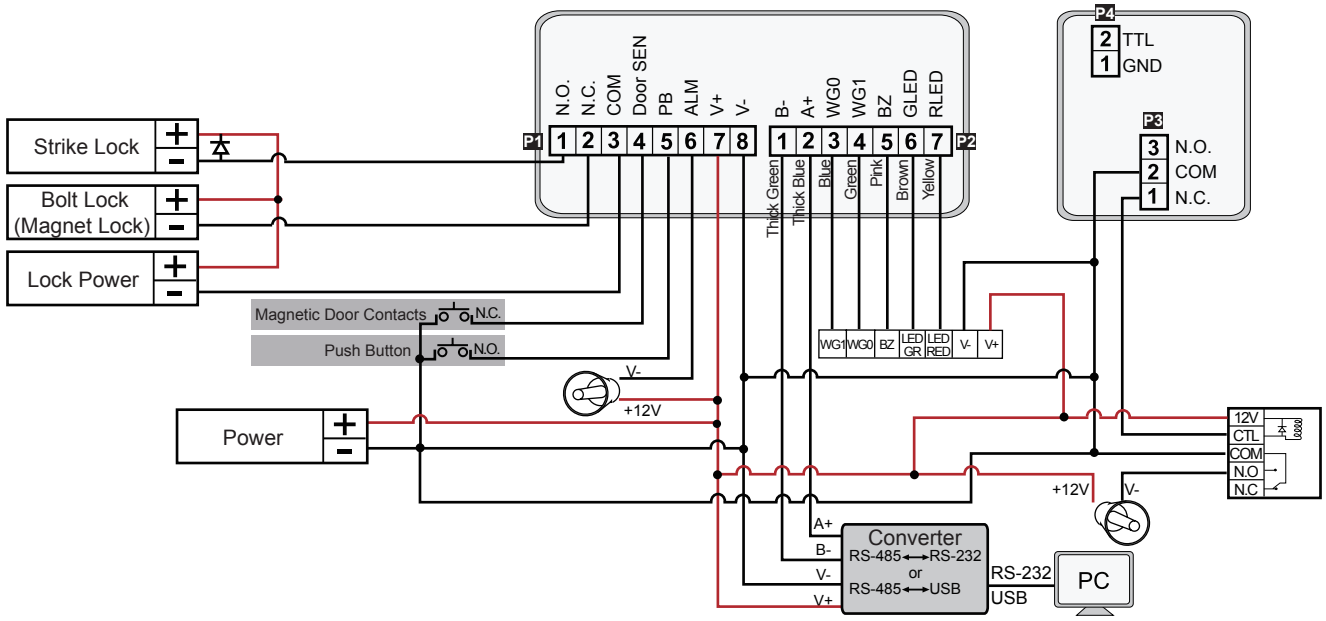
LCD Access Controller

Fingerprint & Finger Vein

V091028

1. System will automatically exit from Programming Mode when inactivating for 30 seconds.
2. LED status indicates controller's mode and status.
   Busy (red) – blinking constantly when operates 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 when constantly entering incorrect pin code or master code.
4. Maximum error times of pin code and master code can be changed via the software 701Server (default: 3 times)

Diagram



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 FP
7. Delete FP

3. Parameters[1]
1. Node ID
2. Auto open Zone
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. Attendance
4. Master Node
5. Force Open
6. Close & Stop
7. Anti-pass-back
8. Duress Code
9. Check User FP

5. Tools
1. Language
2. Master Code
3. Master Range
4. Terminal Port
5. AR401RO16 Node
6. Open Time Zone
7. Informations
8. Clock Setting

6. Quit

7. Quit & Arming

Programming

A. Keyboard Lock/ Unlock

- **Lock/ Unlock**

  At the same time according to * and # keyboard can be locked, and then press once to unlock.

B. Entering and Exiting Programming Mode

- **Entering**

  Input *123456# or *PPPPPP#

  [i.e.] The Default Value= 123456. If already changed the Master Code= 876112, input *876112# → Access programming mode

  P.S.If within **30 sec.** entering no instruction, it will automatically leave the programming mode.

- **Exiting**

  Press the * repeatedly → 6 Quit → then press # to confirm

- **Changing the Master Code**

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

C. Initial setup

- **Changing the Language**

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

- **Changing the Node ID of Reader**

  Access programming mode → 3 Parameters[1] → 1 Node ID → **Input New Node ID:1~254**(default value: 001) → **Input: 1~4 to Show Card ID in which format?** (1.No, 2.WG, 3.ABA, 4.HEX) → Succeeded

D. Adding / Deleting Fingerprint or Finger-Vein

- **Adding**

  Access programming mode → 2 User Setting → 6 Enroll FP → Key in 5-digit user address → 2 different fingers on the sensor lens → Succeeded

  P.S. The AR-821EF need to collect twice, and the AR-821EV need to collect three times.

- **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 **9999 #**

E. Access Mode

Access programming mode → 2 User Setting → 2 Access Mode → Key in 5-digit user address → **1:FP/Tag; 2:or PIN; 3: and PIN; 4: Pause** → Check FP Image: 1: Yes; 2: No → Succeeded

Access Mode	User Access Type	
	[Check FP Image] must select [1: Yes]	[Check FP Image] must select [2: NO]
1: FP/Tag	FP only/ Tag + FP	FP only/ Tag only
2: or PIN	FP only/ Tag + FP/ PIN + FP	FP only/ Tag only/ PIN only
3: and PIN	FP + PIN	FP + PIN/ Tag + PIN
4: Pause	Pause	Pause

※ 4 Parameters[2] → 9 Check User FP → must select [1: Yes]

F. PIN Code

Access programming mode → 2 User Setting → 1 Password → **Key in 5-digit user address** → **Key in 4-digit PIN (0001~9999)** → Succeeded

Or via 701Client to set it on Users screen

G. Arming Password

Access programming mode → 3 Parameters[1] → 8 Arming PWD → **Key in 4-digit PIN (0001~9999; Default: 1234)** → Succeeded

Or via 701Server to set it on AR-821EF or AR-821EV screen

H. Duress Code

Access programming mode → 4 Parameters[2] → 8 Duress Code → **4 sets (select one)** → **Key in 4-digit PIN (0001~9999)** → Succeeded

Or via 701Server to set it on AR-821EF or AR-821EV 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 and access door.

I. Setting up the alarm

- **Conditions:**

  1. Arming enabled
  2. Alarm system connected

- **Application:**

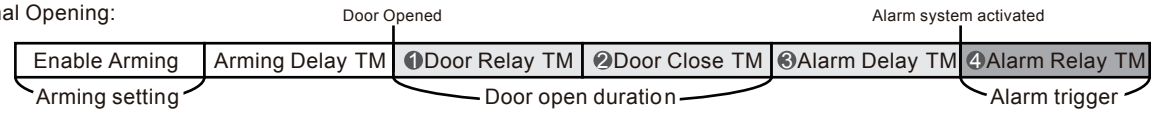
  1. Door opened too long (After Normal Opening): The Door is Opened over the time of door relay time and door close time.

  2. Door sensor error: Door sensor is open loop.

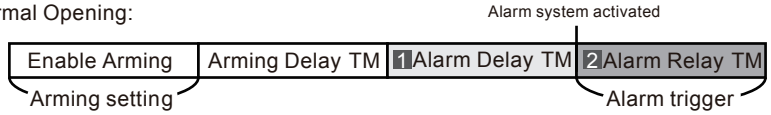
  3. Force open (Opened without a valid user card being showed): Access by force and illegal procedure.

- **Flow chart:**

A.Normal Opening:



B.Abnormal Opening:



Function	Command	Description
Door Relay TM ❶	3 3	To set how long the door relay (lock release) is active after showing a card. Range: 0 ~ 600 (sec.); 601~609 (0.1~0.9 second). To set value "0" will make door keep opening til the card is presented again, and then door close. (Default value: 7 sec.)
Door Close TM ❷	3 4	Setting how long the door can remain open before activating the alarm. (Based on second, range: 000~255, default value: 15 sec.)
Alarm Relay TM ❹2	3 5	When an alarm condition has arisen, the alarm will activate for this duration. Range: 1 ~ 600 (sec.) To set value "0" will make alarm relay keep on until disarming, then alarm relay off. (Default value: 7 sec.)
Alarm Delay TM ❸1	3 6	To delay the activation of the alarm relay after an alarm condition has arisen, so that user can have enough time to disable alarm. (Based on second, range: 000~255, dfault value: 1 sec.)
Arming Delay TM	3 7	To delay the time of enabling arming, so that user can have enough time to disable arming. (Based on second, range: 000~255, default value: 1 sec.)

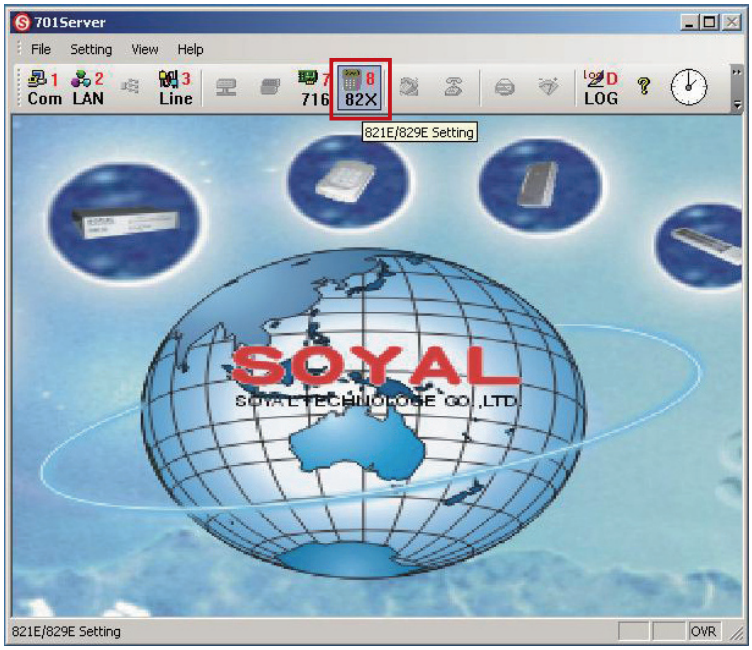
J. Anti-pass-back

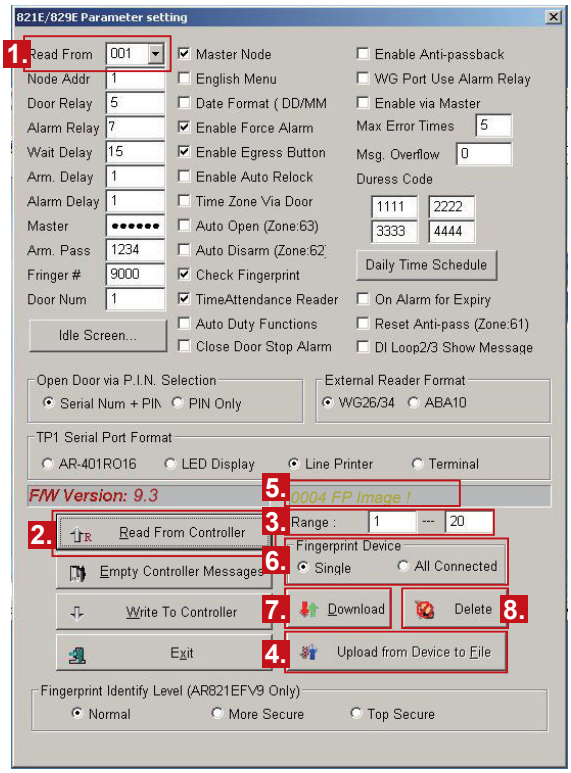
Access mode Card and Pin, Card Pin or Card only for the model AR-721K
Access mode Card only for the model AR-721U, AR-737H/U (WG mode) and AR-661U

- **Device enable**
  Access programming mode → 4 Parameters[2] → 7 Anti-pass-back → must select [1: Yes]
- **Card user enable**
  Access programming mode → 1 Add/ Delete → 9 Antipass Group → **Key in 5-digit starting user address** → **Key in 5-digit ending user address** → select [1: Yes]

Software Settings on 701Server

1. Click "82X" icon
2. Click "Read From Controller"
3. Click "Write To Controller" once setting completed
4. Click "Exit"





※Please note that the fingerprint data will be saved in different format V3 and V9, so the data is not compatible.

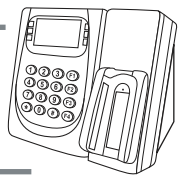
- **Uploading fingerprint database to PC**

First of all, please make sure users have registered their fingerprints to the device.

1. select node number of the device
2. click "Read from Controller"
3. set range to 20 (it is suggested not to exceed more than 20 fingerprints each uploading and downloading)
4. click "Upload from Device to File"
5. status popped up

- **Downloading fingerprint database from PC to the device(s)**

6. by selecting "Single" or "All Connected", the FP database can be downloaded to one single device or all connected devices. (Suggest to download by "Single".)
7. click "Download"

- **Deleting fingerprint database on the device**

3. select the range of the fingerprints to delete (Not over 20 Fingerprints.)
8. click "Delete"