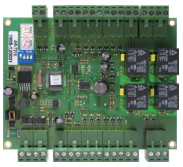
SOYAL®
ACCESS CONTROL SYSTEM

AR-721E

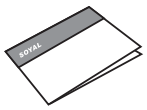
V100630

Contents

1 Product



2 User Guide



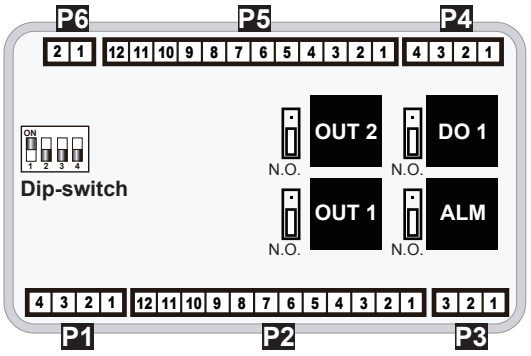
3 **Specification**

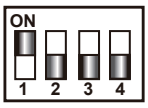
- Separate controller connected to 2 WG readers, can enhance the security of the system.
- Can connect to Door Open Button, Door Sensor, and Tamper Switch.
- When Door open to Long or Force open, it's can be detected.
- 4 Control Mode, allowing users the flexibility of use with.
- Can automatically determine to use stand-alone or networking.

Specification

CPU	8 bit CPU	Temperature	−20℃ ～ +60℃	Event log	1456
RAM	512 k Bits	Digital Input	2 Door Open Button/ 2 Door Sensor/ 2 Housing open detection/ Prepared for 2 DI	Aux. WG Port	WG 26 / WG 34
Power Supply	10 ~ 24	Relpy Output	2 Door Relay/ 1 Alarm Relay/ Prepared for 1 Relay output	Anti-pass-back	YES
Power Consumption	< 3W	Transistor Output	Prepared for 2 DO	Lift Control	NO
Interface	RS-485	Door Relay Time	Toggle, 0.1~600Ses	Time Zone	63 (stand-alone /networking)
Baud Rate	9600 bps,N,8,1	Alarm Relay Time	Toggle, 0.1~600Ses	Real Time Clock	YES
External WG Readers	2 WG (Controller power supply)	User Capacity	3,000	DIP_SW	4 (Node ID: 1~16)

Connector Table





- Node ID is setting by DIP_Switch
  Node ID: 01~16

DIP SW	1	2	3	4
Node ID 01	ON	off	off	off
Node ID 02	off	ON	off	off
Node ID 03	ON	ON	off	off
≀				
Node ID 15	ON	ON	ON	ON
Node ID 16	off	off	off	off

Connector: P1

Code	Pin	Description
LA+	1	RS-485(A+)
LB-	2	RS-485(B-)
GND	3	DC Power 0V
DC 12V	4	DC Power 12V

Connector: P2

Code	Pin	Description
COM	1	COM
OUT1	2	N.C./N.O.
BZ	3	Beeper Output
LG	4	LED Green Output
LR	5	LED Red Output
TAM	6	Tamper Switch Input
SEN	7	Door Sensor Input
PB	8	Exit Switch Input
WD1	9	Wiegand DAT:1 Input
WD0	10	Wiegand DAT:0 Input
GND	11	DC Power 0V Output
12V	12	DC Power 12V Output

Connector: P3

Code	Pin	Description
COM	1	COM
DI2	2	DI 2
DI1	3	Fire-alarm Input

Connector: P4

Code	Pin	Description
COM	1	COM
DO1	2	N.C./N.O.
COM	3	COM
ALM	4	N.C./N.O.

Connector: P5

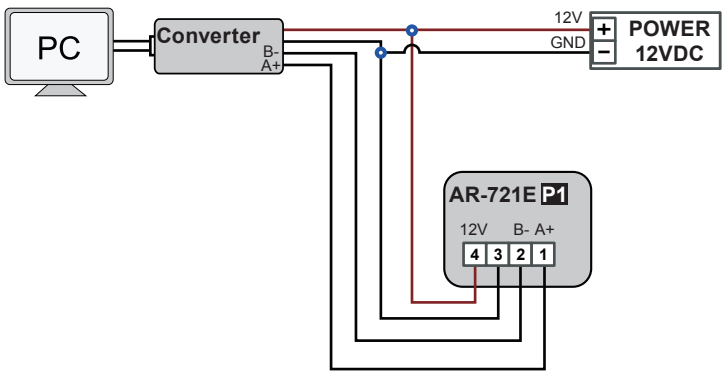
Code	Pin	Description
COM	1	COM
OUT2	2	N.C./N.O.
BZ	3	Beeper Output
LG	4	LED Green Output
LR	5	LED Red Output
TAM	6	N.C.
SEN	7	N.C.
PB	8	N.O.
WD1	9	Wiegand DAT:1 Input
WD0	10	Wiegand DAT:0 Input
GND	11	DC Power 0V Output
12V	12	DC Power 12V Output

Connector: P6

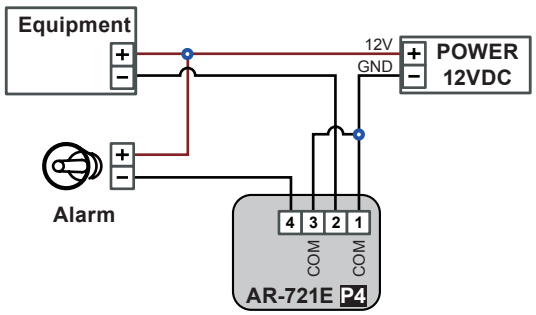
Code	Pin	Description
DO3	1	DO 3
DO2	2	DO 2

Wiring Diagram

P1 Connect to PC



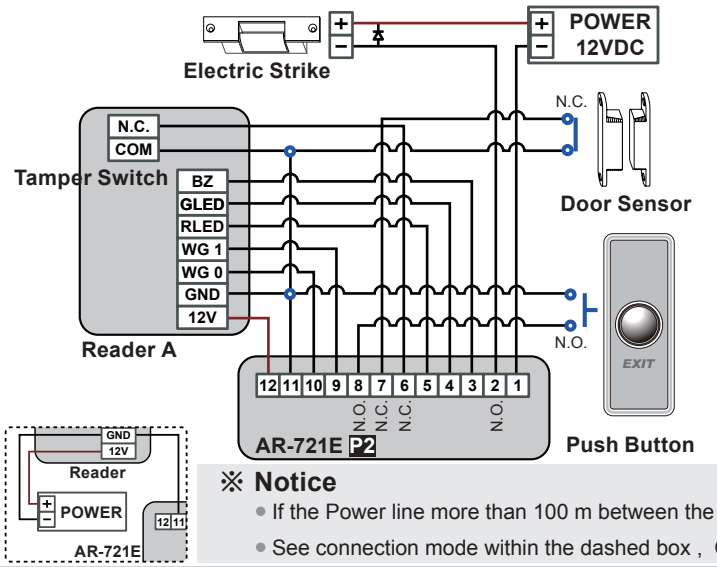
P4 Connect to Alarm or Other Equipment



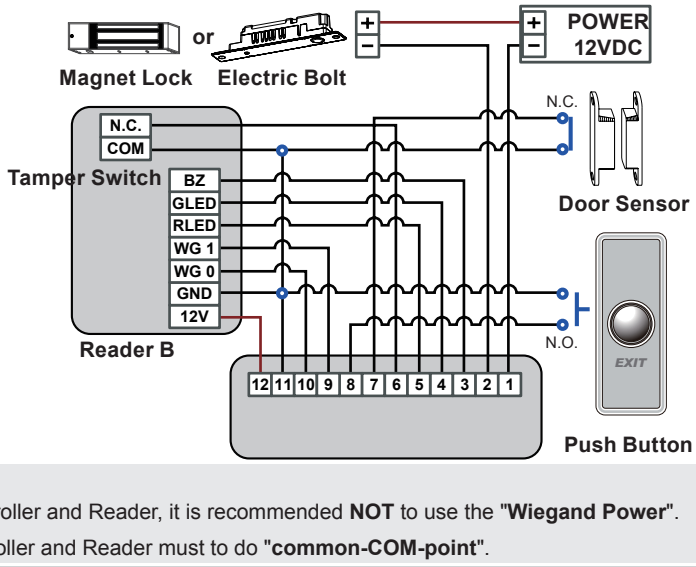
2 Door WG Controller

V100630

P2 Connect to Electric Strike



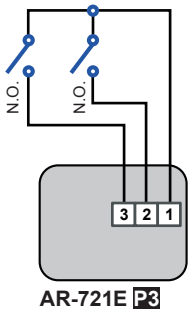
P5 Connect to Magnet Lock or Electric Bolt



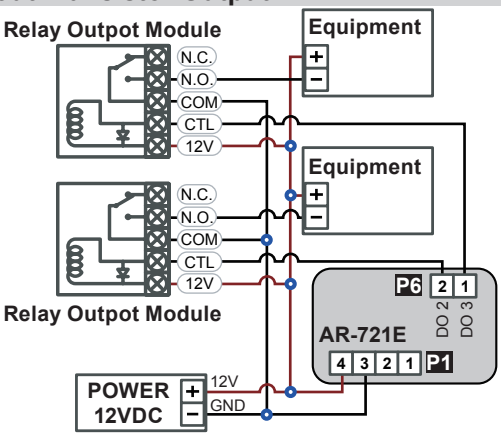
※ Notice

- If the Power line more than 100 m between the Controller and Reader, it is recommended **NOT** to use the "**Wiegand Power**".
- See connection mode within the dashed box , Controller and Reader must to do "**common-COM-point**".

P3 About Digital Input



P6 About Transistor Output



Adding and Deleting Tag

- **Add Single Tag or Random tags**

  Input *123456# (or Master Code) → 19*UUUUU*00001# → Present the tag(s) with reader (single tag or random numbered cards one by one) → Done

  [e.g.] 2 readom cards with user addresses No. 100 and No. 101:

  Access programming mode → 19*00100*00001# → Present the tags one by one → Done

- **Add the Sequential tags**

  Input *123456# (or Master Code) → 19*UUUUU*QQQQQ# → Present the tags (Present the tag with the **lowest number** first.) → OK

  [e.g.] User Address NO.101 to NO.120 have 20 pcs of sequential tags:(62312~62332) :

  Access programming mode → 19*00101*00120# → Close Tag into RF Area(only use the tag **NO.62312**) → OK

- **Delete a Single Tag**

  Input *123456# (or Master Code) → 10*SSSSS9EEEEE#

  [e.g.] Delete User Address: 00058

  Access programming mode → 10*00058900058#

- **Delete a batch of Tags**

  Input *123456# (or Master Code) → 10*SSSSS9EEEEE#

  [e.g.] Delete User Address: 00101~00245

  Access programming mode → 10*00101900245#

- **Delete All Tags**

  Input *123456# (or Master Code) → 29*29*#

Tag Information

Operation process

A. Enter/ Exit Program Mode

- **Enter the program mode**

  Input *123456# or *PPPPPP#

  [e.g.] The Default Value= 123456, if already changed the Master Code= 876112, input *876112# → program mode accessed

- **Exit the program mode**

  Input * #

- **Master Code modification**

  Access programming mode → 09*PPPPPPRRRRRR# [Input the 6-digit new master code twice.]

  [e.g.] Set the Master code to be 876112, input *123456# → 09*876112876112#

B. Chang the Node ID of Reader

Access programming mode → 00 * NNN # [Node ID: 001~255]

C.Set up M4/M8

Access programming mode → 04 * N # [N=4/8]

D. Set up the password

Card or PIN: Access programming mode → 12 * UUUUU * PPPP # [e.g. User address: 00001 and pass code: 1234, input 12 * 00001 * 1234 #]

Card and PIN: Access programming mode → 13 * UUUUU * PPPP # [e.g. User address: 00001 and pass code: 1234, input 13 * 00001 * 1234 #]

E. Anti-pass-back(Reader A and Reader B must to be setting)

Usually, anti-pass-back is commonly applied to parking areas in order to prevent from multi-entry with one card at a time, or to situations need access and exit monitor.

- **Controller enable**

  Access programming mode → 20 * DDD # [128= Anti-pass-back(0=Disable; 1=Enable)/ 064=Access/Exit(0=Exit; 1=Access).]

  [e.g.] Enable Anti-pass-back, and set to Exit door= (128 x 1) + (064 x 0) = 128

  Access programming mode → 20 * 128 # (Please refer to function default value for details.)

- **Card enable**

  Access programming mode → 26 * SSSSS * EEEEE * N #

  [SSSSS= User address start; EEEEE= User address end; N=0(control)/ 1(Not control)/ 2(reset)]

  [e.g.] User address from 00152 to 00684 enable the anti-pass-back function: 26 * 00152 * 00684 * 0 #

  [e.g.] No. 154 enable the anti-pass-back, and induction into the door has not been induced to leave. When he re-induction into the door will become invalid , then he needs to set the reset. Access programming mode → 26 * 00154 * 00154 * 2 # → Reset

F. Auto Open Time Zone

Door will keep open after the first flashing card.There are 2 time zones supported.

- **Enable/Disable auto open zone**

  Access programming mode → 20 * 004 # [004= enable Auto-Open Time Zone; 000= disable Auto-Open Time Zone]

- **Enable/Disable auto open door without presenting card**

  Access programming mode → 24 * 001 # [001= enable Auto-Open Time Zone; 000= disable Auto-Open Time Zone]

- **Set up open time**

  Access programming mode → 08 * N * HHMMhhmm * 6543217H #

  N: 2 sets of auto-open zone (N=0=1st set; N=1=2nd set)

  HHMMhhmm=Staring time to ending time (e.g. 08301200=08:30 to 12:00)

  6543217H= 7 days of week (Sat/Fri/Thu/Wed/Tue/Mon/Sun) + Holiday (F= 0: disable; 1: enable); Holidays establish by the software.

  [e.g.] To set the second time zone as 9:30 AM to 4:20 PM, Monday, Wednesday and Friday: 08 * 1 * 09301612 * 01010100 # → Done

G. Setting Up the Arming

- **Alarm conditions:**

  1. Arming is enabled

  2.Alarm system connected

- **Application:**

  1. Door open too long: 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 abnormal: When power is off and then on, reader on arming bffore power off.

- **Enable/Disable Arming status (Factory default armingcode is: 1234) :**

Standby Mode	
After door open	Door is not open
The normal procedure to open door → **Input 4 digit arming code** → #	* → **Input 4 digit arming code** → **Present valid card**
Enter Program Mode	
Enable: Access programming mode → * * #	**Disable:** Access programming mode → * #

※ **[The normal procedure to open door] can refer to [Access Mode].**

Function Default Value

20 * DDD # ※Default Value

Function	Selection		Bit	Value	Application
Attendance	※0: Yes	1: No	0	001	Networking
Auto Re-lock	※0: Disable	1: Enable	1	002	Networking/Stand-Alone
Auto Open	※0: Disable	1: Enable	2	004	Networking/Stand-Alone
Door open button input	0: Disable	※1: Enable	4	016	Networking/Stand-Alone
Master Reader of Network	※0: Slave	1: Mater	5	032	Networking
Access/Exit	※0: Exit	1: Access	6	064	Networking
Anti-pass-back	※0: Disable	1: Enable	7	128	Networking

24 * DDD # ※Default Value

Function	Selection		Bit	Value	Application
Auto-open door without cards at auto open zone	※0: Disable	1: Enable	0	001	Networking/Stand-Alone
Stop Alarm by door close or by push button	※0: None	1: Yes	6	064	Networking/Stand-Alone

28 * DDD # ※Default Value

Function	Selection		Bit	Value	Application
Can be password-free in the Card or PIN mode	※0: Disable	1: Enable	5	032	Networking/Stand-Alone
Reset the Anti-pass-back by the software	※0: Disable	1: Enable	6	064	Networking/Stand-Alone
Arming for force open	※0: Disable	1: Enable	7	128	Networking/Stand-Alone

Selection= 0(none value)/ 1(1 x each value)
[e.g.] DDD value of Enable “Auto Open” + ”Exit by Push Button +”Anti-pass-back” =004+016+128=148;
As a result of that, the command will be 20 * 148 #.

Mode4/ Mode8

- **Mode 4:** 1.Card only; 2.Card and PIN (4-digit PIN) + # ; 3.Card or User address (5-digit) + Individual PIN (4-digit individual PIN) + #
- **Mode 8:** 1.Card only; 2.Card and PIN (4-digit individual PIN) + # ; 3.Card or PIN (4-digit individual PIN)

Command List

※ General instructions

Function	Command	Description	Notes
Entering programming mode	* PPPPPP #	PPPPPP=Master Code, default value=**123456**	
Exiting programming mode	* #		
Control mode setting	04 * N #	N=Mode 4=Mode4 ; 8=Mode8	
Master card setting	07 * SSSSS * EEEEE #	SSSSS-EEEEE=00000-02999; SSSSS=Starting user address; EEEEE=Ending user address	
Auto-open time zone setting	08 * N * HHMMhhmm * 6543217H #	N= 0(1st time zone) / 1(2nd time zone) HHMM= Starting time; hhmm= ending time (i.e.: 08301200=08:30 to 12:00) 6543217H= 7 days of week (Sat/Fri/Thu/Wed/Tue/Mon/Sun) + Holiday (F= 0: disable; 1: enable); Holidays establish by the software.	
Master code setting	09 * PPPPPPRRRRRR #	PPPPPP=New master code RRRRRR=Repeat the new master code	
Suspend / Delete tag	10 * SSSSS * EEEEE # 10 * SSSSS 9 EEEEE #	* =Suspend 9 =Delete; SSSSS=Starting user address, EEEEE=Ending user address	
Active the suspended cards	11 * SSSSS * EEEEE #	SSSSS=Starting card number, EEEEE=Ending card number	
Set the cards as Card mode OR PIN mode by user address	12 * UUUUU * PPPP #	Access mode: **Card or PIN**; UUUUU=user address; PPPP=4-digit pass code 0001~9999	
Set the cards as Card AND PIN mode by user address	13 * UUUUU * PPPP #	Access mode: **Card and PIN**; UUUUU=user address; PPPP=4-digit pass code 0001~9999	
Duress code setting	15 * PPPP #	PPPP=4-digit pass code (default value=**4321**) P.S. Duress code will be unavailable and become a public PIN at access mode “**Card or PIN**” of **M6**	
Card number modification	16 * UUUUU * SSSSSCCCCC #	UUUUU= User address; SSSSS=5-digit site code; CCCCC=5-digit card code	
Arming pass code setting	17 * PPPP #	PPPP=4-digit pass code (default value=**1234**; disable Arming PWD=**0000**) P.S. Arming PWD code will be unavailable and become a public PIN at access mode “**Card PIN**” and of **M6**	
Door open waiting time	18 * TTT #	TTT=Door open waiting time: 001~600=1~600 sec.; default value: 15 sec.	
Set the card by induction(M4/M8)	19 * UUUUU * QQQQQ #	UUUUU=User address; QQQQQ=Card quantity(**00001**=Continuously inducting)	
Controller parameter setting	24 * DDD #	Please refer to function default value for details.	
Controller time clock setting	25 * YYMMDDHHmmss #	YYMMDDHHmmss: Year/ Month/ Day/ Hour/ Min./ Sec.	
Anti-pass-back (Enable user)	26 * SSSSS * EEEEE * N #	SSSSS=Starting user address; EEEEE=Ending user address; N=0/Enable; N=1/Disable; N=2/Initial	
Controller control setting	28 * DDD #	Please refer to function default value for details.	
Delete all tags	29 * 29 * #		

※ Individual instruction set

Function	Command	Description	Notes
Keyboard Lock/ Unlock	* #	Press and hold for 2 seconds to lock the keyboard, again to unlock.	
Exiting programming mode and enabling arming status	* * #		
Node ID setting (for Reader)	00 * NNN #	NNN=Node ID, range: 001~254	
Door relay time setting	02 * TTT #	TTT=Door relay time 000= Output constantly 001~600=1~600 sec. 601~609=0.1~0.9 sec.	
Alarm relay time setting	03 * TTT #	TTT=Alarm relay time 001~600=1~600 sec.	
Controller additional setting	20 * DDD #	Please refer to function default value for details.	