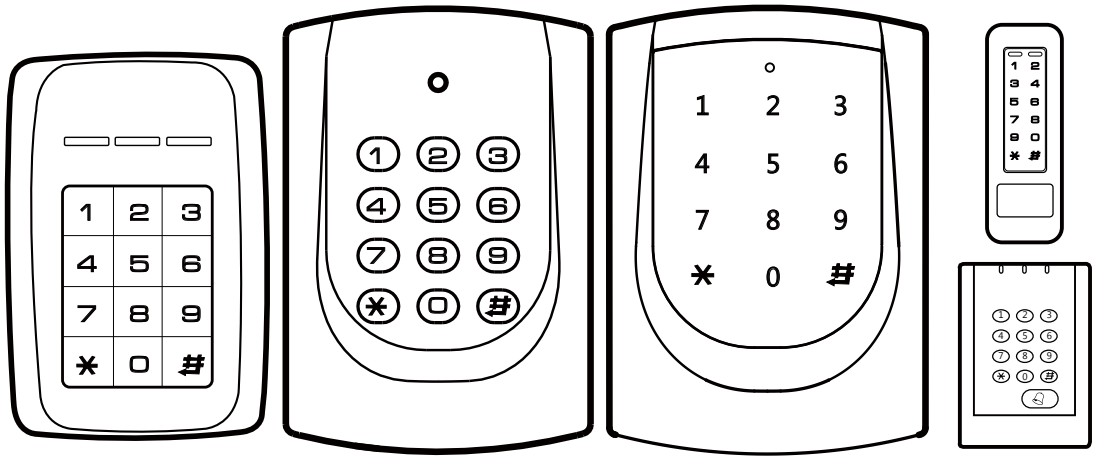
RFID Multi Functional Access Controller(H Series)



1. Product Features

Vandal Resistant Proximity Controller AR-321-H

- Protection by zinc alloy housing and PVC sealing, with backlight touch keypad.
- Support for elevator scheduling control.
- It is designed to prevent damage and destruction on controller when force open or breaking the controller is occuring, it will remain at its place.

Multi Functional Access Controller AR-721-H

- Classic and popular multi-functional controller of SOYAL with high scalability, durability and CP value
- Selectable Frequency : 125KHz: Support EM card 13.56MHz : Support Mifare, NFC (emulate UID), DESFire (Crypto comply with EAL4+)
- Expandable User Capacity to More than 10,000 Users

Slim Design Multi-Function Reader AR-331-H

- Elegant and slim design, suitable for installation in narrow place, metal housing enhances collision resistance
- Support for elevator scheduling control.

Illuminated Backlight Touch Keypad Controller AR-725-H

- Expandable User Capacity to More than 10,000 Users
- Light and fashionable design controller with backlight touch keypad, supporting multiple control modes
- External form's keypad will be invisible for user,only authorized personnel can activate and usekeypad function.

Multi Functional Access Controller AR-757-H

- High security controller, supporting doorbell and frequency (125kHz or 13.56MHz)

2. Application

- **Elevator Timed Scheduling Control**
  - Software Manual - LiftControl
  - Lift Control Application
- **SOYAL Access Control and Attendance**
  - SOYAL Access Related Function
  - Access Control Basic Terminology such as multi-door, single-door, all-in one control and separate control

Table of Contents

Access Controller

Touch-panel Metal Housing / Illuminated Touch-panel

V241212

01. How to Order

Vandal Resistant Proximity Controller AR-321-H

AR-321	H	X	R	1	1	1	1	-T	M

Frequency
B = 125kHz
D = 13.56MHz

Communication
1 = RS485

Color
1 = Silver(Chrome)

Keypad Selection
T = Keypad Touch Panel

Product Category
H = H Series Access Controller

RTC
R = Built-in RTC

Waterproof
1 = Weatherproof

Type
1 = Standard

Housing Material
M = Metal Housing (Zinc Alloy)

Slim Design Multi-Function Reader AR-331-H

AR-331	H	X	R	1	1	1	1	-X	X

Frequency
B = 125kHz
D = 13.56MHz

Communication
1 = RS485

Color
1 = Silver

Keypad Selection
T = Keypad Touch Panel
S = Keypadless(no keypad function)
S = Keypadless
Invisible Keypad w/ MPLA-331EB01 (+)

Product Category
H = H Series Access Controller

RTC
R = Built-in RTC

Waterproof
1 = Weatherproof

Type
1 = Standard

Housing Material
M = Metal Housing (Zinc Alloy)
P = Plastic Housing (ABS)

Multi Functional Access Controller AR-721-H

AR-721	H	X	R	1	N	X	1

Frequency
B = 125kHz
D = 13.56MHz

RTC
R = Built-in RTC

Waterproof
N = Non Waterproof

Type
1 = Standard

Product Category
H = H Series Access Controller

Communication
1 = RS485

Color
1 = Silver
2 = Gray
B = Black

Illuminated Backlight Touch Keypad Controller AR-725-H

AR-725	H	X	R	1	X	X	1	X

Frequency
B = 125kHz
D = 13.56MHz

Communication
1 = RS485

Color
1 = Silver
2 = Gray
B = Black
P = Pearl White

Type
M = Metal Housing
(N/A) = Standard
(PC Housing)

Product Category
H = H Series Access Controller

RTC
R = Built-in RTC

Waterproof
1 = Weatherproof
2 = Epoxy Waterproof

Type
1 = Standard

Multi Functional Access Controller AR-757-H

AR-757	H	X	R	1	1	X	1

Frequency
B = 125kHz
D = 13.56MHz

Communication
1 = RS485

Color
1 = Silver
2 = Gray
J = Black-Black
K = Black-Red
L = Gray-Silver

Product Category
H = H Series Access Controller

RTC
R = Built-in RTC

Waterproof
1 = Weatherproof

Type
1 = Standard

02. Command List

	Function	Command	Description
Master Code Setting	Enter program mode	* PPPPPP #	**PPPPPP**=Master Code, default value=**123456**
	Master code setting	09 * PPPPPPRRRRRR #	**PPPPPP**=6-digit new master code **RRRRRR**=Reconfirm the new master code
Card Setting Commands	Suspend tag	10 * SSSSS * EEEEE #	* =Suspend 9 =Delete; **SSSSS**=Starting User Address ; **EEEEE**=Ending User Address
	Delete tag	10 * SSSSS 9 EEEEE #	
	Add a batch of sequential cards by inputting card number (M6)	11 * SSSSS * EEEEE #	**SSSSS**=Starting card number **EEEEE**=Ending card number
	Recover the suspended cards(M4/M8)	11 * SSSSS * EEEEE #	**SSSSS**=Starting card number ; **EEEEE**=Ending card number
	Card number modification(M4/M8)	16 * UUUUU * SSSSSCCCCC #	**UUUUU**= User Address; **SSSSS**=5-digit site code; **CCCCC**= 5-digit card code
	Add card by presenting(M4/M8)	19 * UUUUU * QQQQQ #	**UUUUU**=User Address; **QQQQQ**=Card quantity (00001: for adding a single card or a batch of random numbering cards)
	Add/Delete tag by presenting(M6)	22 * N #	**N**=0(Delete tag); **N**=1(Add tag)
	Delete all tags	29 * 29 * #	
	Enable/Disable Door open for any Tag	0 #	After enabling Door Open For Any Tag, all cards in same frequency as controller can pass directly.
Additional Card Function Setting	Mifare tag / card format (Optional) (M4/M8)	01 * N #	N:0=ISO14443A ; 1=ISO14443B 2=ISO15693 ; 3=I Code1 ; 4=I Code2 PS.1. Please select the transmission standard first. 2. Ensure both reader and card using the same transmission standard.
	Administrator Card setting (M4/M8)	07 * SSSSS * EEEEE # (07 * Starting User Address * Ending User Address #)	SSSSS-EEEEE=00000-00255 (Administrator Card can enter the program mode after present the card and press # in 3 seconds, also can exit program mode by present the card.)
	Enable the security trigger signal (with AR-721RB)	34 * ??? #	Change the "Arming" to the security trigger signal, when controller is connected with AR-721RB. **Please refer to Compound Command Function List for details.**
Access Mode Setting	Control mode setting	04 * N #	N=4: M4; N=6: M6; N=8: M8
	Card or PIN (M4/M8) Modify the PIN with user address, change the pass mode into Card or PIN	12 * UUUUU * ???? #	Pass by Card or PIN; **UUUUU**=User Address;**????**=4-digit PIN (0001~9999); 0000=Set as card only
	Card and PIN (M4/M8) Modify the PIN with user address, change the pass mode into Card and PIN	13 * UUUUU * ???? #	Pass by Card and PIN; **UUUUU**=User Address; **????**=4-digit PIN (0000~9999)

Command List

	Function	Command	Description
Access Mode Setting	**Card or PIN(M6)** Set up the mutual PIN in Card or PIN mode	**15** * **????** #	**????**=4-digit PIN(0001~9999 ; default value=4321)
	Card and PIN(M6) Set up the mutual PIN in Card and PIN mode	**17** * **????** #	**????=**4-digit PIN(0001~9999 ; default value=1234) 0000= Set as card only
Arming /Duress Function Setting (M4/M8 applicable, but not M6)	Setting duress PWD(M4/M8)	**15** * **????** #	**????**=4-digit PIN(0001~9999 ; default value=4321) ※The Duress Code 0000 means that disable Duress Function and the default value is set as 0000 already.
	Setting arming PWD(M4/M8)	**17** * **????** #	**????**=4-digit PIN(0001~9999 ; default value=1234)
Node ID Setting	Node ID setting (Connected to 716E)(M4/M8)	**00** * **NNN** #	**NNN**=Node ID of Access Controller (range: 001~016)
	Node ID setting (Connected to the PC directly without 716E) (M4/M8)	**00** * **NNN** * **VVV** * **nnn** #	**NNN**=Node ID of Access Controller (range: 001~254) **VVV**=Virtual 716E Node ID, nnn=Door number (range:001~254)
Time /Delay Setting	Door Relay Time setting	**02** * **TTT** #	**TTT**=Door relay time 000= Output continuously 001~600=1~600 sec. 601~609=0.1~0.9 sec.
	Alarm Relay Time setting	**03** * **TTT** #	**TTT**=Alarm relay time 000= Output continuously 001~600=1~600 sec.
	Arming Delay Time setting	**05** * **TTT** #	**TTT**=the buffer time before entering arming mode 001~600=1~600 sec.
	Alarm Delay Time setting	**06** * **TTT** #	**TTT**=the buffer time before the alarm is activated 001~600=1~600 sec.
	Arming Pulse Time setting	**14** * **TTT** #	**TTT**=Arming output time; 000=output continuously 001~250=0.1~2.5 sec.
	Door Close Time	**18** * **TTT** #	**TTT**=Door Close Time: 001~600=1~600 sec.; default value: 15 sec.
	Controller time clock setting	**25** * **YYMMDDHHmmss** #	**YYMMDDHHmmss**=Year/ Month/ Day/ Hour/ Min./ Sec.
	Same tag reading interval time	**31** * **TTTT** #	**TTTT**=10~6000 (Base on 10ms, range from 10 to 6000; default value: 1 sec. : 0100)
Controller Additional Function Setting	Reader additional setting	**20** * **???** #	Please refer to Compound Command Function List for details.
	Controller parameter setting	**24** * **???** #	
	Dual-door Control / Force Open Alarm	**28** * **???** #	
	Auto-open time zone setting	**08** * **N** * **HHMMhhmm** * **7123456H** #	**N**= 0 (1st time zone) / 1 (2nd time zone) **HHMM**= Starting time; **hhmm**= ending time (i.e.: 08301600=08:30 to 16:00) **7123456H**= 7 days of week (Sun/Mon/Tue/Wed/Thu/Fri/Sat)+ Holiday(H= 0: disable; 1: enable); Holidays can be set by 701Client software.
	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: Reset
	Enable/Disable keypad lock	* # (simultaneously)	After enabling keypad lock function, press any button will only has two beeps and no reaction. Disable the keypad lock function will bring controller keypad function back to normal. (only Keypad Controllers have this function ex. AR-721-H; Touch Keypad Controllers do not have this function ex. AR-725-H)
Lift Control Setting	Controller parameter setting	**24** * **002** #	
	Lift control setting: multi-floor(M4/M8)	**21** * **UUUUU** * **S** * **FFFFFFFF** #	**UUUUU**=User Address, S=4 sets of lift control (0~3); **FFFFFFFF**=8 assigned floor(F=0: Disable, 1: Enable)
	AR-401RO16 Lift Relay Activated TM (M4/M8)	**23** * **NNN** * **TTT** #	**NNN**=site number, **TTT**= relay time: 000~600=1~600 sec.
	Lift control setting: single floor(M4/M8)	**27** * **UUUUU** * **FF** #	UUUUU=User Address; FF=Floor (01~32 floor)
Exit Program Mode	Exit program mode	* #	
	Exit program mode and enter arming mode(M4/M8)	* * #	

※**More Details**：Introduction of New Function Commands for Enterprise E Controller and Home H Controller

03. Master Code modification / Change the Node ID of Controller

Enter / Exit Program Mode

- **Enter the program mode**
  Input * 123456 # or * PPPPPP #
  [e.g.] The Default Value= 123456, if the Master Code is already changed= 876112, input * 876112 # → program mode entered

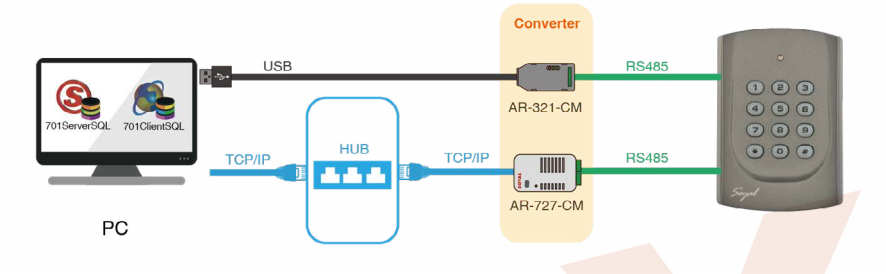
- **Exit the program mode**
  Input * #

- **Master Code modification**
  Enter program mode → 09 * PPPPPPRRRRRR # [Input the 6-digit new master code twice.]
  [e.g.] Set the Master code to be 876112, input * 123456 # → 09 * 876112876112 #

Change the Node ID & Door Number of Controller

The station number and door number are default set to 001, and there are two ways to configure them:

- **Directly connect controller to PC(without going through multi door controllers)**



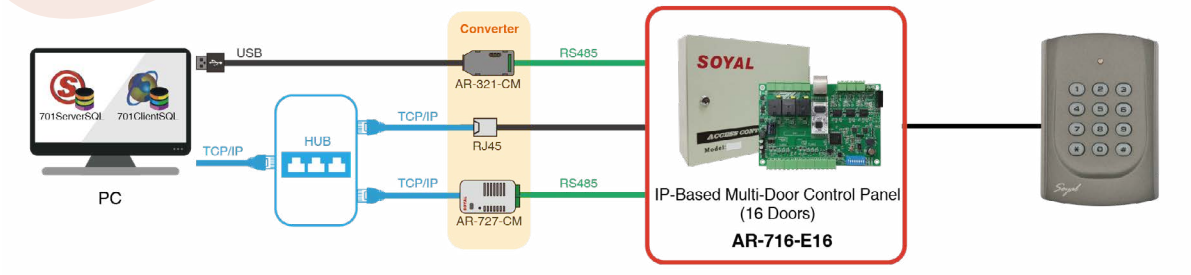
When changing the controller station number, the door number will be automatically set to match the station number.

Enter program mode → 00 * NNN # 【NNN = Node ID, setting range 001~254】

[e.g.] Controller Node ID and Door Number are both set to 3. , Enter program mode → 00 * 003 #

※ If the customer needs to set a passage door name for each door and display it in the 701ClientSQL software, it is necessary to set the door number for each controller. In this case, the door number and station number are independent parameters. Please refer to the FAQ for the modification process : How to setup the door number of controller and reader in different configurations?

- **Controller connect to multi-door control panel**



When connected to a multi-door controller such as AR-716-E16 or AR-716-E18, the station number is fixed to 1-16. When you change the controller's station number, it will automatically set the door number to be consistent with the station number.

Enter program mode → 00 * NNN # 【NNN=Node ID, setting range 001~016】

[e.g.] Controller Node ID and Door Number are both set to 3. , Enter program mode → 00 * 003 #

※ Door number settings are primarily configured through the multi-door controller parameter settings screen. Please refer to the relevant documentation for the configuration process : AR-716-E16 Manual

※ If the customer needs to set a passage door name for each door and display it in the 701ClientSQL software, it is necessary to set the door number for each controller. In this case, the door number and station number are independent parameters. Please refer to the FAQ for the modification process : How to setup the door number of controller and reader in different configurations?

04. M4 / M6 / M8

Mode	Networking/ Standalone	User Capacity	Access Mode	Auto-show Duty time	Event log Capacity	120 Holidays	Duress Function	Time Zone	Lift Control	Anti-pass-back
M4	Networking/ Standalone	1,024 {721-H/757-H} 3,000 {321-H/331-H/ 725-H}	1.Card only 2.Card and PIN (4-digit PIN)+ # 3.User Address (5-digit) + PIN (4-digit Private PIN) + #	Yes	1,200 721-H 1,500 321-H/331-H/ 725 (H) 3,000 757-H	Yes	Yes	11	32	Yes
M6	Standalone	65,535	1.Card only (using 17* command to set Arming PWD as 0000) 2.Card and PIN (4-digit public PIN)+ # 3.Card or PIN (4-digit public PIN)	No	No	No	No	No	No	No
M8 (Default Value)	Networking/ Standalone	1,024 {721-H/757-H} 3,000 {321-H/331-H/ 725-H}	1.Card only 2.Card and PIN (4-digit Private PIN)+ # 3.Card or PIN (4-digit Private PIN)	Yes	1,200 721-H 1,500 321-H/331-H/ 725 (H) 3,000 757-H	Yes	Yes	11	32	Yes

※ **M6:** the user capacity can be 65535 because it only reads 5-digits **CARD CODE**, while in **M4/M8** it reads both **SITE CODE** and **CARD CODE**(10 digits).

※ Confirm the access mode by assessing the beep sounds while entering the Program Mode(**M4**-4 beeps/**M6**-6 beeps/**M8**-8 beeps)

※ Default Card UID Length is 4 (Could not change by command and only be able to change by customized firmware)

C.Set up M4/M6/M8

Enter program mode → 04 * N # [N=4/6/8]

(Note : The modification of controller mode between M4/M8(networking) and M6(standalone) will reset the data, user data will be required to rebuild.)

05. Adding and Deleting Tag

M4/M8

Add New Tags

- **Add by Presenting Tags (apply to Single Tag or a Batch of Tags)**

※**Important Notice:** Please remember the last user address being added to make sure the old user data is not being over written with the new card in the future.

Tag Information (125kHz) ※ For Mifare tags, the separator between Site Code & Card Code is comma ",".

Add Non-consecutive Tags:

[Add single tag] Add a new tag for selected user address 100:
Enter program mode → 19 * 00100 * 00001 # → Present the tag → Successfully added tag of user 100

[Add 2 additional tags] Add new tags to the following user address 101-102:
Enter program mode → 19 * 00101 * 00001 # → Present (User 101) card → Present (User 102) card
→ Successfully added tags of user 101-102

[Add 10 additional tags] Add new tags to the following user address 103-112
Enter program mode → 19 * 00103 * 00001 # → Present (User 103) card → Present (User 104) card → Present (...) card
→Present (User 111) card →Present (User 112) card →Successfully added tags of user 103-112

Add Consecutive Tags:

[Add 50 consecutive tags] Add 50 new tags with consecutive card number following user address 00050-00150:
Enter program mode → 19 * 00050 * 001001 # →Successfully added tags of user 50-150

Suspend Tags

- **Suspend Single Tag or a Batch of Tags (by Card Code in Sequence)**

Input * 123456 # (or Master Code) → 10 * SSSSS * EEEEE #

[e.g.] Suspend by Card Code: 00058
Enter program mode → 10 * 00058 * 00058 #

[e.g.] Suspend by Card Code: 00058~00063
Enter program mode → 10 * 00058 * 00063 #

Delete Tags

- **Delete Single Tag or a Batch of Tags (by Card Code)**

Input * 123456 # (or Master Code) → 10 * SSSSS 9 EEEEE #

[e.g.] Delete by Card Code: 00058
Enter program mode → 10 * 00058 9 00058 #

[e.g.] Delete by Card Code: 00058~00063
Enter program mode → 10 * 00058 9 00063 #

- **Delete All Tags**

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

M6

The default value of access function of M6 is Card and PIN, it will have 3 beeps for hinting you input PIN number after card presentation. Access function modification please refer the table below:

Access Mode	Command	Description
Card and PIN	17 * ???? # 15 * 0000 #	????=4-digit PIN(0001~9999 ; default value=1234)
Card only	17 * 0000 # 15 * 0000 #	
Card or PIN	17 * 0000 # 15 * ???? #	????=4-digit PIN(0001~9999 ; default value=4321)

Tag Information

(125kHz) ※ For Mifare tags, the separator between Site Code & Card Code is comma ",".

※M6 Mode only assess Card Number

Add New Tags

- **Add a Single Tag (by Presenting the Tag) :**
  Input * 123456 # (or Master Code) → 22 * 1 #
  [e.g.] Add single tag :
  Enter program mode → 22 * 1 # → Present the tag to Access Controller → OK

- **Add Single Tag(by Card Code) ※Card Code should not be repeated**
  Input * 123456 # (or Master Code) → 11 * SSSSS * EEEEE # → OK
  [e.g.] Add one card with Card Code 61632
  Enter program mode → 11 * 61632 * 61632 # → OK

- **Add a Batch of Tags(by Card Code) ※Card Code should not be repeated ※by Card Code in Sequence**
  Input * 123456 # (or Master Code) → 11 * SSSSS * EEEEE # → OK
  [e.g.] Add a batch of user with sequential Card Number of user address 12058 until 12559 (total 500 tags)
  Enter program mode → 11 * 12058 * 12599 # → OK

- **Add a Batch of Tags (by Presenting the Tags):**
  Input * 123456 # (or Master Code) → 22 * 1 #
  [e.g.] There are 20 tags to add:
  Enter program mode → 22 * 1 #
  →Present 20 tags one by one →OK

Delete Tags

- **Delete Tag (by Presenting the Tag) :**
  Input * 123456 # (or Master Code) → 22 * 0 #
  [e.g.] Delet single tag :
  Enter program mode → 22 * 0 # → Present the tag to Access Controller → OK

- **Delete Tags (by Card Code) :**
  Input * 123456 # (or Master Code) → 10 * SSSSS 9 EEEEE # → OK
  [e.g.] Delete a tag with card code 62362
  Enter program mode → 10 * 62362 9 62362 # → OK

- **Delete All Tags:**
  Input * 123456 # (or Master Code) → 29 * 29 * #

06. Operation process

Set up the password

- **M4/M8: Private PIN**
  Card or PIN: Enter program mode → 12 * UUUUU * ???? # [e.g. User Address: 00001 and pass code: 1234, input 12 * 00001 * 1234 #]
  Card and PIN: Enter program mode → 13 * UUUUU * ???? # [e.g. User Address: 00001 and pass code: 1234, input 13 * 00001 * 1234 #]

- **M6: Public PIN**
  Card or PIN: Enter program mode → 15 * ???? # [Input 4-digit PIN, default value: 4321; PPPP=0000: cancel the function of simply inputting PIN to get access]
  Card and PIN: Enter program mode → 17 * ???? # [Input 4-digit PIN, default value: 1234; PPPP=0000: access mode will be "Card Only"]

Dual-door Control (M4/M8)

Controller equipped with a reader, the reader will be available to control another door..
Enter program mode → 28 * 064 # [064= Dual-door Control]

Anti-pass-back (M4/M8)

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 locations that need entry and exit control.

- **Enable controller**
  Enter program mode → 20 * ??? # [128= Anti-pass-back(0=Disable; 1=Enable)/ 064=Entrance/Exit(0=Exit; 1=Entrance).]
  [e.g.] Enable Anti-pass-back, and set to Exit door= (128 x 1) + (064 x 0) = 128
  Enter program mode → 20 * 128 # (Please refer to function default value for details.)

- **Enable card**

  Enter program mode → 26 * SSSSS * EEEEE * N #

  [SSSSS= Starting User Address; EEEEE= Ending User Address; N=0(control)/ 1(Not control)/ 2(reset)]

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

  [e.g.] The anti-pass-back function of User Address 00154 has been enabled. After presenting the card to get in, the user doesn't present the card to leave. When s/he tries to present the card to get in again, since the in-in sequence violates the anti-pass-back rule, s/he will be rejected. To solve this problem, you can reset it as follows. Enter program mode → 26 * 00154 * 00154 * 2 # → Reset

Auto Open Access (uncontrolled) Time Zone – Automatically Release Door Lock

Door will remain open after flashing one valid card. There are 2 time zones supported when Standalone, and 63 time zones when connected to AR-716-E. Please refer to paragraph Compound Command Function List below to ensure command 20 * ??? # / 24 * ??? # will not reset the functions that already had been changed.

- **Enable/Disable auto-open time zone**

  Enter program mode → 20 * 020 # [020= enable Auto-Open Time Zone; 016= disable Auto-Open Time Zone]

- **Enable/Disable auto open door without presenting one valid card and Automatically release door lock when auto open time is up**

  Enter program mode → 24 * 065 # [065=enable auto-open door without presenting one valid card；064=disable auto-open door (open the door only by swiping the one valid card, which is the default setting)]

- **Set up auto-open time zone**

  Enter program mode → 08 * N * HHMMhhmm * 1111111H #

  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)

  1111111H = 7 days of a week (Sun/Mon/Tue/Wed/Thu/Fri/Sat) + Holiday (H= 0: disable; 1: enable); Holidays can be set via 701Client software.

  [e.g.] To set the second time zone as 9:30 AM to 4:20 PM, Monday, Wednesday and Friday: 08 * 1 * 09301620 * 01010100 # → Done

H. Lift control

Connect with **AR-401-IO-0016R** to control access floors of users.

- **Enable**

  Enter program mode → 24 * 002 # [002= enable lift control]

- **Single floor**

  Enter program mode → 27 * UUUUU * FF #

  UUUU=User Address FF=Floor number (01~32 floor)

  [e.g.] User Address NO. 45, allowed to access the 24th floor: 27 * 00045 * 24 #

- **Multi floors**

  Enter program mode → 21 * UUUUU * S * FFFFFFFF #

  [UUUUU=User Address S: 4 sets of lift control (Input: 0~3) FFFFFFFF:

  8 floors setting (F=0: Disable, F=1: Enable)

  [e.g.] User Address NO. 168, only to the 6th and the 20th floor:

  Enter program mode → 21 * 00168 * 0 * 00100000 #

  → 21 * 00168 * 2 * 00001000 #

Please refer to below floor chart

Set	Floor/ Stop							
	F	F	F	F	F	F	F	F
0	8	7	6	5	4	3	2	1
1	16	15	14	13	12	11	10	9
2	24	23	22	21	20	19	18	17
3	32	31	30	29	28	27	26	25

When the number of users exceeds 1000, it is necessary to connect to multiple door controllers under AR-716-E16.

- **Enabling remote door opening, selecting user data from AR-716-E16. The user capacity control of H-series controllers can be increased from the original 1024 users to 16000 users, and floor control can be increased from the original 32 floors to 64 floors.**

STEP 1 : Update the firmware of AR-716-E16 (Firmware Name: Floor and alias information only needs to be downloaded to AR-716-E16 and does not need to be separately downloaded to the 16 card readers under RS485).

Firmware update instructions, please refer to:

1.How to update the firmware of SOYAL controller and other products?

2. Firmware Updating Setting Step

STEP 2 : Enable Floor Control Function →24 * 002 # [Please refer to Compound Command Function List for details.]

STEP 3 : Enable Remote Door Opening Function →20 * 004 # [Please refer to Compound Command Function List for details.]

I. Setting Up the Arming

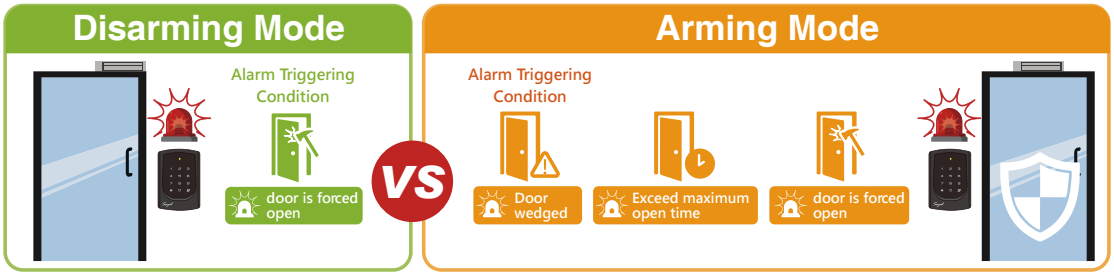
Controller could be set as Standby Mode (Disarming mode) or Arming Mode according to user requirement, the alarm triggering application of two modes are different, please refer to the graphical description comparison as below:

- **Alarm triggering condition of Disarming Mode:**

  1. Forced open

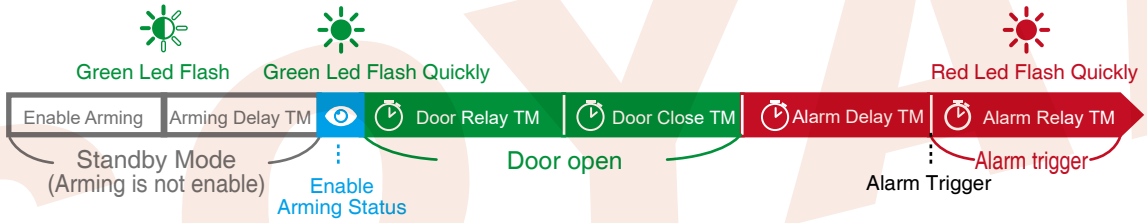
- **Alarm triggering condition of Arming Mode:**

  1. **Exceed max. open time:** Door is opened exceeding door maximum open time limit plus door close time.
  2. **Forced open:** Access by force or illegal procedure, rather than valid card, PIN or biometric recognition.
  3. **Door wedged**: Controller restart after power has returned in power outage condition but door status abnormal.

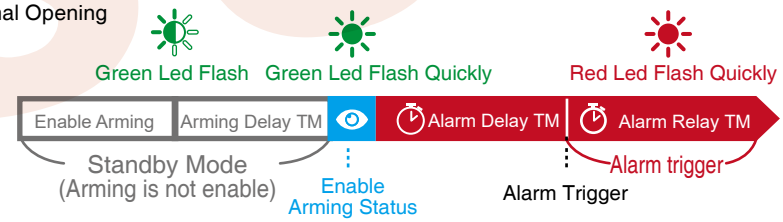


- **Arming Setting and Alarm Trigger Procedure :**

1.Normal Opening



2.Abnormal Opening



- **Enable/Disable Arming status (for M4/M8):**

Enter Programming Mode	Without Enter Programming Mode (Standby Mode): Enter Arming Code (default value of arming PWD is: 1234)
Enable: Enter program mode → * * #	**After door open :** The normal procedure to open door → **Input 4-digit arming PWD** → #
Disable: Enter program mode → * #	**Do not open the door :** * →**Input 4-digit arming PWD** → **Present a valid card**

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

※ Read the [Command List-Arming /Duress Function Setting] below to modify arming PWD.

※ M6 is Standalone Mode, the mode is without Arming /Duress Function.

More Details:

- SOYAL Security Related Function

07. Compound Command Function List

Weighted Value Manual :

Step 1:
Select the **"Function"** that you need for each Compound Command category (20 *, 24 *, etc)

Step 2:
"Selection" of the function that you need is either have 0 or 1 value.

Step 3:
Substract the **"Value"** of each Option with Selection.
Function = [0(deactive)*Value] ; [1(activate)*Value]

Step 4:
Add up all of the Function per Compound Command (20 * , 24 * ,etc)

AR-321-H / AR-331-H / AR-721-H / AR-725-H / AR-757-H

20 * ??? # ※Default Value

Function	Selection		Value	Application
Time Attendance	※0: Yes	1: No	001	Networking
Auto Relock	※0: Disable	1: Enable	002	Networking/Standalone
Auto Open	※0: Disable	1: Enable	004	Networking/Standalone
Exit by RTE Button	0: Disable	※1: Enable	016	Networking/Standalone
Master Controller of Network	※0: Slave	1: Mater	032	Networking
Entrance/Exit	※0: Exit	1: Entrance	064	Networking
Anti-pass-back	※0: Disable	1: Enable	128	Networking

Select the desired function, Weighted Value = Selection Index (0 or 1) x Value.

[e.g.] ??? (total weighted value of all functions): Enable "Auto Open" + "Exit by RTE Button" + "Anti-pass-back"

=1*004 + 1*016 + 1*128=148; As a result of that, the command will be 20 * 148 # .

28 * ??? # ※Default Value

Function	Selection		Value	Application
Dual-door Control	※0: Disable	1: Enable	064	Networking/Standalone
Force Open Alarm Output	※0: Disable	1: Enable	128	Networking/Standalone

34 * ??? # ※Default Value

Function	Selection		Value	Application
Enable the RF after door sensor closed to GND	※0: Deactivate	1: Activate	001	Networking/Standalone
Invalid card to activate alarm relay	※0: Deactivate	1: Activate	002	Networking/Standalone
Turn off all sounds of beeper	※0: Deactivate	1: Activate	003	Networking/Standalone
Mute the sounds of egress button (RTE)	※0: Deactivate	1: Activate	004	Networking/Standalone
Reserved	※0: Deactivate	1: Activate	016	Networking/Standalone
Keep beeing while arming is enabled	※0: Deactivate	1: Activate	032	Networking/Standalone
Door relay connected to AR-721RB (suited to models without relay built-in)	※0: Deactivate	1: Activate	064	Networking/Standalone
Arm relay connected to AR-721RB (suited to models with relay built-in)	※0: Deactivate	1: Activate	128	Networking/Standalone

AR-321-H / AR-331-H / AR-721-H / AR-725-H

24 * ??? # ※Default Value

Function	Selection		Value	Application
Auto Open without Presenting in Auto-open Time Zone	※0: Disable	1: Enable	001	Networking/Standalone
Alarm Output/ Lift Control	※0: Alarm Output	1: Lift Control	002	Networking/Standalone
◎Enable swipe any tags to release door open	※0: Disable	1: Enable	032	Networking/Standalone
Stop Alarm by pressing RTE Button or Closing the Door	0: None	※ 1: Yes	064	Networking/Standalone
Doorbell	※0: Disable	1: Enable	128	Networking/Standalone

◎ Add value 032 means to activate, deduct value of 032 means to disactivate the function of swipe any tags to release door open

AR-757-H

24 * ??? # ※Default Value

Function	Selection		Value	Application
Auto Open without Presenting in Auto-open Time Zone	※0: Disable	1: Enable	001	Networking/Standalone
Lift Control/ Duress Function	※0: Duress	1:Lift Control	002	Networking/Standalone
Stop Alarm by pressing RTE Button or Closing the Door	0: None	※1: Yes	064	Networking/Standalone

08. Factory Reset

Reset User Data	Reset User Data &Controller Parameter (incl. Master Code)	Reset User Data &Controller Parameter (incl. Master Code) & Reset Parameter Setting- SOR
Enter program mode →29 * 29 * # → Exit the programming mode	Enter program mode →29 * 20 * # → Exit the programming mode	Enter program mode →29 * 21 * # → Exit the programming mode

※If forgotten the current Master Code, Reset through software tools is required. Please refer to the FAQ for more detail：
How to change or reset different kinds of Controller Settings, including Master Code, Parameter Setting and User Data?

09. Notice

1.Tubing: The communication wires and power line should NOT be bound in the same conduit or tubing.

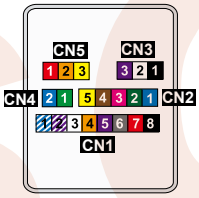
2.Wire selection: Use AWG 22-24 Shielded Twist Pair to avoid star wiring.

3.Power supply: Don't equip controller and lock with the same power supply. The power for controller may be unstable when the lock is activating, that may make the controller malfunction.
The standard installation: Door relay and lock use the same power supply, and controller use independent power supply.

10. Connector Table

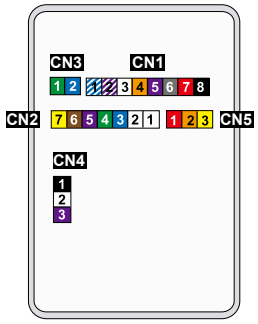
AR-321-H

125kHz
13.56MHz



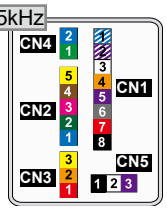
AR-331-H / AR-331-H-S

125kHz
13.56MHz

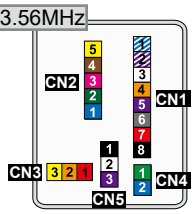


AR-721-H

125kHz



13.56MHz



Cable : Power/Door/Alarm

AR-321-H	AR-331-H	AR-721-H	AR-725-H	AR-757-H
CN1	CN1	CN1	CN1	CN5

Wire Application	Pin	Color	Description
Lock 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	Low output; Max 12V/100mA (Open Collector)
Power	7	Thick Red	DC Power 12V
	8	Thick Black	DC Power 0V

Cable : WG CN2

(Apply to 321H/721H/725H/757H)

Wire Application	Pin	Color	Description
Wiegand	1	Thin Blue	Wiegand DAT:1 Input
	2	Thin Green	Wiegand DAT:0 Input
Beeper	3	Pink	Beeper Output 5V/100mA, Low
LED	4	Brown	LED Green Output 5V/20mA, Max
	5	Yellow	LED Red Output 5V/20mA, Max

(Apply to 331H)

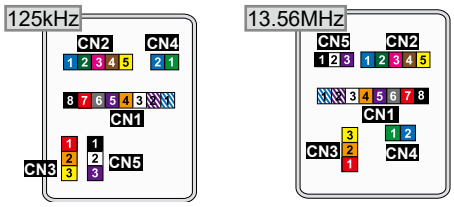
Wire Application	Pin	Color	Description
-----	1	--	Reserved
	2	--	Reserved
Wiegand Reader	3	Thin Blue	Wiegand DAT:1 Input
	4	Thin Green	Wiegand DAT:0 Input
Beeper	5	Pink	Beeper Output 5V/100mA, Low
LED	6	Brown	LED Green Output 5V/20mA, Max
	7	Yellow	LED Red Output 5V/20mA, Max

Cable : Burglary (Optional)

AR-321-H	AR-331-H	AR-721-H	AR-725-H	AR-757-H
CN3	CN4 (Included)	CN5	CN5	———

Wire Application	Pin	Color	Description
3-PIN Connector	1	Black	GND.
	2	White	Duress
	3	Purple	Arming/ Security trigger signal

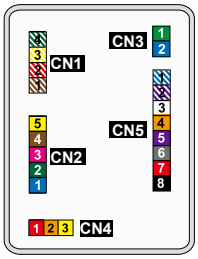
AR-725-H



AR-757-H

125kHz

13.56MHz



Cable : RS-485

AR-321-H	AR-331-H	AR-721-H	AR-725-H	AR-757-H
CN4	CN3	CN4	CN4	CN3

Wire Application	Pin	Color	Description
Networking Module	1	Thick Green	RS-485(B-)
	2	Thick Blue	RS-485(A+)

Cable : Tamper

※After S/N: 0706-XXXXXX

AR-321-H	AR-331-H	AR-721-H	AR-725-H	AR-757-H
CN5	CN5	CN3	CN3	CN4

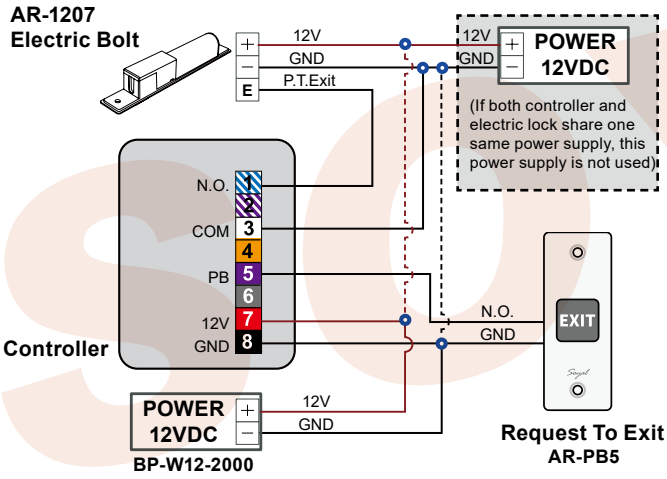
Wire Application	Pin	Color	Description
Tamper Switch	1	Red	N.C.
	2	Orange	COM
	3	Yellow	N.O.

Cable : Burglary / Security Relay CN1 (Apply to 757-H)

Wire Application	Pin	Color	Description
Doorbell	1	Brown White	BE Output
Arming	2	Red White	AR Output/ Security trigger signal Output
Duress	3	Yellow White	DU Output/ TTL out
LED indicator	4	Green White	Hi input/ Green light brighten

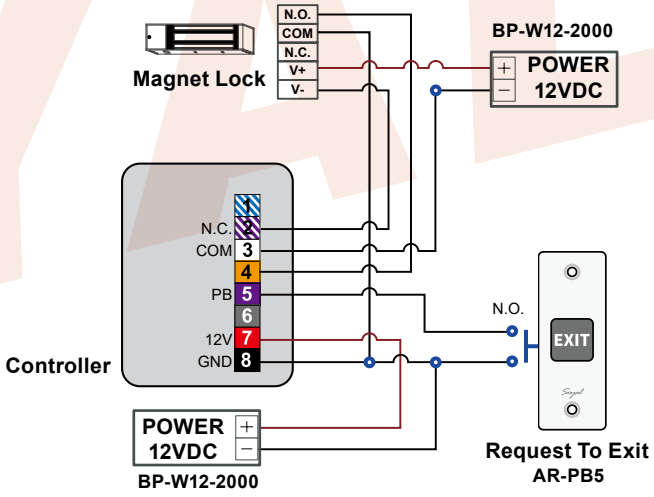
11. Wiring Diagram

Connect to Electric Bolt

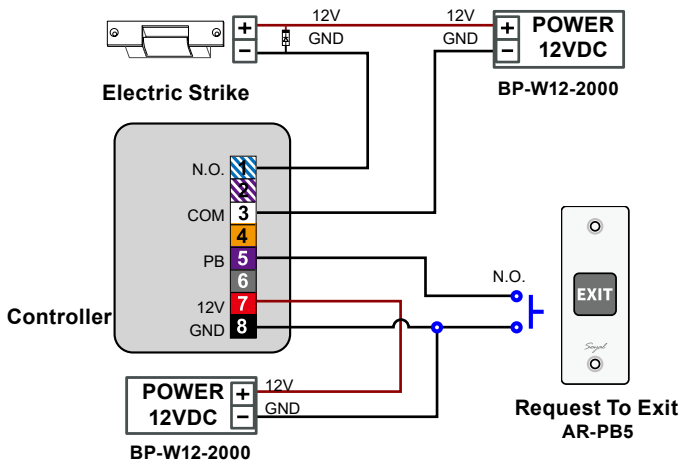


※ The above wiring diagram is used for two power supply configuration. If the controller and the electric lock share one same power supply, please connect the V+ & V- of the electric lock to the V+ and V- of the power supply of the controller.

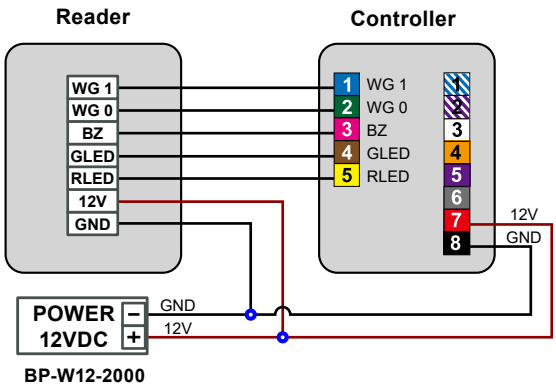
Connect to Magnetic Lock



Connect to Electric Strike

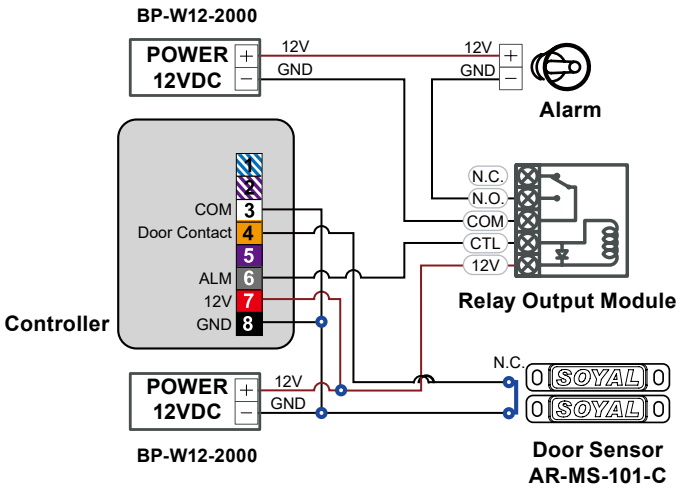


Connect to Reader

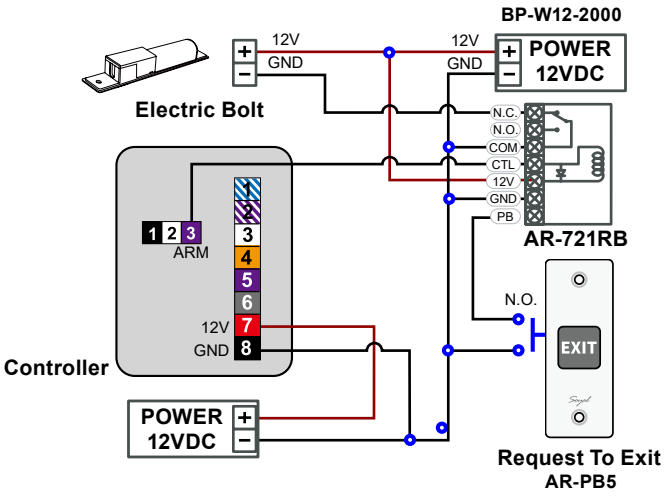


AR-321-H / AR-331-H / AR-721-H/ AR-725-H / AR-757-H

Connect to Door Sensor

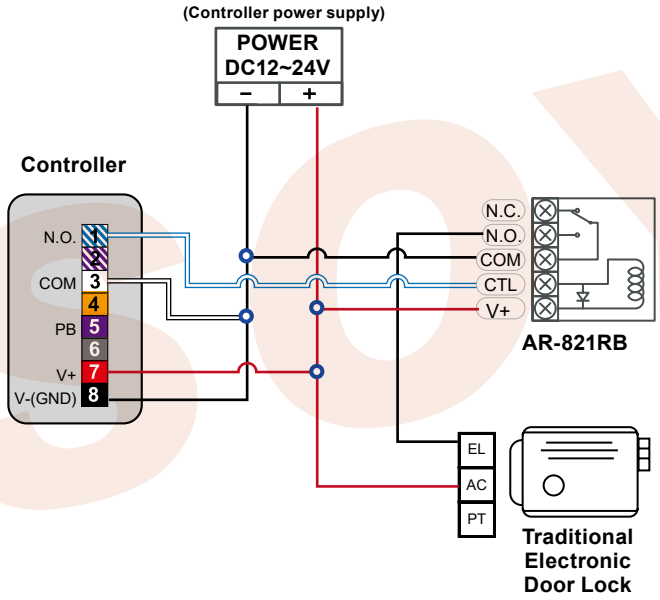


Strengthen security with AR-721RB

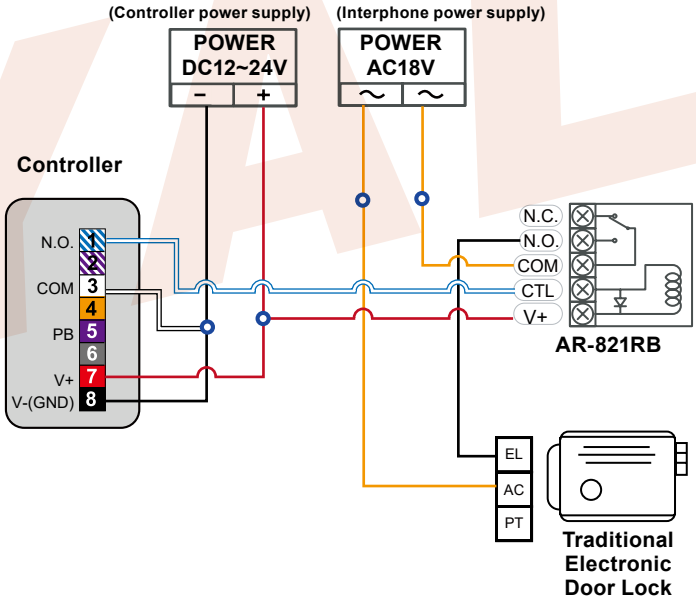


※ 1.Enable the security trigger signal: Please refer to the 34 * ??? #
2.Disable "Exit by RTE Button". (Please refer to the 20 * ??? # of function default value.)

Traditional Electronic Door Lock wiring diagram adopted with controller power supply

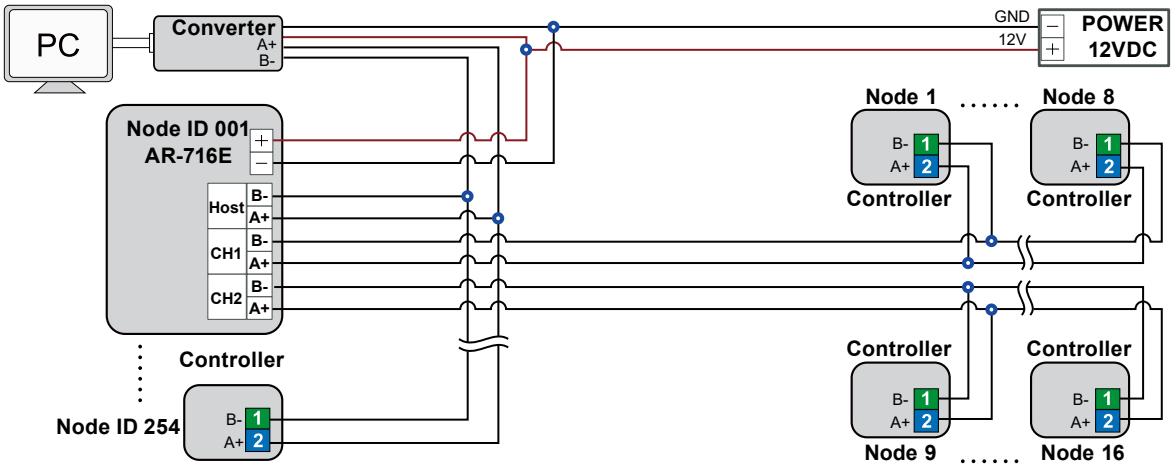


Traditional Electronic Door Lock wiring diagram adopted with interphone power supply



※ This wiring diagram function is required to setup Door Relay Time in 1 sec, please refer to 02 * TTT # command.

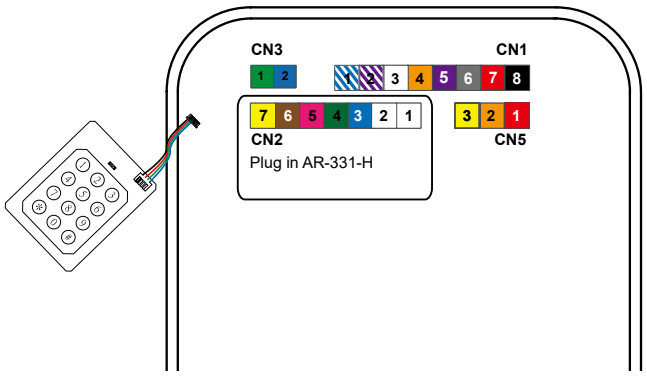
Connect to Networking



12. AR-331-H External WG keyboard

※ If you want to program system on AR-331-H directly, please order WG keyboard then install it according to the following pattern.

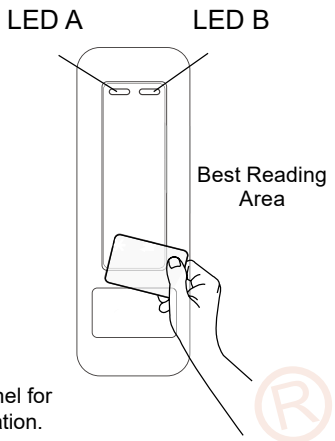
- Plug AR-331-H into CN2 connector on the mainboard
- Refer to command list and start to operate AR-331-H.



13. AR-331-H Front Panel & Indicator

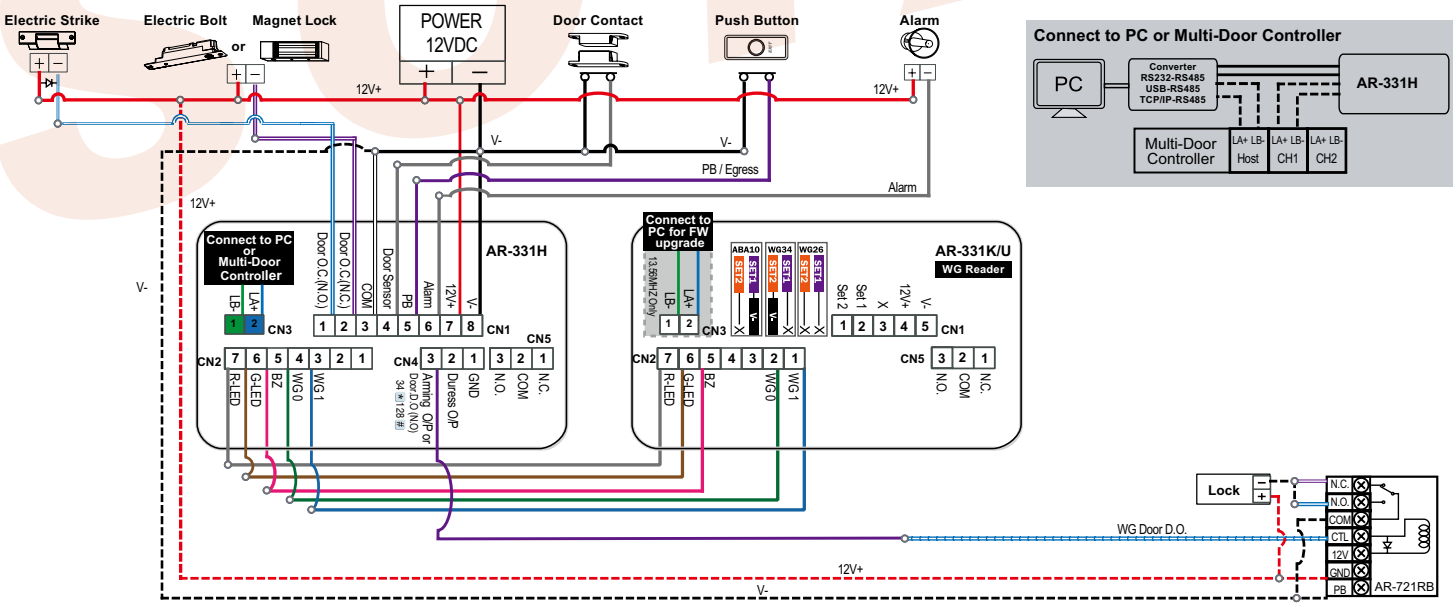
LED A	Descrption
Blue	Arming / Blue LED Input (Active High)
Yellow	Yellow LED Input (Active High)

LED B	Descrption
Green	Power-on/Stand-by /OK
Red	Error/Alarm



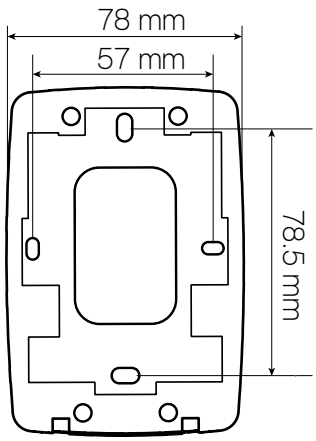
While power on the device,hands off panel for 10 sec. to make sure a successful activation.

AR-331-H Connector Table

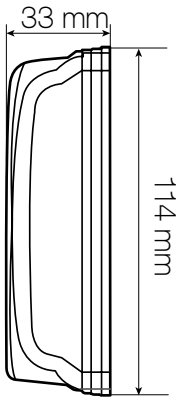


14. Installation Dimensions

AR-321-H

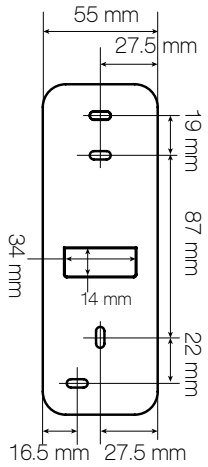


(Front View)

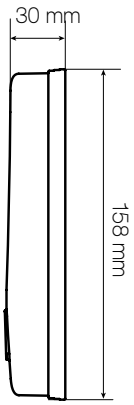


(Side View)

AR-331-H / AR-331-H-S

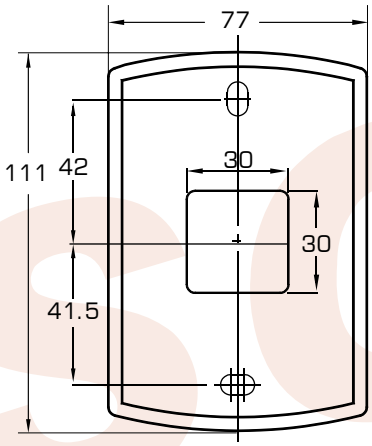


(Front View)

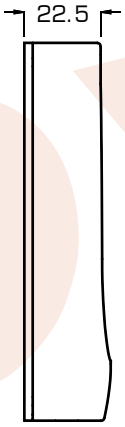


(Side View)

AR-721-H

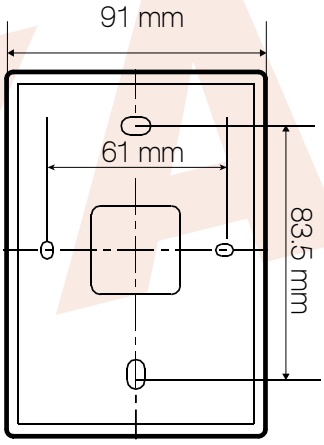


(Front View)

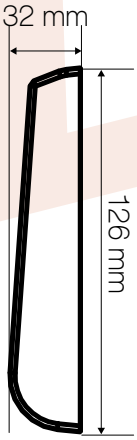


(Side View)

AR-757-H



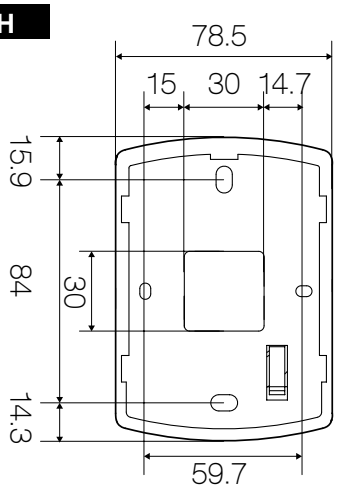
(Front View)



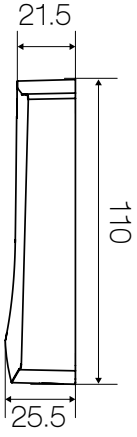
(Side View)

AR-725-H / AR-725-H-M

AR-725-H

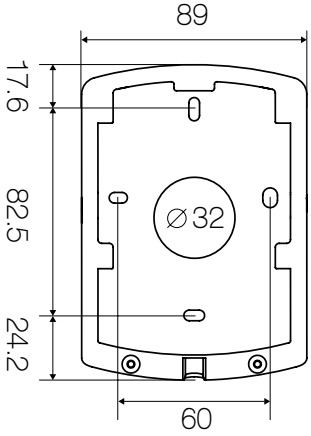


(Front View)

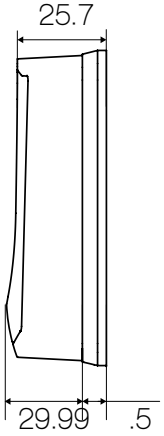


(Side View)

AR-725-H-M



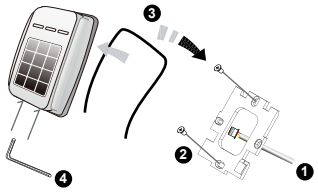
(Front View)



(Side View)

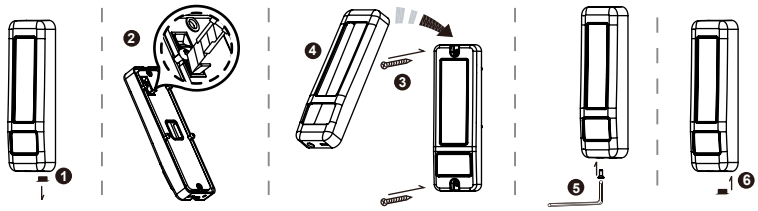
15. Installation Instructions

AR-321-H



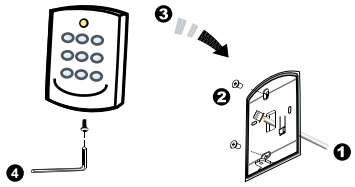
- Pull the cables from the square hole of the mounting plate.
- Use a screwdriver to screw the mounting plate onto the wall.
- Attach the water proof strip to the body, then connect the terminal cables to the body and attach the body to the mounting plate.
- Use the Allen key and screws (accessories supplied) to assemble the body onto the mounting plate.
- Turn on the power, and LED will light and beep will sound.

AR-331-H / AR-331-H-S



- Remove the rubber plug.
- To cut tamper-resistant column and make it fit the appropriate height for actual installation.
- First, take off the metal casing then screw the controller on the wall.
- Second, put the metal casing back and lock it with security screw.
- Finally, put the rubber plug into the hole.
- Turn on the power, and LED will light and beep will sound.

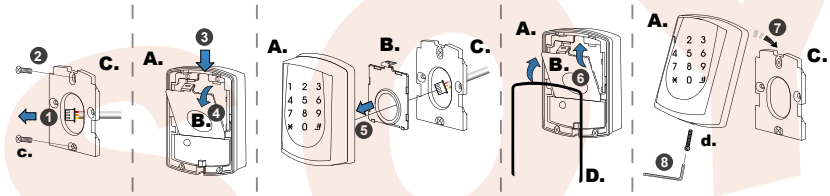
AR-721-H



- Pull the cables from the square hole of the mounting plate.
- Use a screwdriver to screw the base onto the wall.
- Connect the terminal cables to the body and attach the body to the mounting plate.
- Assemble the covers with the Allen key and screws (accessories supplied).
- Turn on the power and LED will light and beep will sound.

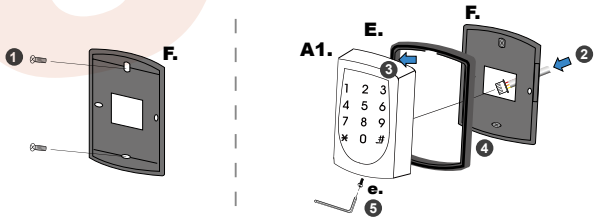
AR-725-H

AR-725-H-M



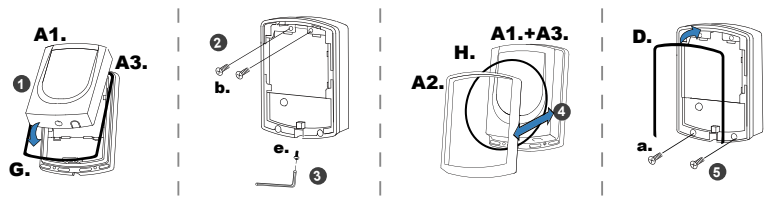
- Pull the cables from the square access hole of the mounting plate **C**.
- Use a screwdriver to screw the metal plate **C** onto the wall.
- Take off the plastic mounting plate **B** from the body **A**, and pull the cables through the access hole of **C** and **B**, then connect to the body **A**.
- Assemble plate **B** with the body **A**, and embed the water proof strip **D** onto the plastic side frame.
- Assemble the body **A** onto the mounting plate **C** with the Allen key and screws (accessories supplied).
- Turn on the power and LED will light and beep will sound.

AR-725-H



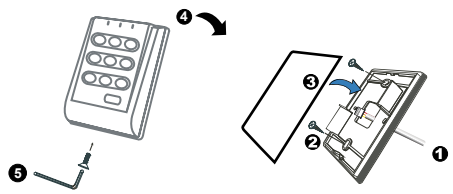
- Use a screwdriver to screw the base F onto the wall.
- Attach the water proof gasket to the body **A1**, and pull the cables from the square hole of the base F, and connect to the body **A1**.
- Assemble the body **A1** with the base **F**.
- Screw **A1** and F tight with the Allen key and screws (accessories supplied).
- Turn on the power and LED will light and beep will sound.

AR-725 (X)



- Put on **G**, and attach **A1** onto the plastic plate **A3**, and screw it with the Allen key and screws (accessories supplied).
- Put the ring O on the metal frame, and put them together onto the reader **A1**+**A3**, and screw them and buckle up the 4 buckles on the back.
- Embed the water proof strip **D** onto the frame side of the base.
- Following by the install process of AR-725 (H-M)

AR-757-H



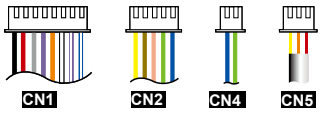
- Pull the cables from the square hole of the mounting plate.
- Use a screwdriver to screw the base onto the wall.
- Embed the water proof strip **3** onto the frame side of the base.
- Connect the terminal cables to the body and attach the body to the mounting plate.
- Assemble the covers with the Allen key and screws (accessories supplied).
- Turn on the power and LED will light and beep will sound.

16. Contents

AR-321-H: Touch-panel Metal Housing

1 Product

2 Terminal Cables



3 Tools

4 Water proof Strip

AR-331-H: Touch-panel Metal Housing / AR-331-H-S: Metal Housing

※ Additional external relay must be purchased.

1 Product

AR-331-H

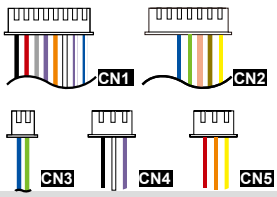
or

(Optional)

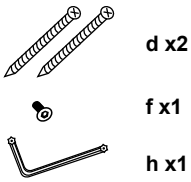
WG keyboard

AR-331-H-S

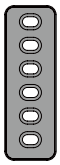
2 Terminal Cables



3 Tools



4 Accessories



Water proof Strip

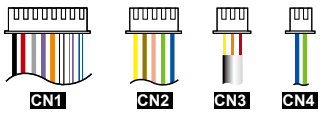
5 Optional

AR-721RB
Digital Relay

AR-721-H

1 Product

2 Terminal Cables

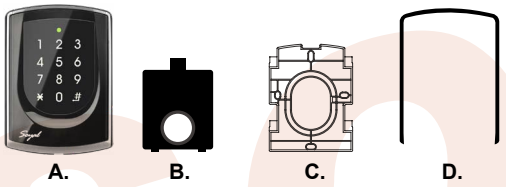


3 Tools

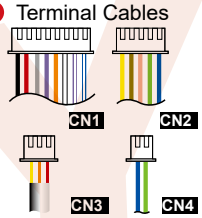
AR-725-H: Illuminated Touch-panel

AR-725-H-M

1 Products



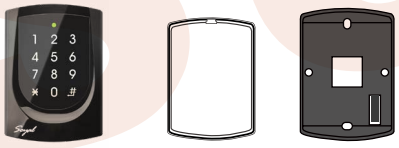
2 Terminal Cables



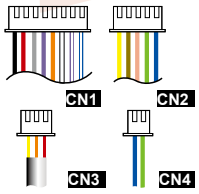
3 Tools

AR-725-H

1 Products



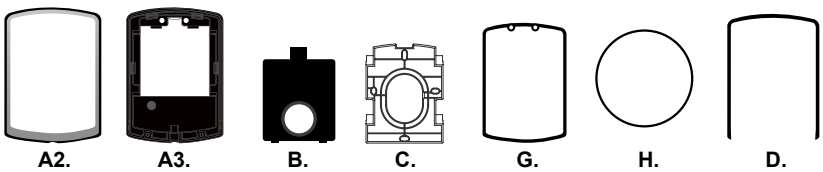
2 Terminal Cables



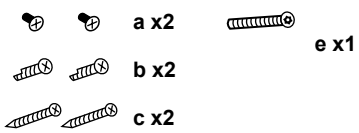
3 Tools

AR-725 (X)

1 Products



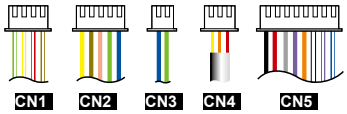
2 Tools



AR-757-H

1 Product

2 Terminal Cables



3 Tools

Parts Description

a. Button Head Pozidriv Tapping Screw: M3x10

b. Button Head Pozidriv Slotting Screw: 2.5x10

c. Flat Head Cap Philips Tapping Screw: 4x19.1

d. Flat Head Cap Philips Tapping Screw: 4x38

e. Security Torx Screw: M3.5x15

f. Flat Head Hex Socket Screw: M3x8

g. Security Torx Screw: M3x10

h. Security Torx Wrenches