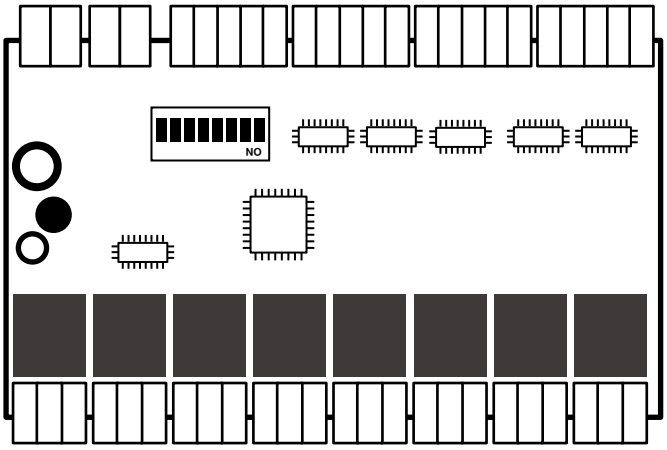
Module I/O (16 Optical Isolation Input/8 Relay Output)

AR-401-IO-1608R



1. Product Features

Module I/O (16 Optical Isolation Input/8 Relay Output) AR-401-IO-1608R

- Support for a high-security centralized access control system with separation of reading and control.
- Supports Modbus and SOYAL communication protocols, suitable for various IoT integration applications.
- Built-in input optocoupler protection function, effectively achieving electrical isolation, high voltage protection, lightning resistance, and avoiding noise interference.
- Versatile application modes: standard I/O, multi-door interlock, people counting, crowd control, etc., easily meeting various application scenarios.
- Compatible with Modular DIN Rail Mounting Base (AR-701B)

2. Application

- **High-Security Access Control System Architecture**

► Access Control System Architecture and Selection Design Reference Table

3. How to Order

AR-401-IO	0808	R	-X	X	-X



Relay
R = Relay

Type
N/A = PCB
M = Metal Case
X = Plastic Mounting Base

Input Qty / Output Qty
0016 = 16 Output
0804 = 8 Input & 4 Output
0808 = 8 Input & 8 Output
1608 = 16 Input & 8 Output

Additional Features
N/A = No Additional Features
R = RTC

Additional Module
N/A = No Additional Module
P = POE Features

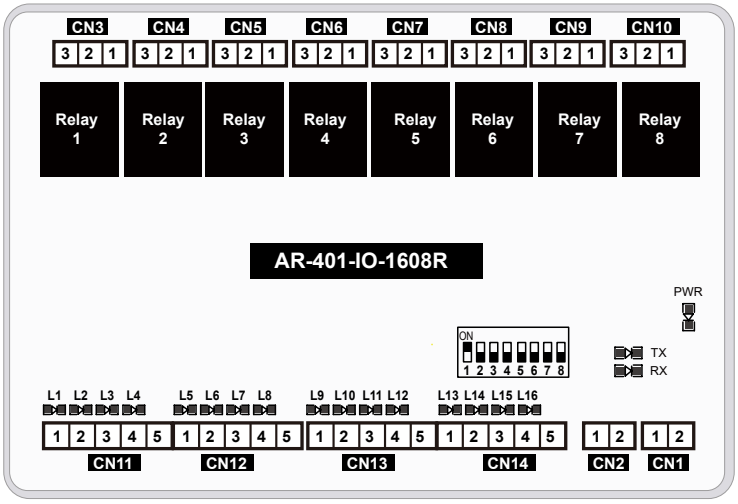
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SOYAL®

01.PIN Assignments



※ 701ClientSQL Graphic Animation I/O mapping starts from 00(Physical IO Address DI1 -->Symbol IO Nr.:00, Physical IO Address DI16 -->Symbol IO Nr.:15

CN1

Function	Pin	Description
Main Power Supply (Single Power Supply Mode) (DC12V/1W)	1	V+
	2	V-

CN2

Function	Pin	Description
External Port 1 (RS-485 input)	1	L1-(B-)
	2	L1+(A+)

CN3~10

Function	Pin	Description
Relay output 1~8	1	N.O.
	2	COM
	3	N.C.

CN11

Function	Pin	Description
DI input	1	DI.1
	2	DI.2
	3	DI.3
	4	DI.4
	5	COM

CN12

Function	Pin	Description
DI input	1	DI.5
	2	DI.6
	3	DI.7
	4	DI.8
	5	COM

CN13

Function	Pin	Description
DI input	1	DI.9
	2	DI.10
	3	DI.11
	4	DI.12
	5	COM

CN14

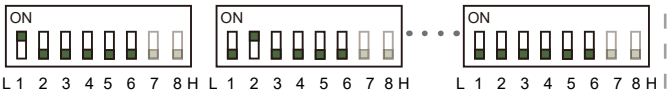
Function	Pin	Description
DI input	1	DI.13
	2	DI.14
	3	DI.15
	4	DI.16
	5	COM

02.DIP Switch Setting

Standard Firmware

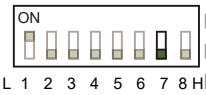
Node ID (Range 1~64; 000000 equivalent to Node ID 64)

Example : Node 1 | Example : Node 2 ~ Example : Node 64

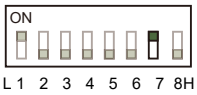


※**Use binary to calculate Node Number**

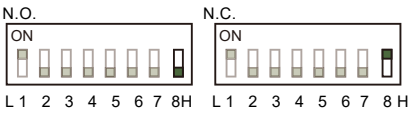
BAUD9600



BAUD19200



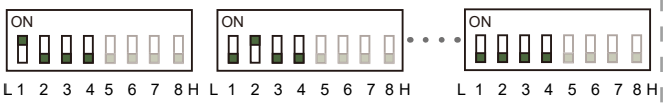
N.C./N.O. Type witch



8 Interlock Door Solution

Node ID (# 1~16)

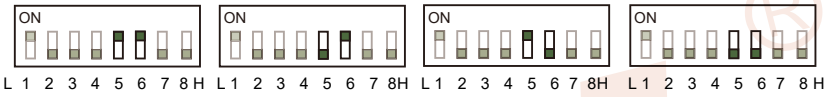
Example: Node 1 | Example:Node 2 ~ Example : Node 16



※**Use binary to calculate Node Number**

Door lock output relay time

3 seconds | 6 seconds | 9 seconds | 15 seconds

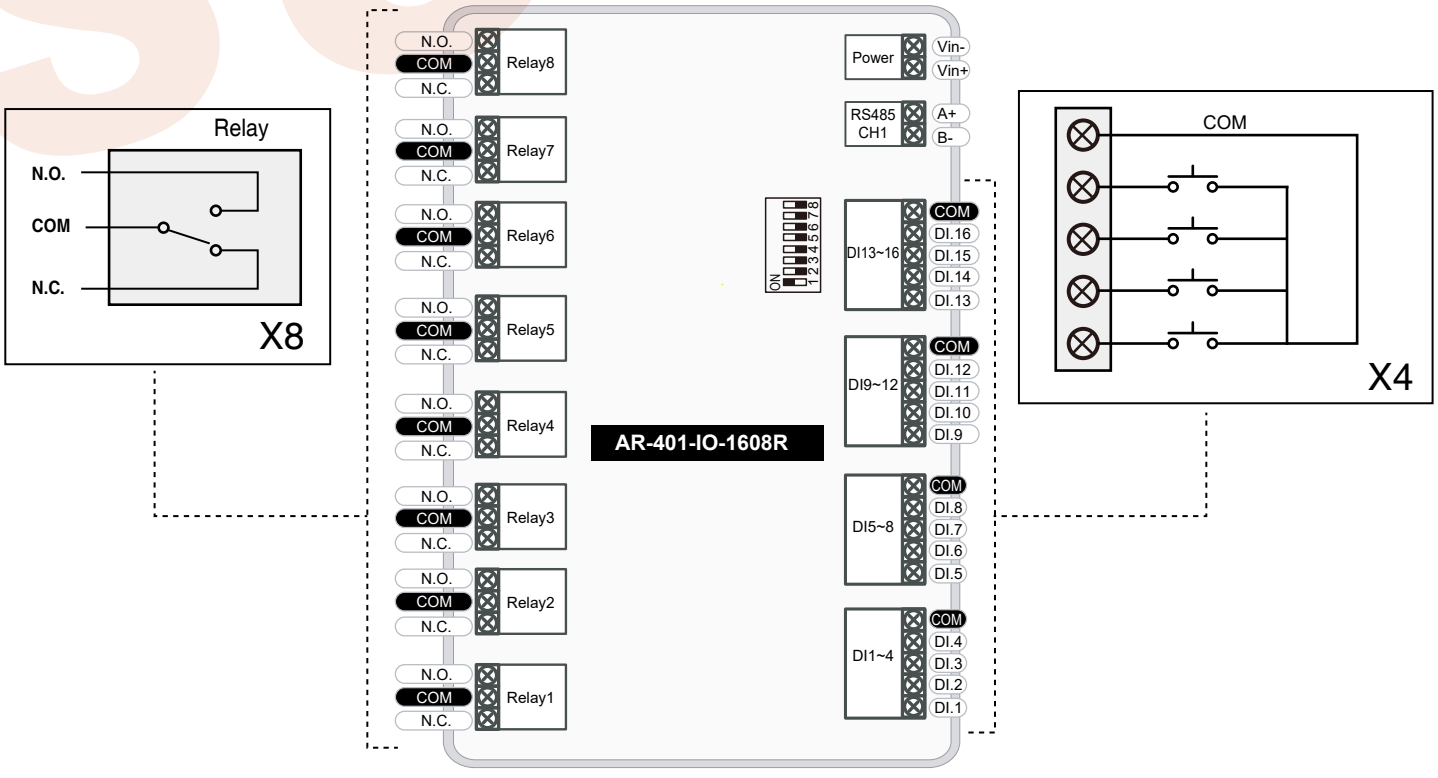


Alarm output relay time

3 seconds | 6 seconds | 9 seconds | Latch



03.Wiring Diagram



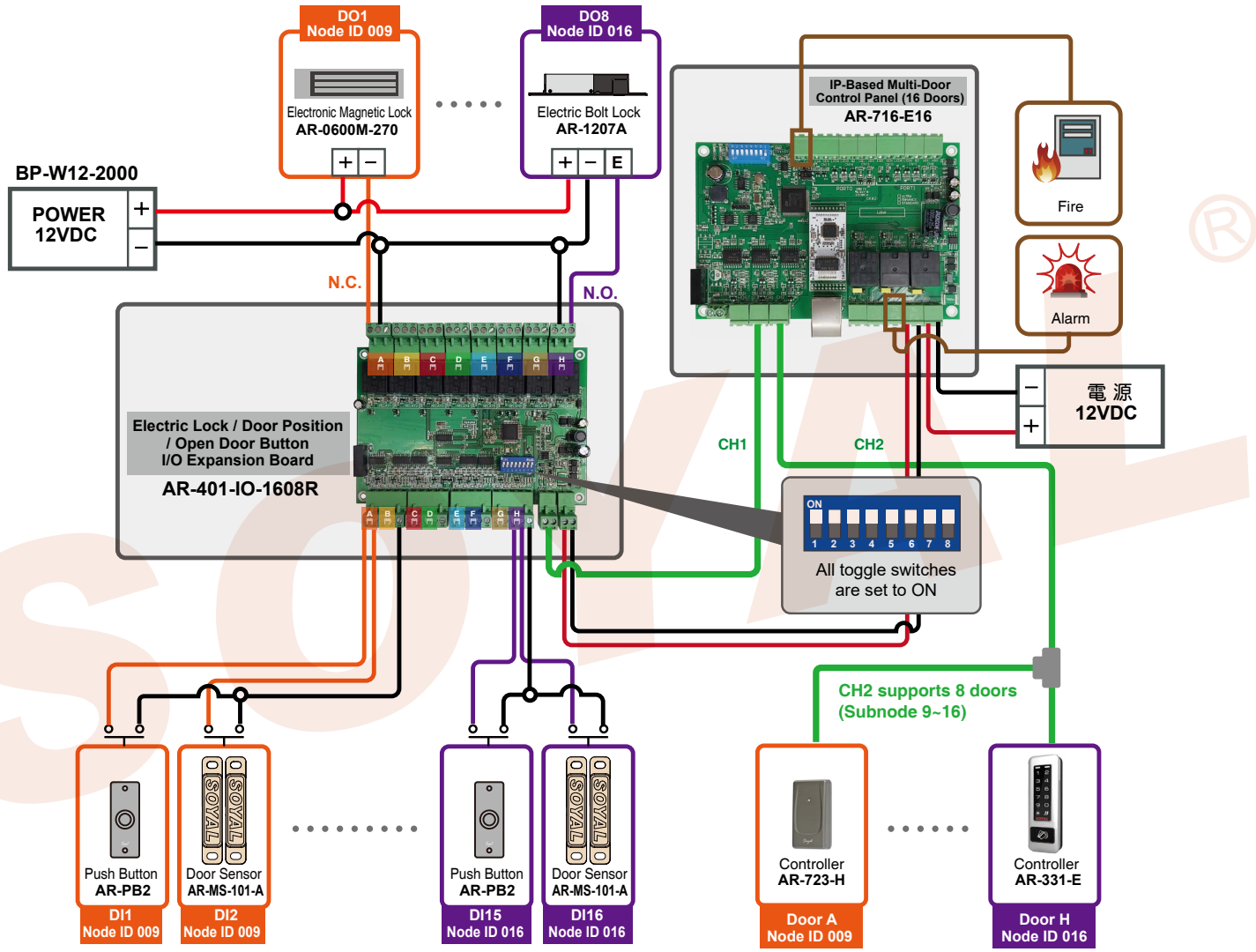
04. Wiring Method for High-Security Mode

Feature Introduction

The high-security mode architecture offers several advantages:

- Power Failure Continuation: A backup mechanism for uninterrupted operation during power outages.
- Centralized Control: Electric locks, open door buttons, and door position detection are all centralized in the equipment room, reducing the risk of I/O control leakage.
- Advanced Anti-Tailgating: Support for interlock control of up to 8 doors to prevent unauthorized entry.

Wiring Diagram



Door Name	Channel 1			Channel 2	Common Contact
	Lock	Push Button	Door Sensor	Controller	
Door A	DO1	DI1	DI2	Node ID 009	Fire Alarm
Door B	DO2	DI3	DI4	Node ID 010	
Door C	DO3	DI5	DI6	Node ID 011	
Door D	DO4	DI7	DI8	Node ID 012	
Door E	DO5	DI9	DI10	Node ID 013	
Door F	DO6	DI11	DI12	Node ID 014	
Door G	DO7	DI13	DI14	Node ID 015	
Door H	DO8	DI15	DI16	Node ID 016	

Software Setting

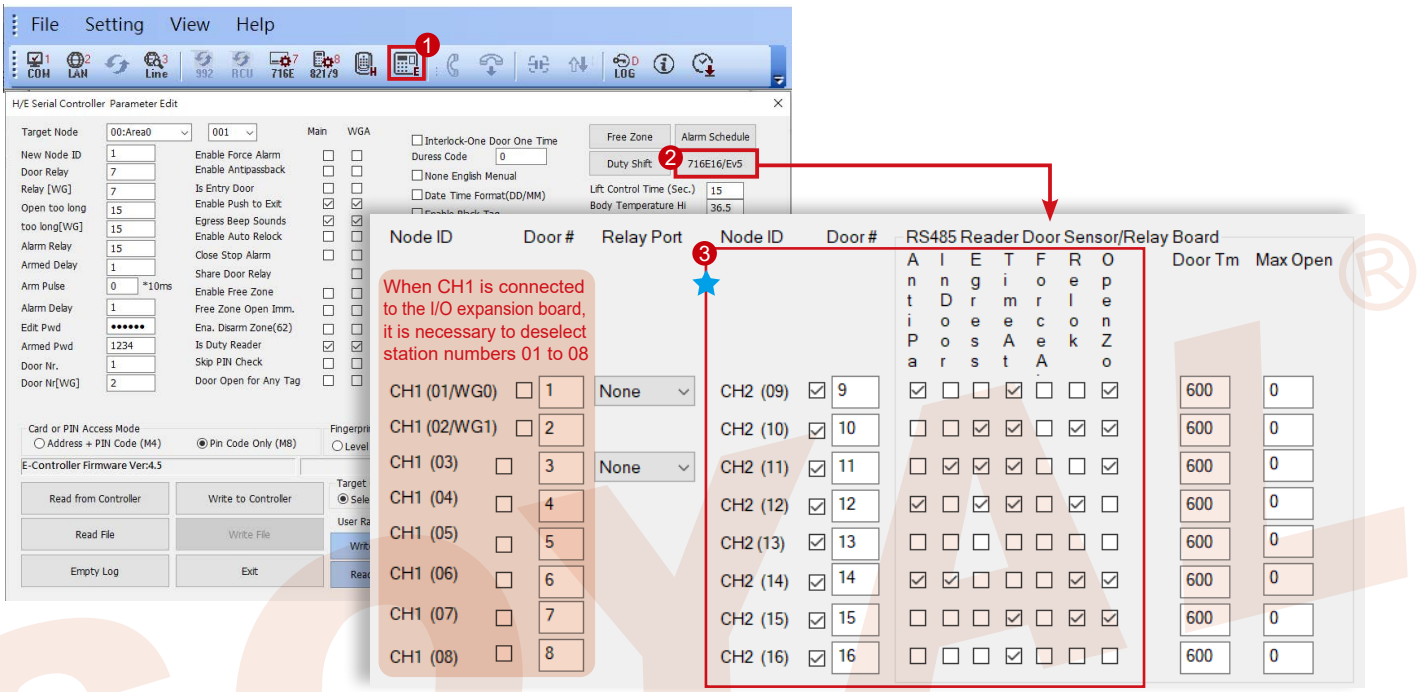
Setting Method:

STEP 1 : Select  in 701ServerSQL.

STEP 2 : Click " 721E16/Ev5 "

STEP 3 : Check the required functions for RS-485 card readers with station numbers 09 to 16 on CH2.

※When CH1 is connected to the I/O expansion board, it is necessary to deselect station numbers 01 to 08.

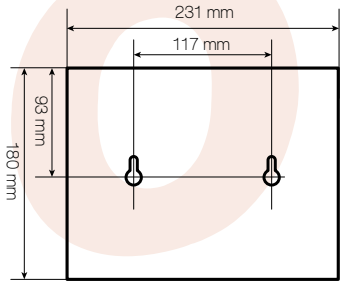


★	701ServerSQL Screen Names	Function Description
1	Anitipa	Anti-pass-back
2	Indoor	Entry/Exit Reader
3	Egress	Exit by Push Button
4	TimeAt	Entry and Exit Access is recorded on Duty Report
5	ForceA	Enable force Open trigger alarm
6	Relok	Activate close door automatically lock (Auto-Relock)
7	OpenZo	Auto Open

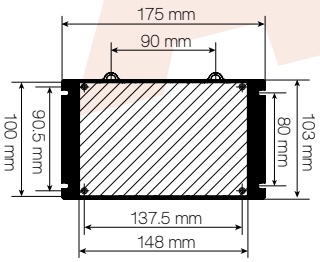
05. Specification

Interface	Serial port	RS485 X 1 port
	Baud Rate	9600,19200 bps (N,8,1)
Input/Output		16 Digital Input / 8 Relay Output (Form C)
Protocol		Modbus RTU, Soyal
LED Indicator		Power,Tx/Rx, D.O./D.I
Watchdog function		Yes
Operating Temperature		-20℃ ~ +70℃
Fuses		Power and RS485 Isolation protection
Noise Isolation		Input optical isolation
Power Supply		9-24 VDC
Power Consumption		<4W
Dimension(mm)		PCB:117(H)x148(W)x20(D) Panel Mounting Base :117(H)x175(W)x30(D) Metal Box:180(H)x231(W)x62(D)
Weight(g)		100±10(PCB Only)

06. Installation(mm)



Metal casing



DIN rail mounting base PCB

07. Contents



AR-401-IO-1608R