

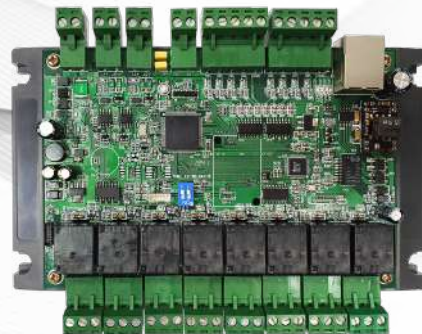
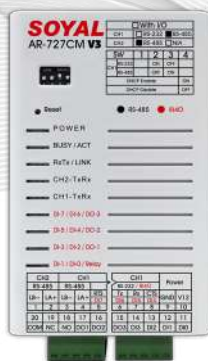


# Operation Manual

# AR-727-CM HTTP Server

## System Requirements

- Web Browser Setting Interface
- Cross-Platform Services does not limit to particular operating system, smartphone, or tablet
- Setting Fire Alarm Auto Release Doors and TCP/IP Remote I/O Control Setting



SOYAL Website

Software Download

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# 1. HTTP Server Introduction

## 1. HTTP Server Introduction

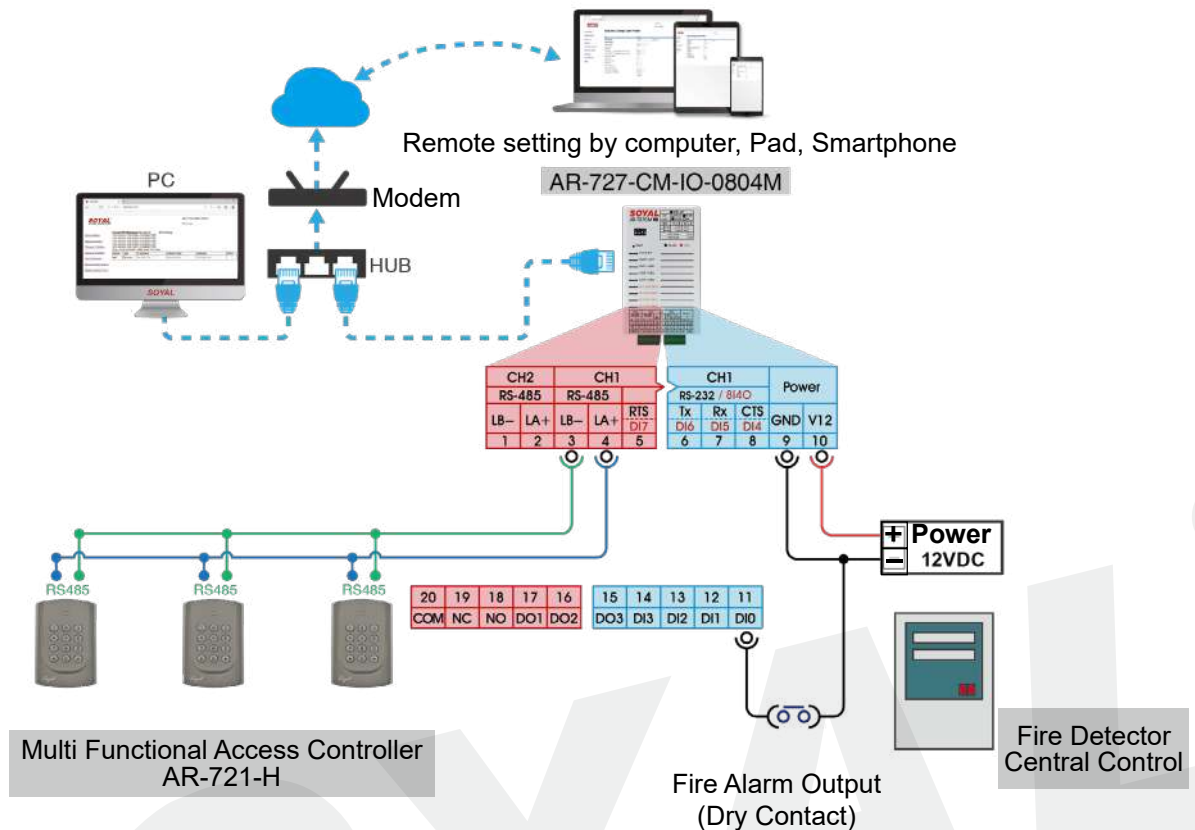
### 1-1 / Main Features

- Easy setup via Smartphone, Tablet, and PC by entering IP address of the devices through web browser
- HTTP Server is compatible for SOYAL Enterprise Series (listed on separate manual refer to 'Operation Manual Enterprise Series HTTP Server'), SOYAL Industry Series (TCP), AR-716-E18 Ethernet module AR-727i-V3 and Converter AR-727-CM.
- HTTP Server Comparison Table

	Interface Menu	Enterprise Series	Industry Series (TCP) AR-727-CM-0804M AR-401-IO-0808R-U2	AR-727i-V3 (AR-716-E18 Ethernet module)	Converter AR-727-CM
<b>1</b>	Current State	<b>V</b>	<b>V</b>	<b>V</b>	<b>V</b>
<b>2</b>	Network Setting	<b>V</b>	<b>V</b>	<b>V</b>	<b>V</b>
<b>3</b>	Controller Setting: Event Log /User List / Controller Parameter / User Add/Change / Timezone / Clock	<b>V</b>			
<b>4</b>	Login Password	<b>V</b>	<b>V</b>	<b>V</b>	<b>V</b>
<b>5</b>	RS485 Setting: Channel 1 Setting / Channel 2 Setting		<b>V</b>		<b>V</b>
<b>6</b>	I/O Control Setting: Direct Control IO 0~3 / Direct Control IO 4~7		<b>V</b>		

- Devices with DI/DO onboard, through HTTP Server could directly control and monitor recent status of onboard DI/DO
- Connect to Fire Detector Central Control when fire alarm occurred, automatically notified designated controller to open door
- Establish a Server-Client connection bridge to extend wiring, limitless wiring distance, or to provide wireless connection.
- AR-727-CM-IO-0804M through its DI/DO features provides TCP to Wiegand signal conversion, at the same time all of Industrial Series built-in Modbus communication protocol that could easily works with third party integration of Monitoring Software and SCADA.

### 1-2 / Architecture Schematic Diagrams



**Note :**

- To ensure the best connection quality, the maximum amount of the connection of Controller is 8 for each channel of AR-727-CM, so that the total amount is 16 Controllers.

## 2. Interface Overview

### 2-1 / Log in HTTP Server page



- Through PC, Tablet, or Smartphone web browser software/app, enter device IP Address and enter HTTP Server interface (default IP Address 192.168.1.127)

## 2. Interface Overview

- 2 When entering HTTP Server page required entering ID and Password. Default ID: SuperAdm / Password: 721568 which can also be found on serial no. sticker that include on the packaging.

(For older version, default ID: admin / password: admin)



### Note :

- User Name is different from old and new version, password can be modify via [User Password] setting on the list but will not be change from updating new version. If you forgot the password, the solution is pressing Reset Button to reset it as default value.

Firmware Version	User name	Password (changeable)
After 2020/01/21	SuperAdm	Default Password : 721568 or self-definition
Before 2020/01/21	admin	Default Password : admin/ password not required or self-definition

- 3 Device Model no. and Firmware Version

After logged in, on the top right side will show the controller's model no. including the firmware version

### 2-2 / Device Connection Status

**1** Current State

SOYAL™ ACCESS CONTROLLER F/W: 5.00

**2** 192.168.001.002:(1621) CONNECTED

Name	Type	IP address	Subnet mask	Gateway	DHCP
et1	Ethernet	192.168.1.127	255.255.255.0	192.168.1.254	<input type="checkbox"/>

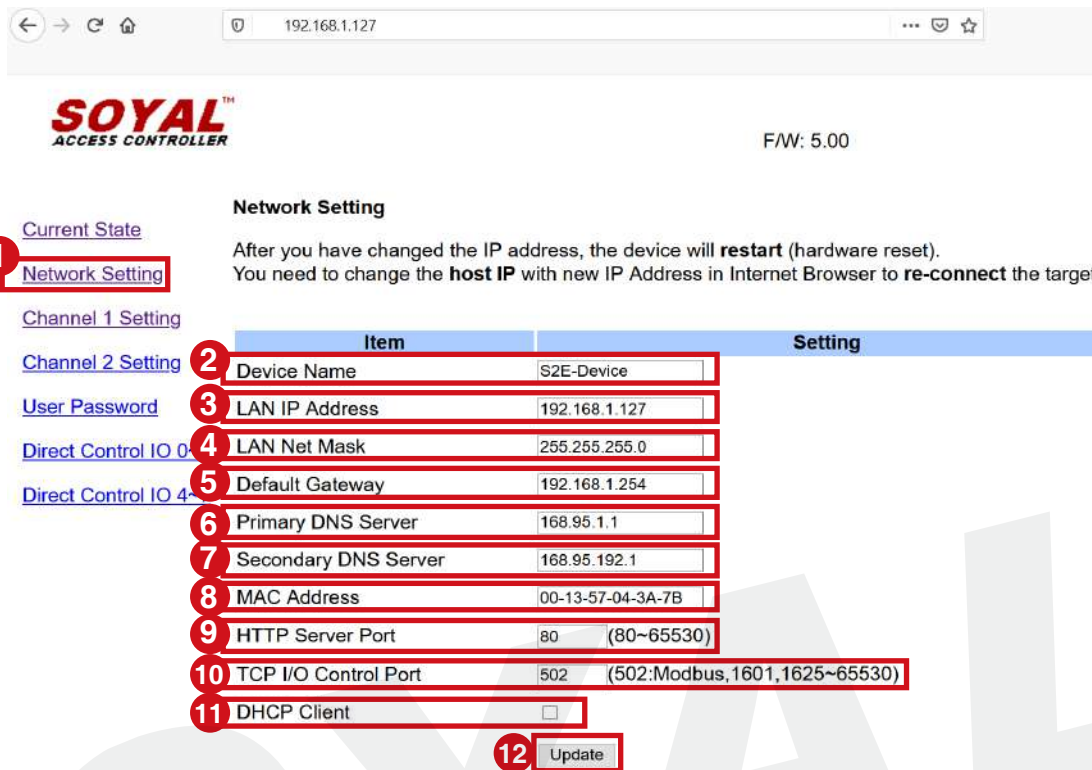
- 1 After logged in, the first menu that will automatically show Current State that will indicate connection status
- 2 Connection Status can be seen between devices to HTTP Server (Port 80) and device to 701Server (Port 1621 for Enterprise Series Controller or via AR-727-CM CH1 / Port 1623 if via AR-727CM CH2)



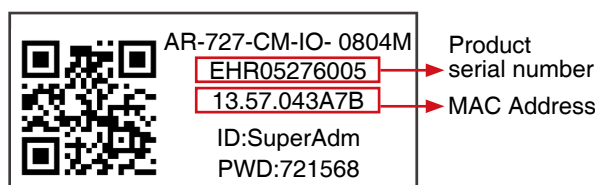
### Note :

- From the example above:
  - 192.168.001.078:(0080) CONNECTED -> indicated device with IP address 192.168.1.78 has connected to HTTP Server
  - 192.168.001.002:(1621) CONNECTED -> indicated device with IP address 192.168.1.2 has connected to 701Server

### 2-3 / Network Setting



- 1 Click the 'Network Setting' on the left side menu
- 2 Device Name: Rename network device, could be used to differentiate between one device and another
- 3 LAN IP Address: Enter IP address designated for the device of the intranet. Default setting is 192.168.1.127
- 4 LAN Net Mask: Subnet Mask of the intranet
- 5 Default Gateway: Default gateway of the intranet.  
if there is Internet connection access, this IP address must point to the router or the gateway provided by the ISP
- 6 Primary DNS Server: Domain Name Server 1
- 7 Secondary DNS Server: Domain Name Server 2
- 8 MAC Address: Network physical address (this field cannot be changed).  
Each TCP/IP device has designated MAC address that could be found on the serial number sticker



## 2. Interface Overview

**9** HTTP Server Port: 80

Web browser service port, it can be change if there is information security consideration but should not have the same TCP Port with 701Server connection to devices which is 1621 or 1623

**For Example: changing into 9680, to enter the HTTP Server you need to enter IP address followed with Port**

**\*the designated Port should be remembered all time, if not necessary to change the Port, please let it remain default which is 80.**

**10** TCP/IP Control Port:

Setting of I/O Control Port.

Enter 1601 when using 727APP or mobile app connection and using 701ClientSQL Graphic Animation , View I/O Status.

**11** Enter 502 for Modbus communication protocol application

DHCP Client: Ticking this feature will enable dynamic host protocol which means devices will automatically obtain IP address without manually typing and assigned

**12** device to a designated IP address.

Update: Press Update button to save changed.

**When you changed the LAN IP Address, after entering Update button, on the browser field required to type new IP address.**

### 2-4 / RS485 Parameter Setting



FW: 5.00

Channel 1	Setting
<p><b>1</b> <a href="#">Channel 1 Setting</a></p> <p><a href="#">Channel 2 Setting</a></p> <p><a href="#">User Password</a></p> <p><a href="#">Direct Control IO 0~3</a></p> <p><a href="#">Direct Control IO 4~7</a></p>	<p><b>2</b> Protocol TCP</p> <p><b>3</b> Operation Mode Server</p> <p><b>4</b> Local Port 1621 (1024~65535)</p> <p><b>5</b> Remote Port 1621 (1024~65535)</p> <p><b>6</b> Remote IP 0.0.0.0</p> <p><b>7</b> Baud Rate 9600</p> <p><b>8</b> Data+Parity Bits 8</p> <p><b>9</b> Parity None</p> <p><b>10</b> Stop Bits 1</p> <p><b>11</b> UART &lt;&gt; NET delay time 10 (10~1000)ms</p> <p><b>12</b> UART to NET minimum bytes 1024 (16~1024)</p> <p><b>13</b> Socket Timeout 120 (0~600)sec. (TCP Client Keep Alive:0)</p> <p><b>14</b> Fire Alarm (DI0) Open Doors Enable (Available for TCP Server mode Only)</p> <p><b>15</b> Door Open Mode Just-Pulse (Available for TCP Server mode Only)</p> <p><b>16</b> Selected Node ID 255 (1~254, 255 for broadcast all, Set to 0 to disable this node)</p> <p>Selected Node ID 0 (1~254, Set to 0 to disable this node)</p> <p>Selected Node ID 0 (1~254, Set to 0 to disable this node)</p> <p>Selected Node ID 0 (1~254, Set to 0 to disable this node)</p> <p>Selected Node ID 0 (1~254, Set to 0 to disable this node)</p> <p>Selected Node ID 0 (1~254, Set to 0 to disable this node)</p> <p>Selected Node ID 0 (1~254, Set to 0 to disable this node)</p> <p>Selected Node ID 0 (1~254, Set to 0 to disable this node)</p>
	<p><b>17</b> Update</p>

## 2. Interface Overview

- 1 Select 'Channel 1 Setting' to setup RS485 connection on Channel 1
- 2 Protocol: Choose TCP
- 3 Operation Mode: Server (Default)
- 4 Local Port:  
Default Value 1621 (it is changeable to other Port but should not have the same TCP Port with Server HTTP Port 80)
- 5 Remote Port: Default Value 1621, change into 0.
- 6 Remote IP: Set as 0.0.0.0  
**Note: Step no. 3-6 required a setup when applying Server-Client Mode connection bridge (Refer to 3-3)**
- 7 Baud Rate: Fixed value 9600
- 8 Data Bits: The added value of Data bits and Parity Bits, the default is (8) means 8 Data Bits and No Parity  
**For example: Serial Port Parameter Setting for 9600,0,8,1 AR-727-CM Data Bits set to 9 (the actual output will be 8 bit + 1 parity = 9), then set the Parity into 'Even'**
- 9 Parity: Default Value None
- 10 Stop Bits: Default Value 1  
**Note: Step no. 7-10 required a setup when wiring to third party devices that have different Serial Port Setting.**
- 11 UART to NET delay time: Transmission delay time in milliseconds
- 12 UART to NET minimum bytes: Data transfer length default value 1024 (please do not change)
- 13 Socket Timeout: Time waiting for connection, set to 0 means to keep the connection alive or keep alive (if it is unnecessary refrain from set up into 0)
- 14 Fire Alarm (DI0) Open Doors:  
Enabling this feature will activate release all doors or specified doors under fire alarm event (triggered DI0 signal), only available under Server Mode
- 15 Door Open Mode:  
Release lock mode, there are two options to choose 'Just-Pulse' or 'Keep Latch'. Under a connection to Fire Alarm System, for safety purpose during Fire Event select 'Keep Latch'. For other purpose such as remote open door for visitor, select 'Just-Pulse'.



## 2. Interface Overview

**16** Selected Node ID:

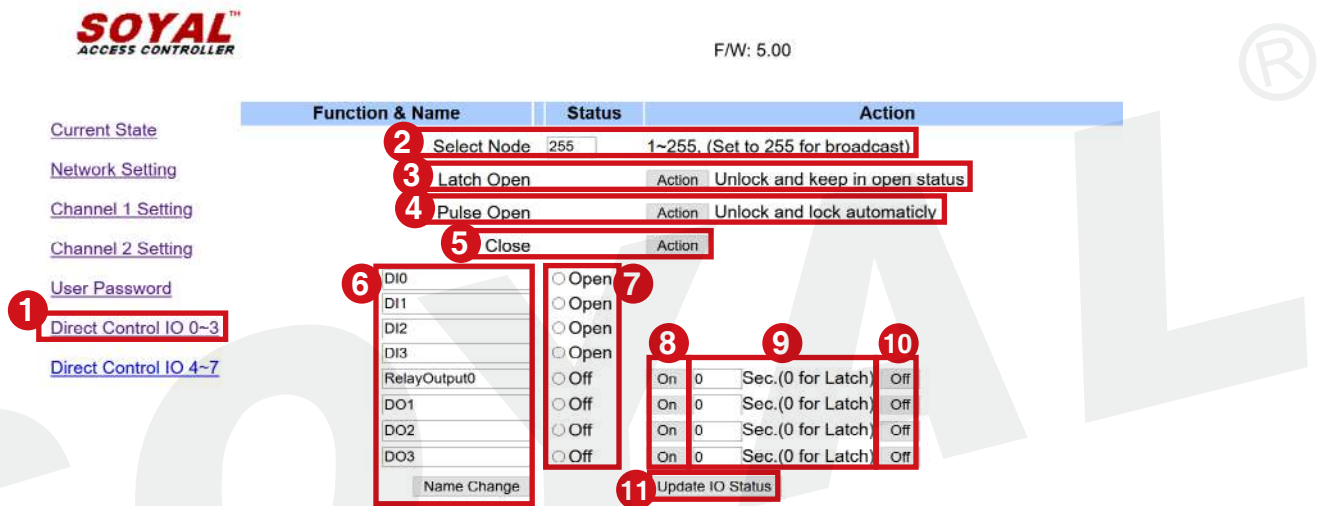
Select broadcast or specified group of doors to release lock under Fire Event (each RS485 Channel could specified up to 8 doors).

**Note: Step no.14-16 required a setup when applying Fire Alarm Auto Release Doors (Refer to 3-2)**

**17** Update:

Press Update button to save changed.

### 2-5 / I/O Direct Control and Query



**1** IO Direct Control includes DI/DO direct and remote control over devices. This also includes direct control of devices connected to Industry Series (TCP) over RS485.

**‘Direct Control IO 0~3’**

**Direct control over DI0, DI1, DI2, DI3 and DO0, DO1, DO2, DO3**

**Direct control over RS485 CH1&CH2**

**‘Direct Control IO 4~7’**

**Direct control over DI4, DI5, DI6, DI7 and DO4, DO5, DO6, DO7**

**Direct control over RS485 CH1&CH2**

**2** Select Node: Enter broadcast or specified node ID to do control between Latch Open(3)/Pulse Open(4)/Close(5) remotely on RS485 CH1&CH2.

Enter 255 to release doors for all controllers under RS485 CH1&CH2.

Enter specified node ID to control only one specific node ID under RS485 CH1. (Example enter ‘Select Node 1’ means to do actions for Node ID 1 on RS485)

**Action Control over RS485 CH1&CH2**

Latch Open	<input type="button" value="Action"/>	Unlock and keep in open status
Pulse Open	<input type="button" value="Action"/>	Unlock and lock automaticly
Close	<input type="button" value="Action"/>	

## 2. Interface Overview

- 3** Latch Open: Release lock continuously
  - 4** Pulse Open: Release lock and lock automatically door relay time limit reached (according to devices Door Relay Time Setting)
  - 5** Close: Lock door
- Press 'Action' to implement direct control from step 3-5.

- 6** Rename DI/DO:  
Change the name of DI/DO and select 'Name Change' to save changed.
- 7** DI/DO Status:  
The status change of DI/DO will be displayed here
- 8** DO Control:  
Click ON to trigger DO, and click OFF to disable DO from triggering  
Clicking ON for DO0, the DI status will automatically ON

Function & Name	Status	Action
Select Node	<input type="text" value="255"/>	1~255, (Set to 255 for broadcast)
Latch Open	<input type="button" value="Action"/>	Unlock and keep in open status
Pulse Open	<input type="button" value="Action"/>	Unlock and lock automatically
Close	<input type="button" value="Action"/>	
DI0	<input type="radio"/> Open	
DI1	<input type="radio"/> Open	
DI2	<input type="radio"/> Open	
DI3	<input type="radio"/> Open	
RelayOutput0	<input checked="" type="radio"/> On	
DO1	<input type="radio"/> Off	
DO2	<input type="radio"/> Off	
DO3	<input type="radio"/> Off	
<input type="button" value="Name Change"/>		

<input checked="" type="radio"/> On	<input type="text" value="0"/>	Sec.(0 for Latch)	<input type="button" value="Off"/>
<input type="radio"/> On	<input type="text" value="0"/>	Sec.(0 for Latch)	<input type="button" value="Off"/>
<input type="radio"/> On	<input type="text" value="0"/>	Sec.(0 for Latch)	<input type="button" value="Off"/>
<input type="radio"/> On	<input type="text" value="0"/>	Sec.(0 for Latch)	<input type="button" value="Off"/>
<input type="button" value="Update IO Status"/>			

## 2. Interface Overview

Clicking OFF for DO0, the DI status will automatically returned to OFF status

Function & Name	Status	Action
Select Node	255	1~255, (Set to 255 for broadcast)
Latch Open		<input type="button" value="Action"/> Unlock and keep in open status
Pulse Open		<input type="button" value="Action"/> Unlock and lock automaticly
Close		<input type="button" value="Action"/>
DI0	<input type="radio"/> Open	
DI1	<input type="radio"/> Open	
DI2	<input type="radio"/> Open	
DI3	<input type="radio"/> Open	
RelayOutput0	<input type="radio"/> Off	<input type="button" value="On"/> 0 <input type="button" value="Sec.(0 for Latch)"/> <input type="button" value="Off"/>
DO1	<input type="radio"/> Off	<input type="button" value="On"/> 0 <input type="button" value="Sec.(0 for Latch)"/> <input type="button" value="Off"/>
DO2	<input type="radio"/> Off	<input type="button" value="On"/> 0 <input type="button" value="Sec.(0 for Latch)"/> <input type="button" value="Off"/>
DO3	<input type="radio"/> Off	<input type="button" value="On"/> 0 <input type="button" value="Sec.(0 for Latch)"/> <input type="button" value="Off"/>
<input type="button" value="Name Change"/>		<input type="button" value="Update IO Status"/>

### 9 DO Control (Output Time)

Change the Output Time of DO control between the range of 0~600 seconds.

Entering 0 means latch mode, output continuously.

Entering between 1~600 seconds means output ON according to output time set.

<input type="button" value="On"/>	<input type="text" value="0"/>	Sec.(0 for Latch)	<input type="button" value="Off"/>
<input type="button" value="On"/>	<input type="text" value="0"/>	Sec.(0 for Latch)	<input type="button" value="Off"/>
<input type="button" value="On"/>	<input type="text" value="0"/>	Sec.(0 for Latch)	<input type="button" value="Off"/>
<input type="button" value="On"/>	<input type="text" value="0"/>	Sec.(0 for Latch)	<input type="button" value="Off"/>
<input type="button" value="Update IO Status"/>			

### 10 Update IO Status: Get real time IO current status by clicking Update IO Status

<input type="button" value="On"/>	<input type="text" value="0"/>	Sec.(0 for Latch)	<input type="button" value="Off"/>
<input type="button" value="On"/>	<input type="text" value="0"/>	Sec.(0 for Latch)	<input type="button" value="Off"/>
<input type="button" value="On"/>	<input type="text" value="0"/>	Sec.(0 for Latch)	<input type="button" value="Off"/>
<input type="button" value="On"/>	<input type="text" value="0"/>	Sec.(0 for Latch)	<input type="button" value="Off"/>
<input type="button" value="Update IO Status"/>			

### 3-1 / TCP/IP Converter Setting

Wiring SOYAL access controller to PC can be done via RS485 or TCP/IP interface. For SOYAL access controller that built-in RS485, via Industry Series (TCP) or AR-727-CM achieve RS485 to TCP/IP connection.

Each device built in two RS485 channels that differentiate between CH1 and CH2.

CH1 Setting:

Current State  
Network Setting  
**Channel 1 Setting**  
Channel 2 Setting

Channel 1 Setting

Setting

1 Protocol TCP

2 Operation Mode Server

3 Local Port 1621 (1024~65535)

Remote Port 1621 (1024~65535)

- 1 Protocol : TCP
- 2 Operation Mode: Server
- 3 Local Port 1621

CH2 Setting:

Current State  
Network Setting  
Channel 1 Setting  
**Channel 2 Setting**

Channel 2 Setting

Setting

1 Protocol TCP

2 Operation Mode Server

3 Local Port 1623 (1024~65535)

Remote Port 1623 (1024~65535)

- 1 Default Value Protocol UDP change into TCP
- 2 Operation Mode: Server
- 3 Local Port 1623

### 3. Interface Overview

#### 3-2 / Fire Alarm Auto Release Doors

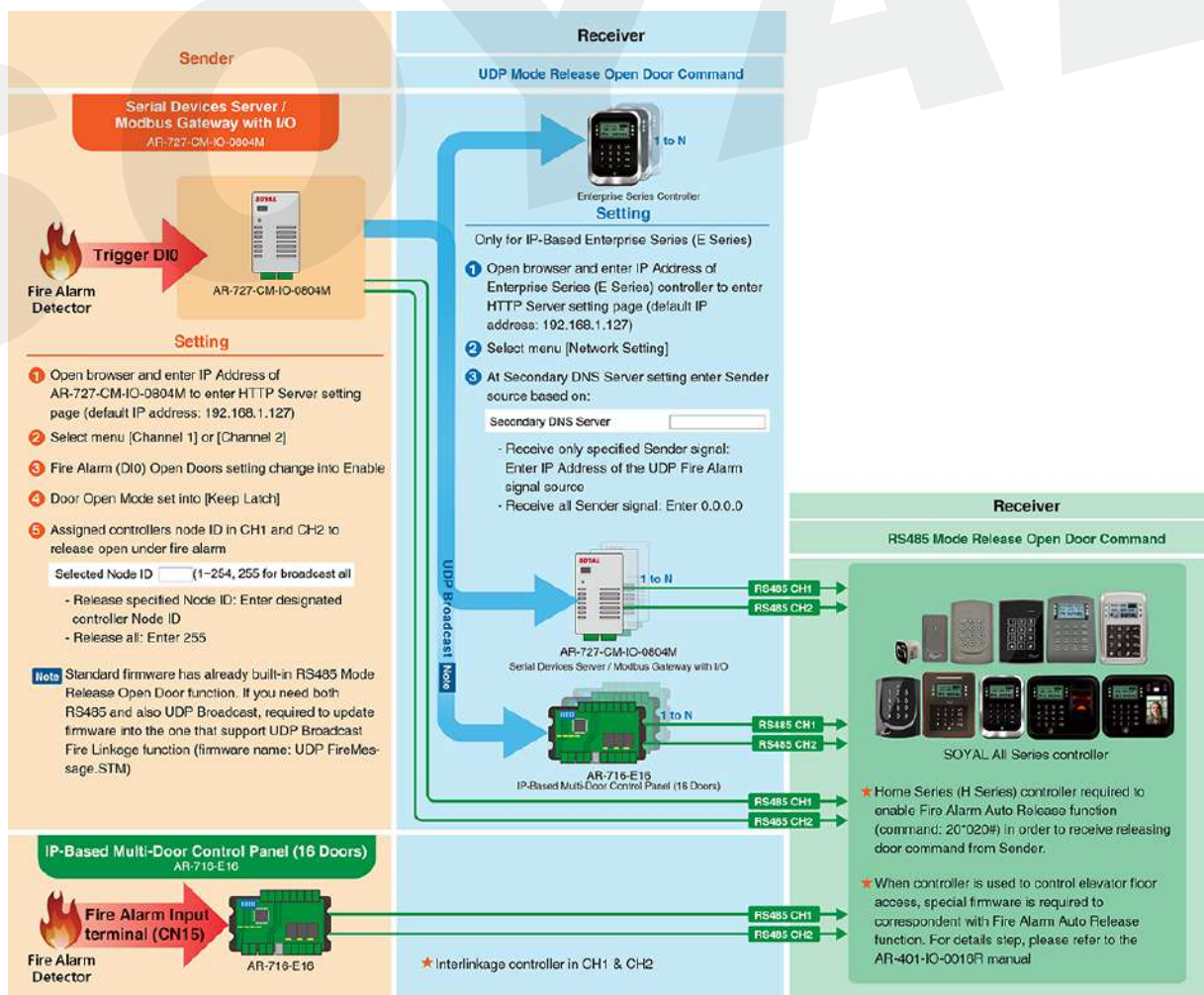
SOYAL provides various options for Fire Event Solution. This is taking a consideration of onsite situation and human safety when escaping fire and evacuation while maintaining safety for authorized area.

Door Release Functions:(1) RS-485 automatically door release (2) UDP automatically door release (3) RS-485 & UDP Dual-release

The functions above are all capable of self-define function of (a) broadcast all controllers or (b) release specific door only.

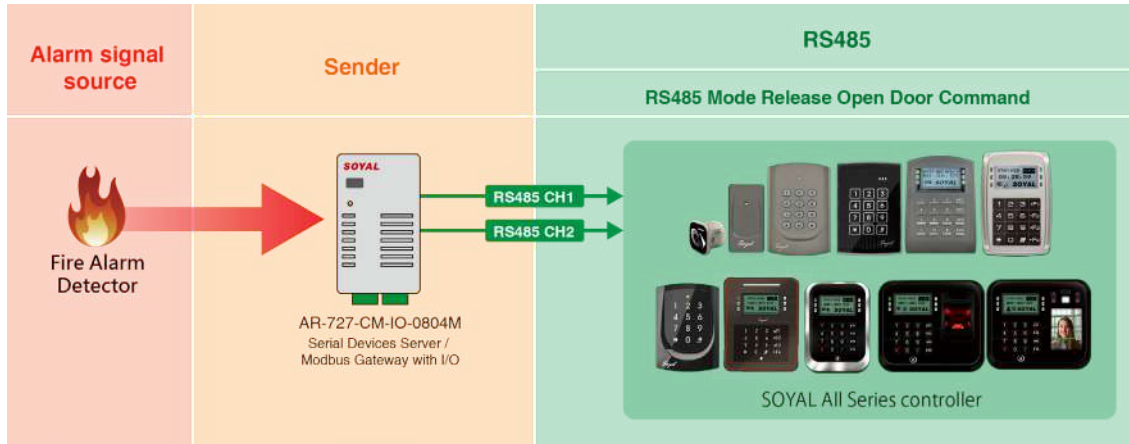
Note: Multi-door control panel AR-716-E16 only supports All-release function, please utilize AR-727CM-IO or E series controller with TCPIO directly if you have assignment requirement.

Releasing all doors is suggested for public spaces where user could directly escape building for safety precaution and quick evacuation process. Meanwhile releasing only a specified doors is suitable to keep doors remain locked for high authorized area or for building with warehouses, treasure room, or server IT room.



### 3. Interface Overview

● 3-2-1 Fire Alarm Auto Release Doors (RS485 method)



AR-727CM 8i8o 220804 UDP File Message  
F/W: 5.03

Channel-1	Setting
	Protocol TCP
	Operation Mode Server
	Local Port 1621 (1024~65535)
	Remote Port 1621 (1024~65535)

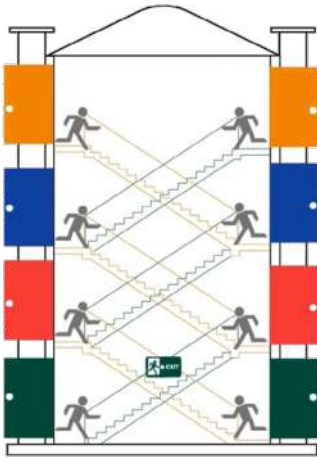
AR-727CM 8i8o 220804 UDP File Message  
F/W: 5.03

Channel-1	Nodes/IO
2	Fire Alarm (DI0) Open Doors Enable (TCP Server mode Only)
3	Door Open Mode Keep-Latch (TCP Server mode Only)
	Release Node ID 255 (1~254,255=All,0:Disable)
	Release Node ID 0 (1~254,255=All,0:Disable)
	Release Node ID 0 (1~254,255=All,0:Disable)
4	Release Node ID 0 (1~254,255=All,0:Disable)
	Release Node ID 0 (1~254,255=All,0:Disable)
	Release Node ID 0 (1~254,255=All,0:Disable)
	Release Node ID 0 (1~254,255=All,0:Disable)
	Release Node ID 0 (1~254,255=All,0:Disable)
	Release Node ID 0 (1~254,255=All,0:Disable)
	Release Node ID 0 (1~254,255=All,0:Disable)
	Update

- STEP 1** : Select CH1 Setting, confirming the Protocol is TCP mode
- STEP 2** : Select CH1 Fire Release, confirming "Fire Alarm (DI0) Open Doors" is "Enable"
- STEP 3** : Confirm "Door Open Mode" is "Keep-Latch"
- STEP 4** : Assign the release door of fire emergency procedure, each RS-485 Channel is capable of unlocking up to 8 doors.
  - (1) Release all doors under fire event, input 255 in first field.
  - (2) Release assigned doors under fire event, input assigned Node ID of the controller in the fields.
- STEP5.** Press "Update"

### 3. Interface Overview

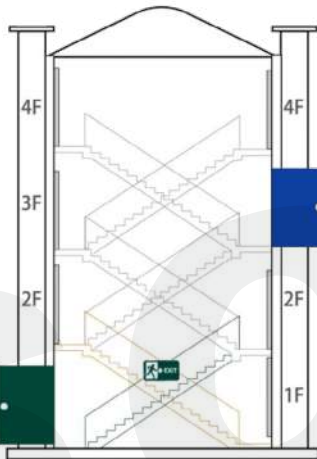
#### Release all doors



Parameter Setting:

Input 255 on first field to enable UDP broadcast function and input 0 on the rest of the fields, all electric locks connect with the assigned channel will be released immediately.

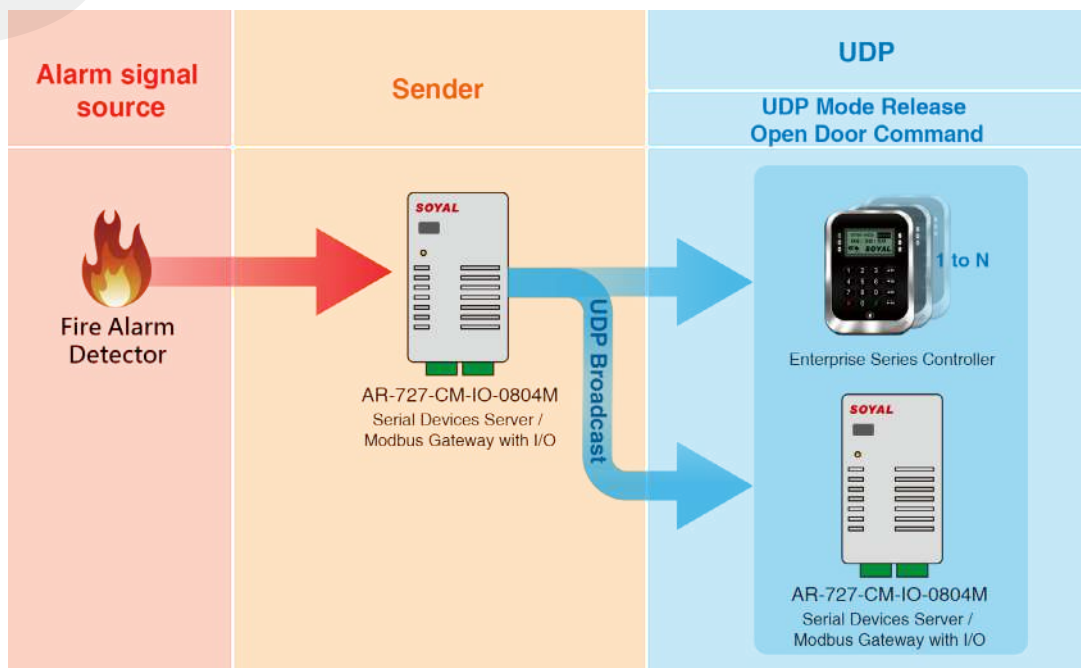
#### Release specified doors only



Parameter Setting:

Input the specified Node ID of controller in fields, the electric locks will be released via RS-485, remaining the safety of high security area, optimizing emergency evacuation and operator management.

#### ● 3-2-2 Fire Alarm Auto Release Doors (UDP method)



### 3. Interface Overview

**Compatibility: Enterprise series (E series) controller with TCPIP**

Enterprise Series controller could accept "Release door lock" command via UDP from any of the serial servers AR-727-CM-0804M or AR-401-IO-0808R-U2 (required customized firmware, refer to Ref 3.)

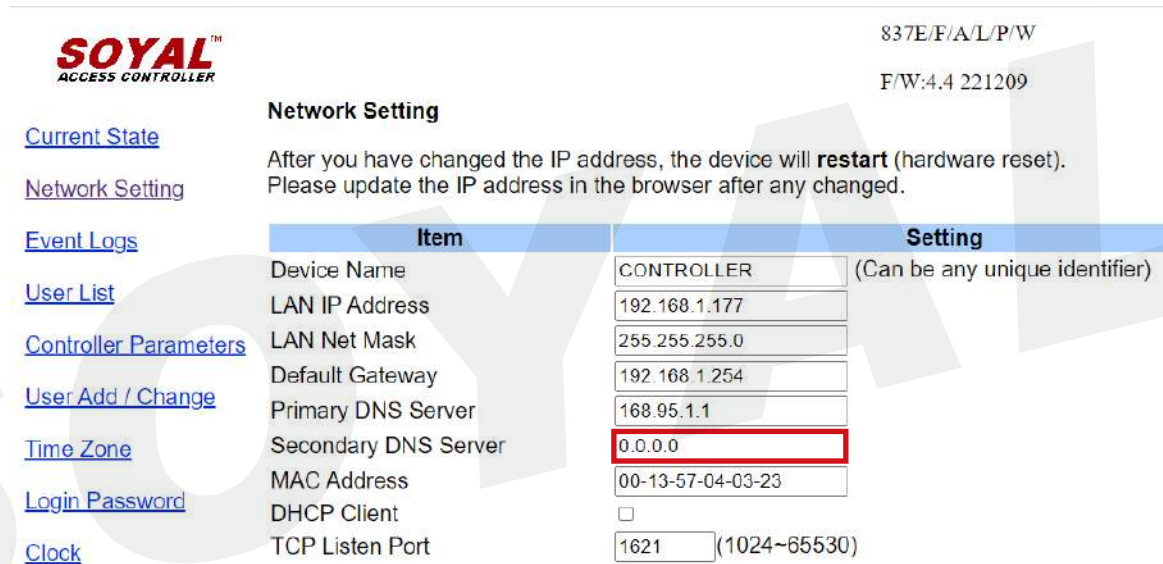
The condition to this setup is only available for Enterprise Series Controller with Ethernet connection and under the same intranet.

**STEP 1** : Enter the parameter setting page of controller on browser

**STEP 2** : Select network setting

**STEP 3** : Set up the "Secondary DNS Server"

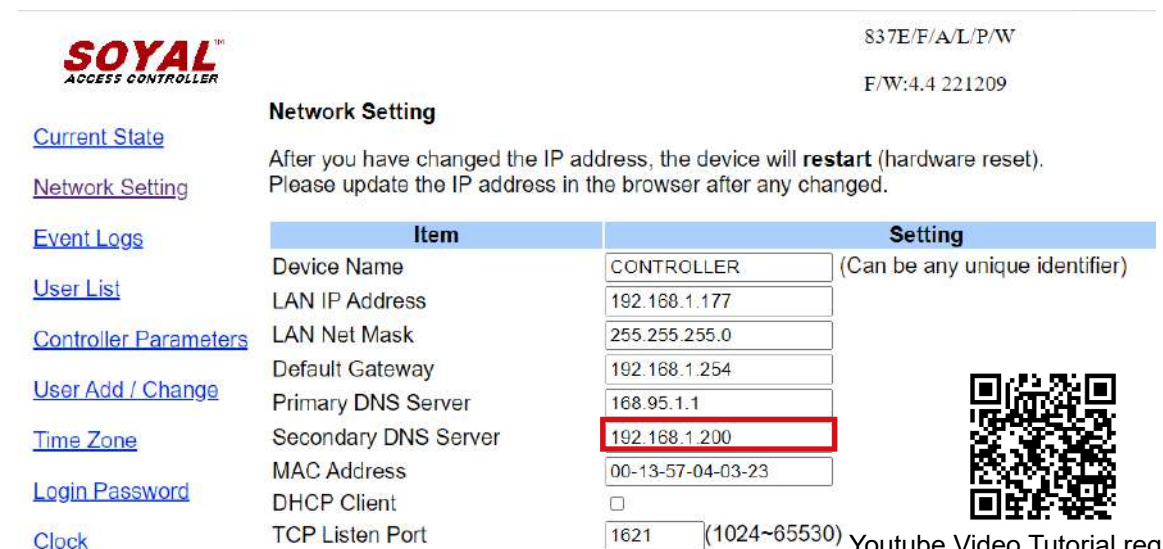
(1) 0.0.0.0 : unlocked by any fire detector in same intranet.



The screenshot shows the SOYAL Access Controller's Network Setting page. The interface includes a sidebar with navigation links: Current State, Network Setting, Event Logs, User List, Controller Parameters, User Add / Change, Time Zone, Login Password, and Clock. The main content area displays the Network Setting configuration table. The Secondary DNS Server field is highlighted with a red box and contains the value 0.0.0.0. A note above the table states: "After you have changed the IP address, the device will restart (hardware reset). Please update the IP address in the browser after any changed."

Item	Setting
Device Name	CONTROLLER (Can be any unique identifier)
LAN IP Address	192.168.1.177
LAN Net Mask	255.255.255.0
Default Gateway	192.168.1.254
Primary DNS Server	168.95.1.1
Secondary DNS Server	0.0.0.0
MAC Address	00-13-57-04-03-23
DHCP Client	<input type="checkbox"/>
TCP Listen Port	1621 (1024~65530)

(2) 192.168.1.200 (self-defined IP) : unlocked by specified AR-727CM-IO.



The screenshot shows the SOYAL Access Controller's Network Setting page, similar to the previous one, but with the Secondary DNS Server field highlighted in red and containing the value 192.168.1.200. A QR code is visible in the bottom right corner of the page.

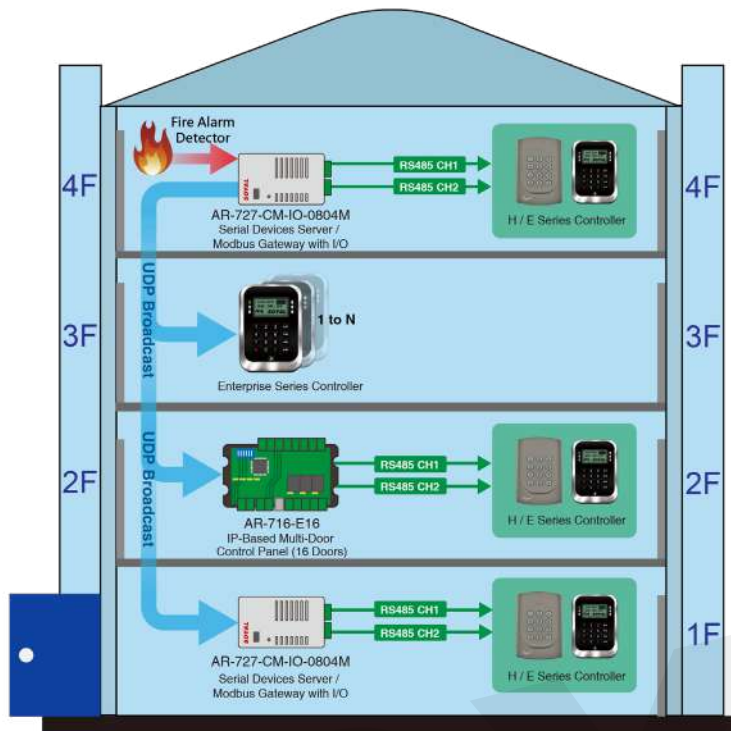
Item	Setting
Device Name	CONTROLLER (Can be any unique identifier)
LAN IP Address	192.168.1.177
LAN Net Mask	255.255.255.0
Default Gateway	192.168.1.254
Primary DNS Server	168.95.1.1
Secondary DNS Server	192.168.1.200
MAC Address	00-13-57-04-03-23
DHCP Client	<input type="checkbox"/>
TCP Listen Port	1621 (1024~65530)

Youtube Video Tutorial regarding Fire Alarm Event Release All Doors



### 3. Interface Overview

● 3-2-3 Fire Alarm Auto Release Doors (RS-485 & UDP Dual-release)



Introduction:

This configuration could broadcast plenty of controllers simultaneously, the primary AR-727CM-IO could receive fire input and broadcast door release signal to secondary devices, including AR-727CM-IO/AR-716-E16/E series TCP controller.

Finally, the secondary devices will transfer the door release signal to the access controller via RS-485. (parameter setting refer to 3-2-1)

Parameter Setting :

**STEP 1** : Set the IP Address of primary AR-727CM-IO

**STEP 2** : Enter the WEB page of AR-727CM-IO/AR-716-E16/E series controller

(1) AR-727CM-IO-0804M:



AR-727CM 8i8o 220804 UDP File  
Message  
F/W: 5 03

[Current State](#)

**[Network Setting](#)**

[CH-1 Setting](#)

[CH-1 Fire Release](#)

[CH-2 Setting](#)

[CH-2 Fire Release](#)

[User Password](#)

[Direct Control IO 0~3](#)

[Direct Control IO 4~7](#)

[CH-2 RCUs](#)

**Network Setting**

After you have changed the IP address, the device will **restart** (hardware reset). You need to change the **host IP** with new IP Address in Internet Browser to **re-connect** the target.

Item	Setting
Device Name	S2E-Device
LAN IP Address	192.168.1.200
LAN Net Mask	255.255.255.0
Default Gateway	192.168.1.254
Primary DNS Server	168.95.1.1
<b>Secondary DNS Server</b>	<b>168.95.192.1</b>
MAC Address	00-13-57-04-8F-20
HTTP Server Port	80 (80~65530)
TCP I/O Control Port	1801 (502:Modbus, 1601, 1625~65530)
DHCP Client	<input type="checkbox"/>

Update

### 3. Interface Overview

(2) AR-716-E16



716E16/721E2  
F/W:4.4 221129

[Current State](#)

**[Network Setting](#)**

[Event Logs](#)

[User List](#)

[Controller Parameters](#)

[User Add / Change](#)

[Time Zone](#)

[Login Password](#)

[Clock](#)

**Network Setting**

After you have changed the IP address, the device will **restart** (hardware reset). Please update the IP address in the browser after any changed.

Item	Setting
Device Name	CONTROLLER (Can be any unique identifier)
LAN IP Address	192.168.1.190
LAN Net Mask	255.255.255.0
Default Gateway	192.168.1.254
Primary DNS Server	168.95.1.1
<b>Secondary DNS Server</b>	<b>168.95.192.1</b>
MAC Address	00-13-57-03-50-B8
DHCP Client	<input type="checkbox"/>
TCP Listen Port	1621 (1024~65530)

(3) E Series Contoller



837E/F/A/L  
F/W:4.4 221226

[Current State](#)

**[Network Setting](#)**

[Event Logs](#)

[User List](#)

[Controller Parameters](#)

[User Add / Change](#)

[Time Zone](#)

[Login Password](#)

[Clock](#)

Please update the IP address in the browser after any changed.

Item	Setting
Device Name	CONTROLLER (Can be any unique identifier)
LAN IP Address	192.168.1.173
LAN Net Mask	255.255.255.0
Default Gateway	192.168.1.254
Primary DNS Server	168.95.1.1
<b>Secondary DNS Server</b>	<b>168.95.192.1</b>
MAC Address	00-13-57-04-42-BD
DHCP Client	<input type="checkbox"/>
TCP Listen Port	1621 (1024~65530)
HTTP Server Port	80 (80~65530)
Socket Timeout	120 (0~600)sec. (TCP Client Keep Alive:0)
Area ID (0~15)	0
Node ID (Device ID)	1
Message Server IP 1st	0.0.0.0
Message Port 1st	0 (1024~65530, 0:disable, 8031:Text Mode)
Message Server IP 2nd	0.0.0.0
Message Port 2nd	0 (1024~65530, 0:disable or 8031:Text Mode)
	<input type="button" value="Update"/>

**STEP 3** : Assign the release door of fire event :

- (1) AR-727CM-IO: Input 255 to release all doors or assign the specified Node ID of controller. (details refer to 3-2-1)
- (2) AR-716-E16: All H/E series controllers connect to AR-716-E16 will be released automatically, not required to assign the controller.
- (3) E series controller: E series controller with TCP could be assigned with fixed IP of primary AR-727CM-IO as individual fire signal input.

### 3. Interface Overview

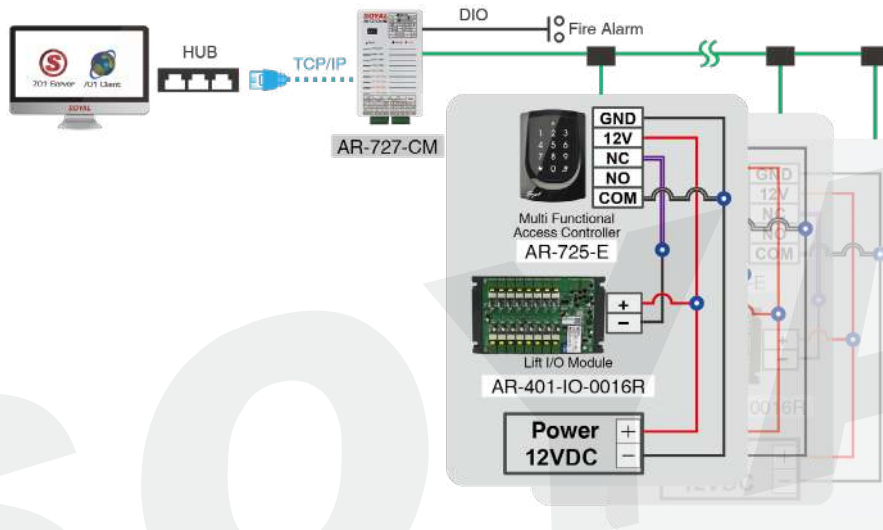
#### • 3-2-4 Fire Alarm Auto Release Lift Door

Under AR-727CM-IO, the lift access controller supports connection to Fire Alarm. With special firmware, in normal situation, when users swipe RFID tags, the controller's relay doesn't act. It only acts once receiving fire alarm signal. Relay is controlled by fire alarm signal instead of valid tags.

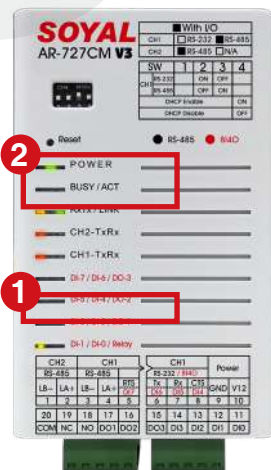
This function is available at the firmwares:

725E-V2: APS725Ev2\_\_V0403\_200415 ACCESS\_DONT\_OPEN\_DOOR.STM

725HD: 725HD\_7V3 190530 ACCESS\_DONT\_OPNE\_DOOR.ISP



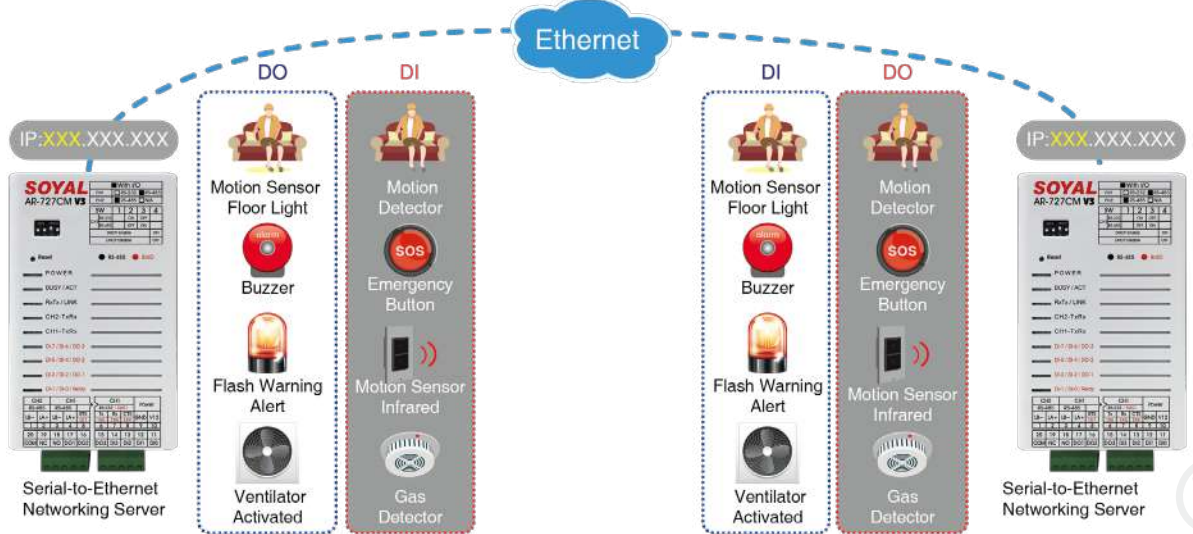
#### • 3-2-5 Fire Alarm Indicator



#### Indicator when Fire Alarm Event is happening:

- 1 DI0 LED will continuous blinking > sensing Fire Alarm Event
- 2 CH1 or/and CH2 TX red LED will fast blink > Release doors

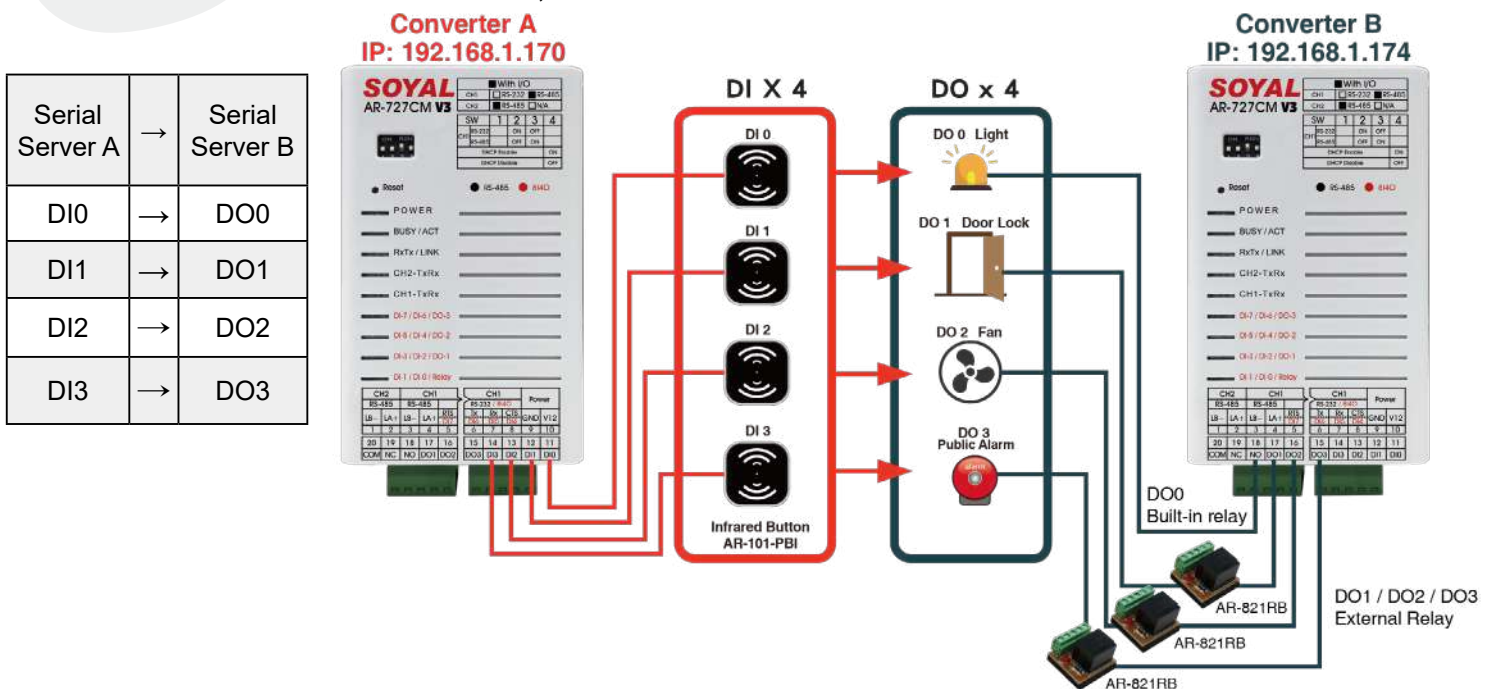
## 3-3 / TCP/IP Remote I/O Control Setting



Remote I/O Control Setting is a function where when DI is triggered, the DO with linkage control will control remote device or sending a warning (i.e: if temperature in a factory is too high, it will send alert to AR-727CM-IO, the network linking to a remote fan that connected to AR-727CM-IO too, will activate ventilation system and send an alarm to Emergency Status Board in Main Factory).

Conditions:

- Both serial servers AR-727-CM-0804M or AR-401-IO-0808R-U2 that will operate interlinkage IO control must be on intranet or the same subnet mask, or implement connection using VPN.
- Required customize firmware for this feature (refer to Ref 4.)
- One-to-one control, fixed direction control



### 3. Interface Overview

Setting:

Example Serial Server A IP Address is 192.168.1.170 and Serial Server B IP Address is 192.168.1.174

Set Serial Servers A as Server

**STEP 1** : Operation Mode: Set as Server

**STEP 2** : Local Port: Enter 1621

**STEP 3** : Remote Port: Enter 1621

**STEP 4** : Remote IP: Enter Serial Server B IP Address 192.168.1.174

**STEP 5** : There is no need to do any set up for Converter B

**Channel 1** **Setting**

Current State [Network Setting](#) [Channel 1 Setting](#) [Channel 2 Setting](#) [User Password](#) [Direct Control IO 0~3](#) [Direct Control IO 4~7](#)

Protocol

**1** Operation Mode

**2** Local Port  (1024~65535)


**3** Remote Port  (1024~65535)

**4** Remote IP

Baud Rate

Data Bits

Parity

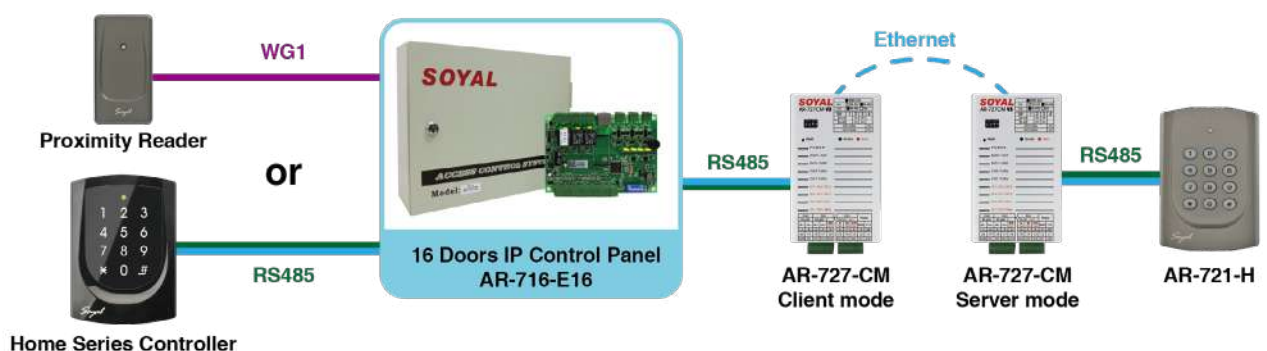


Youtube Video Tutorial regarding TCP/IP Remote IO Control Setting

### 3-4 / Server-Client Mode Communication Bridge

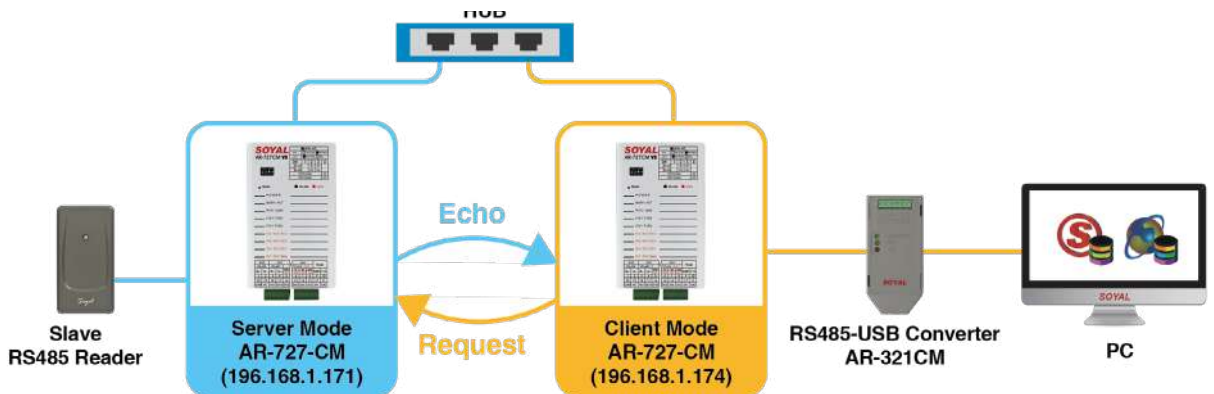
Industry Series (TCP) AR-727-CM-0804M, AR-401-IO-0808R-U2 and AR-727-CM converter offer a communication bridge as Server-Client Mode that could solve issue with:

1. Master and Slave Reader cable wiring into wireless



### 3. Interface Overview

#### 2. Data transfer between two devices via TCP/IP



SETTING	AR-727CM CLIENT MODE (for MASTER RS485 DEVICE)	AR-727CM SERVER MODE (for SLAVE RS485 DEVICE)																																																						
NETWORK SETTING	<p><b>Network Setting</b></p> <p>After you have changed the IP address, the device will <b>restart</b> (hardware reset). You need to change the <b>host IP</b> with new IP Address in Internet Browser to re...</p> <table border="1"> <thead> <tr> <th>Item</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Device Name</td> <td>S2E-Device</td> </tr> <tr> <td>LAN IP Address</td> <td>192.168.1.174</td> </tr> <tr> <td>LAN Net Mask</td> <td>255.255.255.0</td> </tr> <tr> <td>Default Gateway</td> <td>192.168.1.254</td> </tr> <tr> <td>Primary DNS Server</td> <td>168.95.1.1</td> </tr> <tr> <td>Secondary DNS Server</td> <td>168.95.192.1</td> </tr> <tr> <td>MAC Address</td> <td>00-13-57-04-36-25</td> </tr> <tr> <td>HTTP Server Port</td> <td>80 (80~65530)</td> </tr> <tr> <td>TCP I/O Control Port</td> <td>502 (502:Modbus)</td> </tr> <tr> <td>DHCP Client</td> <td><input type="checkbox"/></td> </tr> </tbody> </table>	Item	Value	Device Name	S2E-Device	LAN IP Address	192.168.1.174	LAN Net Mask	255.255.255.0	Default Gateway	192.168.1.254	Primary DNS Server	168.95.1.1	Secondary DNS Server	168.95.192.1	MAC Address	00-13-57-04-36-25	HTTP Server Port	80 (80~65530)	TCP I/O Control Port	502 (502:Modbus)	DHCP Client	<input type="checkbox"/>	<p><b>Network Setting</b></p> <p>After you have changed the IP address, the device will <b>restart</b> (hardware reset). You need to change the <b>host IP</b> with new IP Address in Internet Browser to re...</p> <table border="1"> <thead> <tr> <th>Item</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Device Name</td> <td>S2E-Device</td> </tr> <tr> <td>LAN IP Address</td> <td>192.168.1.171</td> </tr> <tr> <td>LAN Net Mask</td> <td>255.255.255.0</td> </tr> <tr> <td>Default Gateway</td> <td>192.168.1.254</td> </tr> <tr> <td>Primary DNS Server</td> <td>168.95.1.1</td> </tr> <tr> <td>Secondary DNS Server</td> <td>168.95.192.1</td> </tr> <tr> <td>MAC Address</td> <td>00-13-57-04-39-B9</td> </tr> <tr> <td>HTTP Server Port</td> <td>80 (80~65530)</td> </tr> <tr> <td>TCP I/O Control Port</td> <td>502 (502:Modbus)</td> </tr> <tr> <td>DHCP Client</td> <td><input type="checkbox"/></td> </tr> </tbody> </table>	Item	Value	Device Name	S2E-Device	LAN IP Address	192.168.1.171	LAN Net Mask	255.255.255.0	Default Gateway	192.168.1.254	Primary DNS Server	168.95.1.1	Secondary DNS Server	168.95.192.1	MAC Address	00-13-57-04-39-B9	HTTP Server Port	80 (80~65530)	TCP I/O Control Port	502 (502:Modbus)	DHCP Client	<input type="checkbox"/>										
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CH 1 & CH2 SETTING	<table border="1"> <thead> <tr> <th>Channel 1</th> <th>Setting</th> </tr> </thead> <tbody> <tr> <td>Protocol</td> <td>TCP</td> </tr> <tr> <td>Operation Mode</td> <td>Client</td> </tr> <tr> <td>Local Port</td> <td>1621 (1024-65535)</td> </tr> <tr> <td>Remote Port</td> <td>1621 (1024-65535)</td> </tr> <tr> <td>Remote IP</td> <td>192.168.1.171</td> </tr> <tr> <td>Baud Rate</td> <td>9600</td> </tr> <tr> <td>Data Bits</td> <td>8</td> </tr> <tr> <td>Parity</td> <td>None</td> </tr> <tr> <td>Stop Bits</td> <td>1</td> </tr> <tr> <td>UART to NET delay time</td> <td>10 (10-1000)ms</td> </tr> <tr> <td>UART to NET minimum bytes</td> <td>1024 (10-1024)</td> </tr> <tr> <td>Socket Timeout</td> <td>120 (0-600)sec. (TCP Client Keep Alive:0)</td> </tr> </tbody> </table> <p>IP地址指向接收器(485设备)地址 主数据流至另一IP地址(Server)</p>	Channel 1	Setting	Protocol	TCP	Operation Mode	Client	Local Port	1621 (1024-65535)	Remote Port	1621 (1024-65535)	Remote IP	192.168.1.171	Baud Rate	9600	Data Bits	8	Parity	None	Stop Bits	1	UART to NET delay time	10 (10-1000)ms	UART to NET minimum bytes	1024 (10-1024)	Socket Timeout	120 (0-600)sec. (TCP Client Keep Alive:0)	<table border="1"> <thead> <tr> <th>Channel 1</th> <th>Setting</th> </tr> </thead> <tbody> <tr> <td>Protocol</td> <td>TCP</td> </tr> <tr> <td>Operation Mode</td> <td>Server</td> </tr> <tr> <td>Local Port</td> <td>1621 (1024-65535)</td> </tr> <tr> <td>Remote Port</td> <td>1621 (1024-65535)</td> </tr> <tr> <td>Remote IP</td> <td>0.0.0.0</td> </tr> <tr> <td>Baud Rate</td> <td>9600</td> </tr> <tr> <td>Data Bits</td> <td>8</td> </tr> <tr> <td>Parity</td> <td>None</td> </tr> <tr> <td>Stop Bits</td> <td>1</td> </tr> <tr> <td>UART to NET delay time</td> <td>10 (10-1000)ms</td> </tr> <tr> <td>UART to NET minimum bytes</td> <td>1024 (10-1024)</td> </tr> <tr> <td>Socket Timeout</td> <td>120 (0-600)sec. (TCP Client Keep Alive:0)</td> </tr> <tr> <td>Fire Alarm (DI0) Open Doors</td> <td>Disable (Available for TCP Server mode Only)</td> </tr> </tbody> </table>	Channel 1	Setting	Protocol	TCP	Operation Mode	Server	Local Port	1621 (1024-65535)	Remote Port	1621 (1024-65535)	Remote IP	0.0.0.0	Baud Rate	9600	Data Bits	8	Parity	None	Stop Bits	1	UART to NET delay time	10 (10-1000)ms	UART to NET minimum bytes	1024 (10-1024)	Socket Timeout	120 (0-600)sec. (TCP Client Keep Alive:0)	Fire Alarm (DI0) Open Doors	Disable (Available for TCP Server mode Only)
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	<p>Protocol = TCP Operation Mode = Client Remote Port for CH1 = 1621; Remote Port for CH2 = 1623 Remote IP: 192.168.1.171 (Server Mode AR-727CM's IP for Slave RS485 devices)</p>	<p>Protocol = TCP Operation Mode = Server Remote IP = 0.0.0.0</p>																																																						

### 3. Interface Overview

#### 3-5 / Necessary conditions for Modbus TCP to RTU setup

##### 1. AR-727CM Control port = 502

###### Network Setting

After you have changed the IP address, the device will **restart** (hardware reset).  
You need to change the **host IP** with new IP Address in Internet Browser to **re-connect** the target

Item	Setting
Device Name	S2E-Device
LAN IP Address	192.168.1.127
LAN Net Mask	255.255.255.0
Default Gateway	192.168.1.254
Primary DNS Server	168.95.1.1
Secondary DNS Server	168.95.192.1
MAC Address	00-13-57-04-3A-7B
HTTP Server Port	80 (80~65530)
<b>TCP I/O Control Port</b>	<b>502 (502:Modbus,1601,1625~65530)</b>
DHCP Client	<input type="checkbox"/>

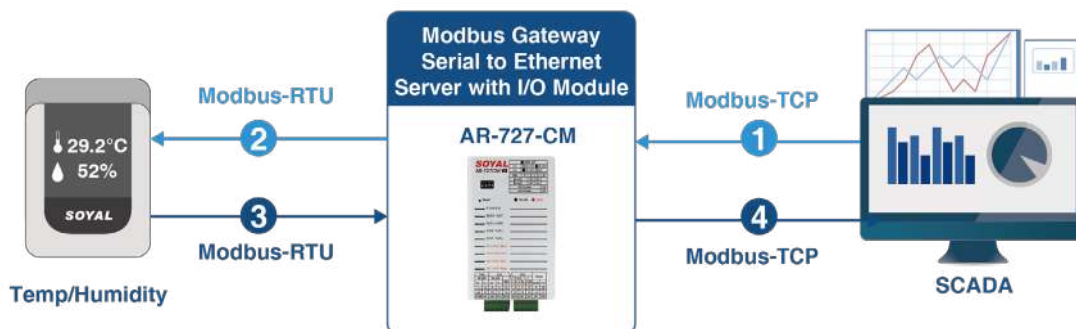
##### 2. AR-727-CM CH1/CH2 must be in Server Mode.

[FAQ : What is difference between 727CM Server mode and Client mode?](#)

##### 3. Command Source must be from Modbus-TCP as the source of transmission.

##### 4. Command sequence must be initiated by TCP.

- ① Remote PC send Modbus-TCP to AR727CM (Port1621/1623)
- ② AR-727-CM send Modbus-RTU to Device
- ③ Device echo Modbus-RTU to AR-727-CM
- ④ AR-727-CM echo Modbus-TCP to Remote PC



###### NOTE :

- Once AR727CM completes a single conversion, it will revert to transparent transmission mode until the next Modbus-TCP command is received from the TCP end, triggering automatic conversion mode again.
- If AR-727-CM's Channel 1/ Channel 2 is set to Client Mode, it will not have conversion functionality.

## 3-6 / DI Status Change Proactively notify remote messages to a remote TCP server

### Feature:

- This feature is suitable for locations such as hospitals, factories, and emergency restrooms, used to connect to the DI terminals of emergency buttons.
- The proactive DI notification feature allows you to quickly receive changes in DI status, enabling prompt follow-up actions.
- Proactive notification of DI status changes to a third party is presented in HEX format and includes CRC16-Modbus check format to ensure the system can differentiate between the correctness of packets or message interference.
- DI status change packets come with MAC Address, aiding in distinguishing the source of signals when dealing with signals from multiple routers.

### Set conditions:

Device firmware should be updated to APX727i3\_\_V0504 231016 8i4o DI\_EVENT\_NOTE.STM.

FAQ [How to update the firmware of SOYAL controller and other products?](#)

### Operating Steps:

1. his update includes an internal DI modification, enabling proactive message transmission to the Remote IP on Ch2. CH2 should be configured in TCP Client Mode.
2. Click on CH2-Setting

**STEP 1** : Select TCP for Protocol

**STEP 2** : Choose Client for Operation Mode

**STEP 3** : Set the Remote Port for sending messages proactively. You can specify your own port (in the range of 1024-65535). In this example, fill in Port 8061.

Note: Do not use ports 1621/1623/1601/1631/8031/8033.

**STEP 4** : Specify the Remote IP, which is the IP address for sending messages proactively. In this example, fill in 192.168.1.46

AR-727CM IO 231016  
F/W: 5.04

Channel 2	Setting
1	Protocol TCP
2	Operation Mode Client
	Local Port 1623 (1024-65535)
3	Remote Port 8061 (1024-65535)
4	Remote IP 192.168.1.46
	Baud Rate 9600
	Data+Parity Bits 8
	Parity None
	Stop Bits 1
	UART <> NET delay time 10 (10-1000)ms
	UART to NET minimum bytes 1024 (16-1024)
	Socket Timeout 120 (0-600)sec. (TCP Client Keep Alive:0)
	Update

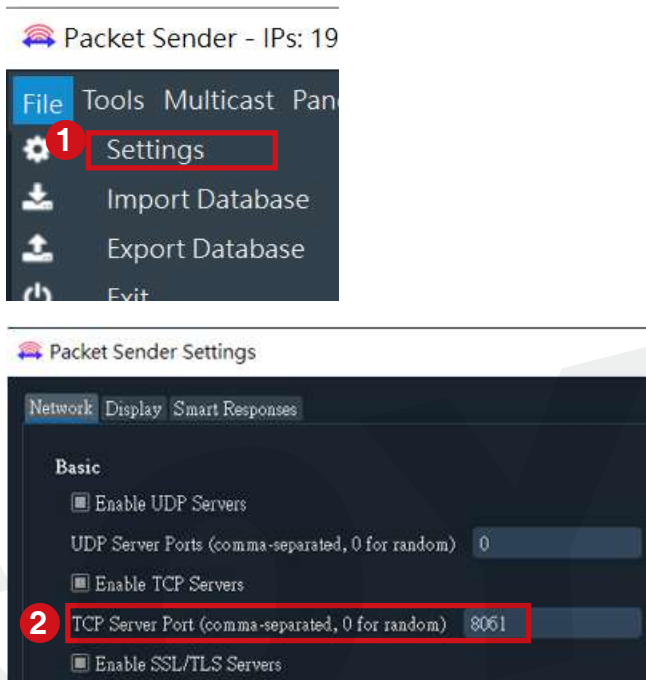


### 3. Interface Overview

#### 3. Testing DI Proactive Push Function (Testing Tool: Packet Sender)

**STEP 1** : After enabling Packet Sender, go to the settings screen by clicking File > Settings.

**STEP 2** : Enable TCP Servers, and fill in the corresponding Remote Port 8061 for AR-727-CM-IO/AR-401-IO-0808R.



4. Test result: DI terminal - Short circuit = 1 / Open circuit = 0

ECHO: 0xCC **DI0 DI1 DI2 DI3** DO0 DO1 DO2 DO3 **DI4 DI5 DI6 DI7** FF FF [MAC Address]  
[CRC16-Modbus]

Initial Value 0xFFFF

Item	
Device Name	S2E-Device
LAN IP Address	192.168.1.174
LAN Net Mask	255.255.255.0
Default Gateway	192.168.1.254
Primary DNS Server	168.95.1.1
Secondary DNS Server	168.95.192.1
MAC Address	00-13-57-03-D7-ED

Time	From IP	From Port	To Address	To Port	Method	Error	Hex
11:46:20.362	192.168.1.174	1024	You	8061	TCP	CC 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 FF FF 00 13 57 03 D7 ED CA B2
11:46:19.499	192.168.1.174	8061	You	1024	TCP		
11:46:19.499	192.168.1.174	1024	You	8061	TCP	CC 01	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 FF FF 00 13 57 03 D7 ED 97 27

### 3-7 / Change Login Password

SOYAL™  
ACCESS CONTROLLER

AR-727CM 8180 190919  
F/W: 5.00

User Password Setup

Current State  
Network Setting  
Channel 1 Setting  
Channel 2 Setting  
**1** User Password  
Direct Control IO 0-3  
Direct Control IO 4-7

2 New Password  
3 Password Again  
4 Update

**STEP 1** : Select 'User Password'

**STEP 2** : Enter new password (there's capital letter differentiation)

**STEP 3** : Retype the new password

**STEP 4** : Press Update button to save changed.

## 4. References

### 4-1 / FAQ

**Q 1** : How many units of access controller that can be connected to each of RS485 channel?

**A** : There is no limitation to it but we suggest to wire up to 8 units access controller per channel, combining both channel up to 16 units access controller per unit of AR-727-CM/Industry Series (TCP).

**Q 2** : How long wiring distance of RS485?

**A** : RS485 wiring can support up to 1000M, but due to environment conditions the suggested wiring distance is 300M (parallel wiring), more than that please consider purchasing RS485 signal enhancer AR-RS485REP.

**Q 3** : What cable type for RS485 wiring?

**A** : We recommend using twist AWG22 cable

- [We connect controller to CH2 of 727CM, but there is no response from PC. Why?](#)
- [How to use DHCP function for 727CM?](#)
- [How to relock the door locks after control system release all door locks in fire alarm event?](#)

## 4. References

### 4-2 / YouTube Videos

- [《Product Application》 TCP/IP Remote IO Control Setting](#)
- [《Peripheral expansion application》 Release locks Solution in Fire Alarm Event\(2018\)](#)
- [《Peripheral expansion application》 Release locks Solution in Fire Alarm Event\(2017\)](#)

### 4-3 / Firmware

Firmware of AR-727-CM in different applications:

(latest firmware version will keep updated, contact SOYAL team for more information)

Ref no.	Functions	Firmware Version
Ref 1.	Support Modbus protocol	APX727i3__V0500 8i4O 201112 MODBUS_TCP.STM
Ref 2.	Support TCP/IP to Wiegand Converter	APX727i3__V0500 8i4o WG Converter 200417.STM
Ref 3.	Fire Alarm Event UDP Mode	APX727i3__V0500 8i8O 190930 UDP FireMessage.STM
Ref 4.	TCP/IP Remote I/O Control Setting	APX727i3__V0500 200814 MODBUS_TCP DI03_Trigger_DO03.STM
Ref 5.	Internal DI modification: proactively sending messages to the Remote IP on Ch2. CH2 should be set to TCP Client Mode	APX727i3__V0504 231016 8i4o DI_EVENT_NOTE.STM

FAQ [How to update the firmware of SOYAL controller and other products?](#)