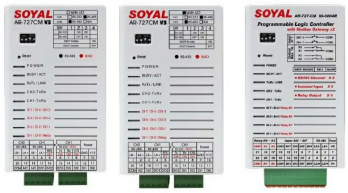
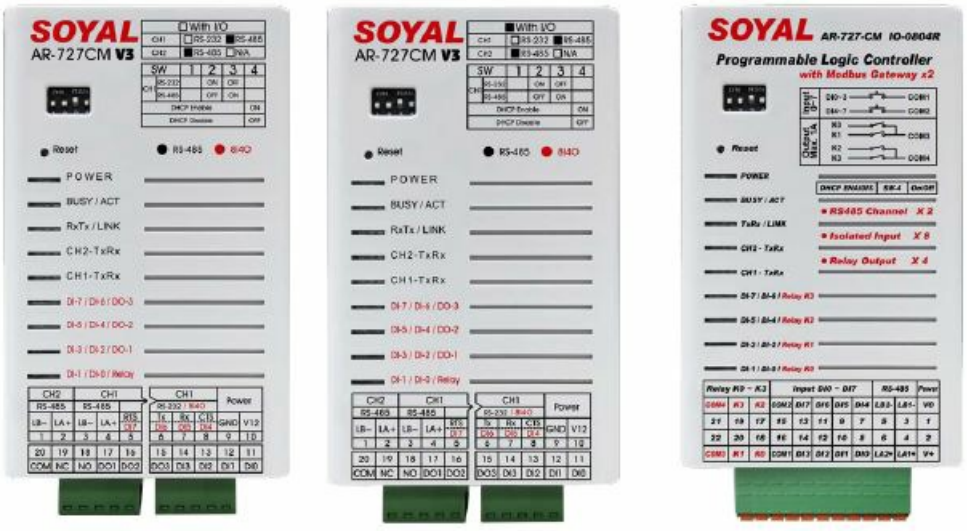


SOYAL AR-727-CM Serial Device Network Server User Guide

Contents

SOYAL®

SOYAL AR-727-CM Serial Device Network Server



Product Specifications

- Product Model: AR-727-CM / AR-727-CM-485 / AR-727-CM-232 / AR-727-CM-IO-0804M / AR-727-CM-IO-0804R
- Features:
  - Dual-channel transparent transmission
  - Support for standard industrial communication protocols Modbus/TCP & Modbus/RTU over TCP
  - Optocoupler protection for electrical isolation, high voltage protection, and lightning strike protection
  - Supports fire alarm interlock release of door locks
  - Supports converting Modbus TCP to Modbus RTU protocol
  - Supports Ethernet to Wiegand conversion feature
  - 8 DI (Digital Inputs) and 4 DO (Digital Outputs) built-in for AR-727-CM-IO-0804M and AR-727-CM-IO-0804R models

Product Usage Instructions

Connection Setup

To use the product, follow these steps:

1. Connect the power supply to the product.
2. Connect the RS485/RS232 devices to the corresponding channels (CH1/CH2).
3. If using the AR-727-CM-IO-0804M or AR-727-CM-IO-0804R model, connect the digital inputs and outputs as required.
4. Connect the product to your network using an Ethernet cable.

Configuration

After connecting the product, you need to configure it:

1. Access the product's web console by entering its IP address in a web browser.
2. Set the desired IP settings for the product.

3. Configure the product according to your specific requirements, such as Modbus/TCP or Modbus/RTU settings.
4. If using the AR-727-CM-IO-0804M or AR-727-CM-IO-0804R model, configure the digital inputs and outputs as needed.

Usage Scenarios

Fire Alarm Auto Release Doors
The product supports the release of all door locks in a fire alarm event. To configure this feature, refer to the instructional manuals or videos provided.

SOYAL 727APP
The SOYAL 727APP allows you to control and manage the product using your mobile device. Refer to the SOYAL APP Manual or visit **www.soyal.com** for more information.

SOYAL APP & WEBSOYAL 727 APP Introduction
For detailed instructions on how to use the SOYAL APP and WEBSOYAL 727 APP, please refer to the provided documentation or visit **www.soyal.com**.

FAQ

- Q: How many controllers can be connected per channel?
  A: It is recommended to connect a maximum of 8 controllers per channel for optimal connectivity. The AR-727-CM and AR-727-CM-IO-0804M models contain two RS485 channels, allowing a total of 16 controllers to be connected.
- Q: How do I switch between Gateway Mode and PLC Mode?
  A: The factory default mode is Gateway Mode. To switch to PLC Mode, you need to manually update the firmware. Refer to the instructional manuals or videos provided for detailed instructions.
- Q: What is the default communication mode for CH1 and CH2?
  A: The default communication mode for CH1 and CH2 is Gateway Mode. However, CH2 also supports PLC Mode.
- Q: Does the product support Ethernet to Wiegand conversion?
  A: Yes, the AR-727-CM-IO-0804M and AR-727-CM-IO-0804R models support the Ethernet-to-Wiegand conversion feature. Refer to the wiring diagram and instructional manuals for more details.

Product Features

AR-727-CM / AR-727-CM-485

- Dual-channel transparent transmission, enabling RS485/ RS232 devices to have TCP/IP communication capabilities through upgrades.
- Support for standard industrial communication protocols Modbus/TCP & Modbus/RTU over TCP.
- Provides dual-channel transparent transmission, enabling RS485/RS232 devices to have TCP/IP communication capabilities through upgrades

AR-727-CM-IO-0804M

- Supports standard industrial communication protocols Modbus/TCP & Modbus/RTU over TCP.
- Supports controller fire alarm linkage for releasing electric locks through UDP broadcast within the same network segment.
- Supports fire alarm linkage for releasing electric locks with RS-485 controllers connected to CH1/CH2 (with filtering).
- Functions as a decentralized I/O master controller, supporting 256 digital inputs and 256 digital outputs. It is directly compatible with standard Modbus and SCADA graphical control systems. It actively sends messages to a remote server when input points change

AR-727-CM-232

Dual-channel transparent transmission, enabling RS232 devices to have TCP/IP communication capabilities through upgrades.

AR-727-CM-IO-0804R

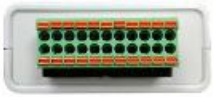
- Supports holiday and logic conditional scheduling Output
- Includes optocoupler protection, which can effectively achieve electrical isolation, high voltage protection, and lightning strike protection.
- Serial-to-Ethernet Server with RS485 CH1/CH2, 8 DI, 4DO built-in for Ethernet to Wiegand conversion feature and works under SOYAL, Modbus protocol
- Support is provided for converting Modbus TCP to Modbus RTU protocol. (Control Port needs to be set to 502)
- Supports fire alarm interlock release of door locks, allowing emergency release of electric locks on the RS-485 controllers connected to CH1/CH2.

Note :
It is recommended to connect a maximum of 8 controllers per channel for optimal connectivity. (1 AR-727-CM or AR-727-CM-IO-0804M contains two RS485 channels, allowing a total of 16 controllers to be connected.)

Application

- Fire Alarm Auto Release Doors
    - Introduction of 4 methods to configure the access control system to release all door locks in fire alarm event
- SOYAL 727APP
    - SOYAL APP Manual
    - SOYAL APP & WEB SOYAL 727 APP Introduction

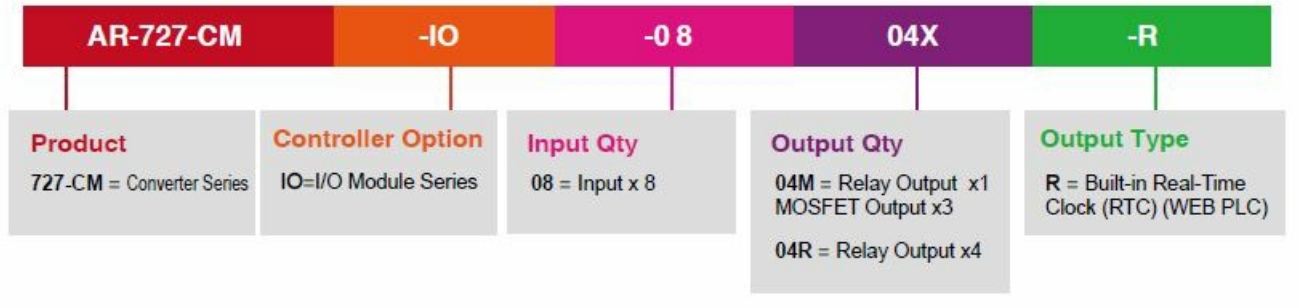
Product Feature Comparison Table

Product Model		AR-727-CM AR-727-CM-485	AR-727-CM-232	AR-727-CM-IO-0804M	AR-727-CM-IO-0804R
Product Images					
Switching between Gateway Mode and PLC Mode		—	—	—	●
CH1 Communication Mode	Gateway Mode	Transparent Transmission / Modbus	Transparent Transmission / Modbus	Transparent Transmission / Modbus	Transparent Transmission / Modbus
CH2 Communication Mode	Gateway Mode	Transparent Transmission / Modbus	Transparent Transmission / Modbus	Transparent Transmission / Modbus	Transparent Transmission / Modbus
	PLC Mode	—	—	—	PLC I/O Expansion Board Dedicated Communication Port
TCP to Wiegand		—	—	●	—
Inputs		—	—	DI x 8	DI x 8(Optical Isolation)
Outputs		—	—	Relay Output x1 MOSFET Output x3	Relay Output x4
Bulit-in RTC		—	—	—	●

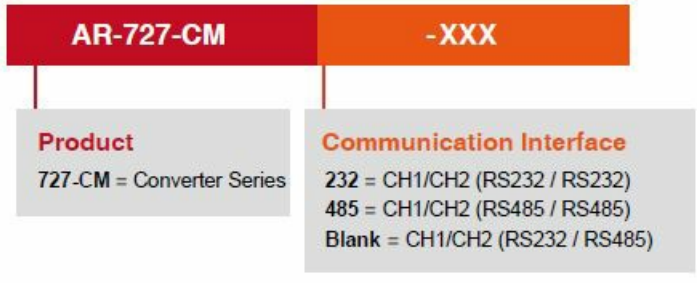
(The factory default mode is Gateway Mode. To upgrade to PLC Mode, you need to manually update the firmware.)

How to Order

Dual-Channel Gateway with I/O (AR-727-CM-IO-0804M / AR-727-CM-IO-0804R)



Dual-Channel Gateway (AR-727-CM / AR-727-CM-485 / AR-727CM-232)



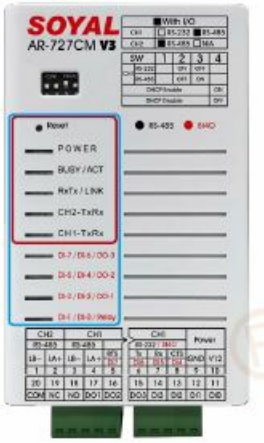
Indicator

Dual-Channel Gateway (AR-727-CM / AR-727-CM-485 / AR-727-CM-232) / Dual-Channel Gateway with I/O (AR-727-CM-IO-0804M)

AR-727-CM-IO-0804M

AR-727-CM / AR-727-CM-232

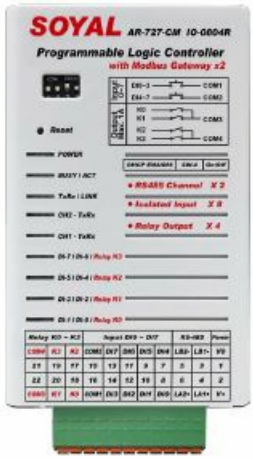
Power	Power Supply Indicator(Green Light)
BUSY	Reset Factory Setting / Update Firmware(Blinking Red LED)
ACT	Connect with PC by Software(Green Light)
RxTx	Ethernet Receive/ Transmit(Green/Red flash)
LINK	RJ45 network cable plug status(Green Light)
CH2 TxRx	RS485(Reader)Polling Status(Red/Green Flash)
CH1 TxRx	RS485 or RS232(Reader) Polling Status(Red/Green Flash) (AR-727-CM-IO-0804M does not support RS232 transmission.)
DI-7 / DI-6 / DO-3	
DI-5 / DI-4 / DO-2	
DI-3 / DI-2 / DO-1	
DI-1 / DI-0 / Relay	



The position of the LED indicator for input and output terminal is equivalent to the text description

Dual-Channel Gateway with I/O–Mini PLC (AR-727-CM-IO-0804R)

Power	Power Supply Indicator(Green Light)
BUSY	Reset Factory Setting / Update Firmware(Blinking Red LED)
ACT	Connect with PC by Software(Green Light)
RxTx	Ethernet Receive/ Transmit(Green/Red flash)
LINK	RJ45 network cable plug status(Green Light)
CH2 TxRx	RS485(Reader)Polling Status(Red/Green Flash)
CH1 TxRx	RS485 or RS232(Reader) Polling Status(Red/Green Flash)
DI-7 / DI-6 / Relay-K3	
DI-5 / DI-4 / Relay-K2	
DI-3 / DI-2 / Relay-K1	
DI-1 / DI-0 / Relay-K0	

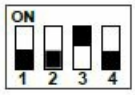


The position of the LED indicator for input and output terminal is equivalent to the text description

Note: To enable RxTx indicator lights, check the “Enable Event Polling” option in the [COM] function of 701ServerSQL software

DIP Switch

- CH1 only can select either RS-485 or RS-232.
- RS-232 is requested by order

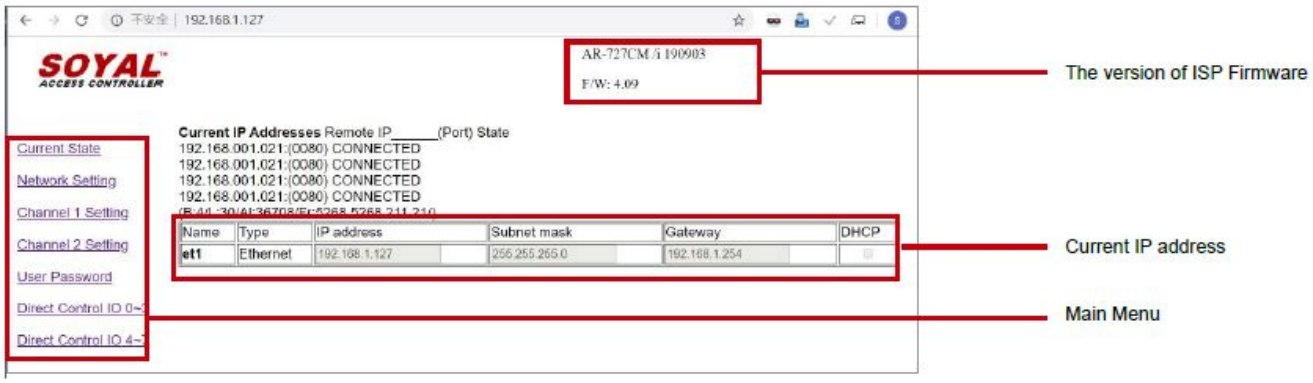
DIP Switch		Debug UART Output	Select CH1 Communication Interface RS-232 / RS-485	Select CH1 Communication Interface RS-232 / RS-485	Select DHCP Enable or Disable	
		1	2	3	4	
CH1	RS-232		ON	OFF		
	RS-485		OFF	ON		
CH2	DHCP Enable (Auto IP Address Configuration)				ON	
	DHCP Disable (Auto IP Address Configuration)				OFF	

Web Console

Set up IP Address:

1. Connect the device to a computer, Then turn on your Web Browser and type "**http://192.168.1.127**" on the IP address to start the web console

2. When you type the IP address, you will see the [Current State] page.



3. Login: Type "User name" & "Password" on the pop-up login window.

Factory Default :

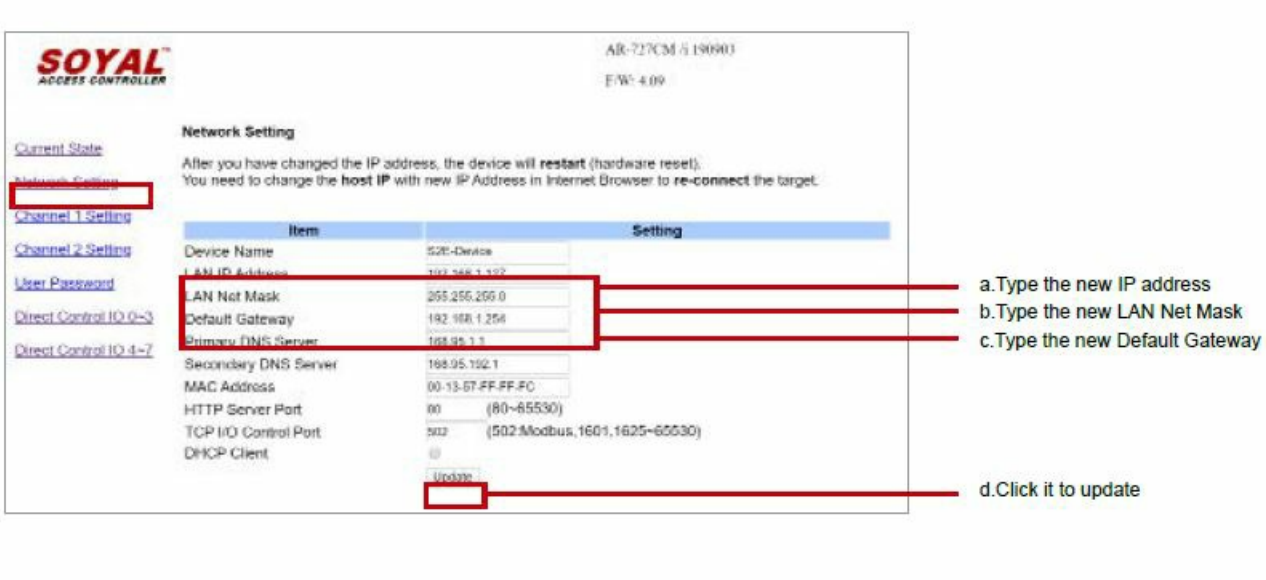
1. User name: SuperAdm
2. Password: 721568

NOTE :

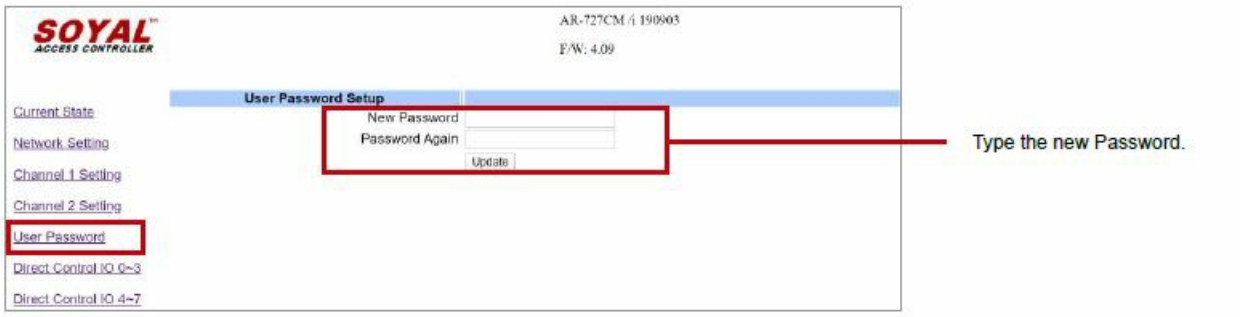
1. User Name is different from the old and new versions, password can be modified via the [User Password] setting on the list but will not be changed from updating the new version. If you forgot the password, the solution is pressing the Reset Button to reset it as the default value

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

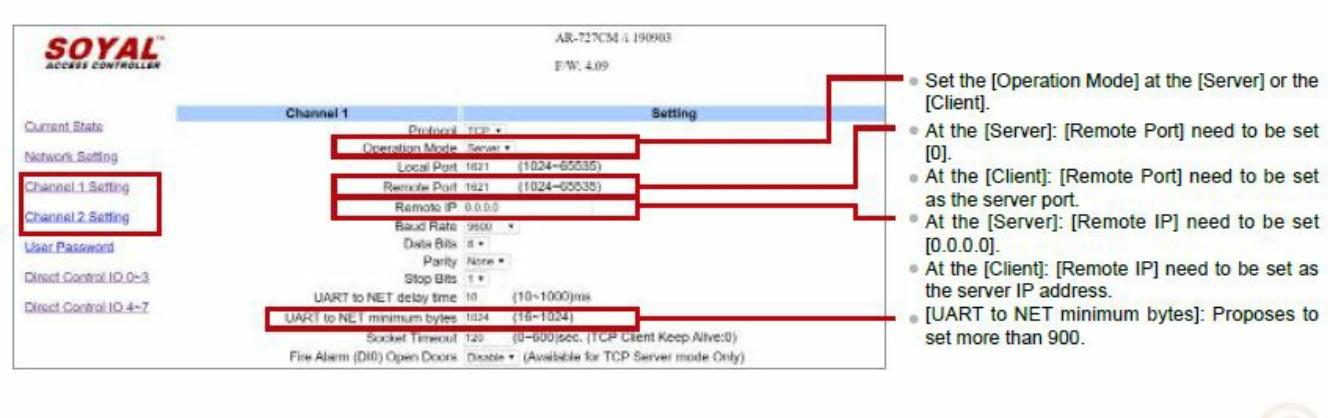
4. Click on [Network Setting] on the Main Menu to set up the new IP address



5. Click on [User Password] on Main Menu to change



6. Click on [Channel 1 Setting] or [Channel 2 Setting] on Main Menu to set the port



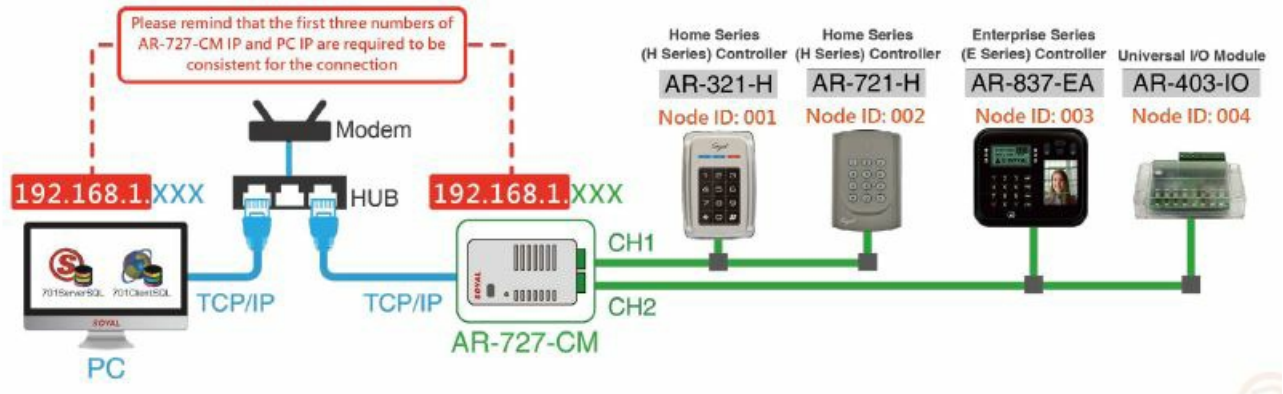
7. More Detail: Software Manual- AR-727-CM HTTP Server

Information on instructional manuals, videos, and FAQs

- FAQ
  - Modifying IP when E-series Controller and AR-727-CM are connected to a computer with different network segments.
  - What is difference between 727CM Server mode and Client mode?
  - If you don’t remember the IP address of AR-727CM, how to reset it?
- Youtube
  - SOYAL APP & WEB SOYAL 721 APP
  - SOYAL APP & WEB SOYAL 727 APP Introduction
- Applications
  - Introduction of 4 methods to configure the access control system to release all door locks in fire alarm event
  - Communication Protocol Converter / Serial Device Server
  - Serial-to-Ethernet Networking AR-727CM-IO Multiple Application
- Manual / Related Documents
  - AR-727-CM HTTP Server Manual
  - SOYAL APP Manual
  - INTEGRATION SOLUTIONS-TCP IP to WIEGAND

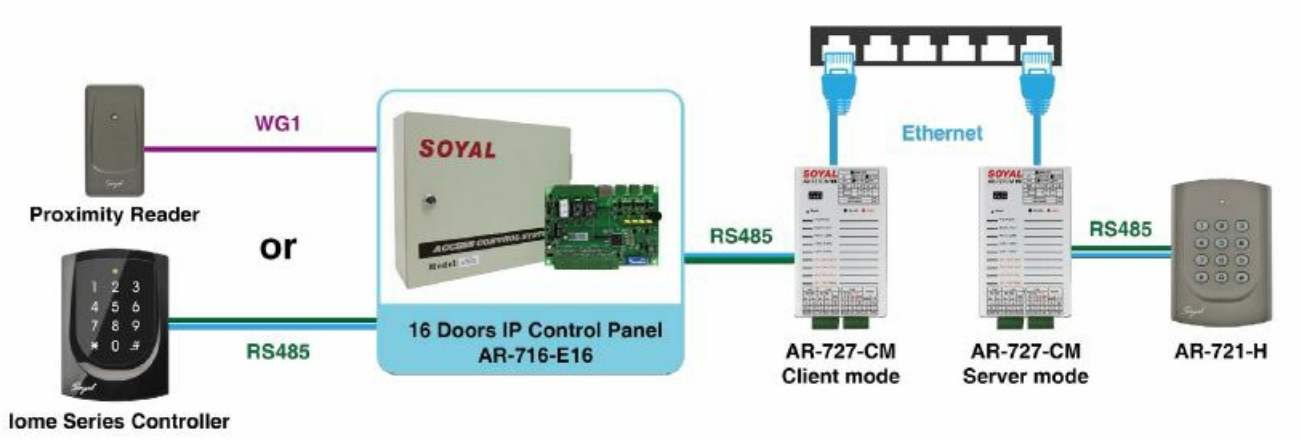
IP Setting

A.RS485 convert TCP/IP → Connection of SOYAL ALL Series Controller via TCP/IP / RS485 Converter AR-727-CM

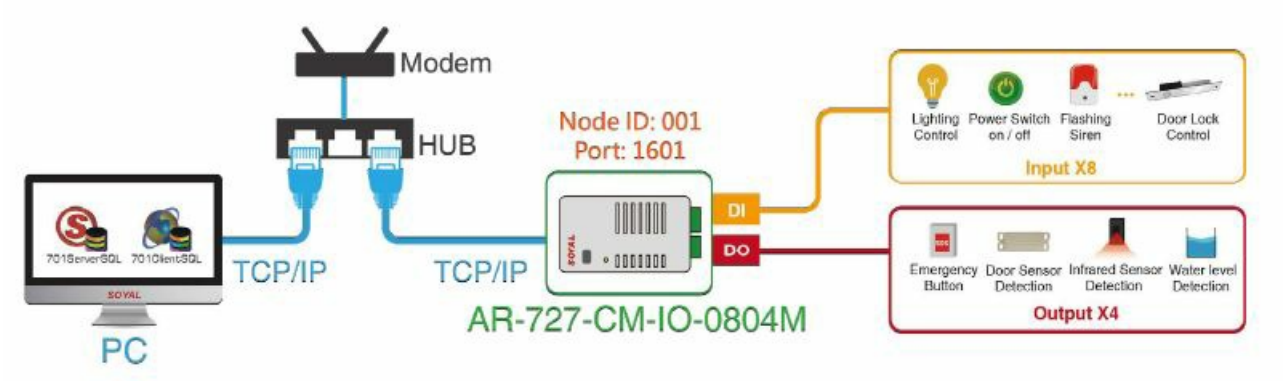


For detailed configuration instructions, please refer to : 701ServerSQL Manual

Server-Client Mode Communication Bridge



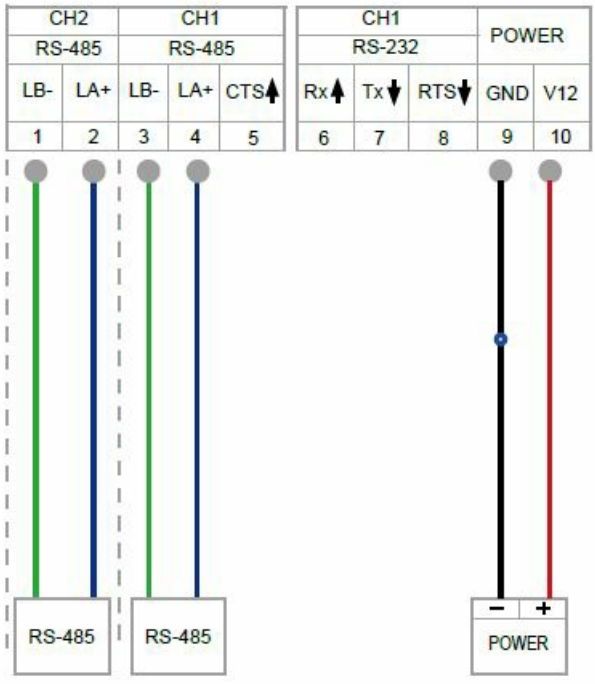
TCP/IP directly → Remotely control electricity equipment via TCP/IP with Industry Series I/O Module



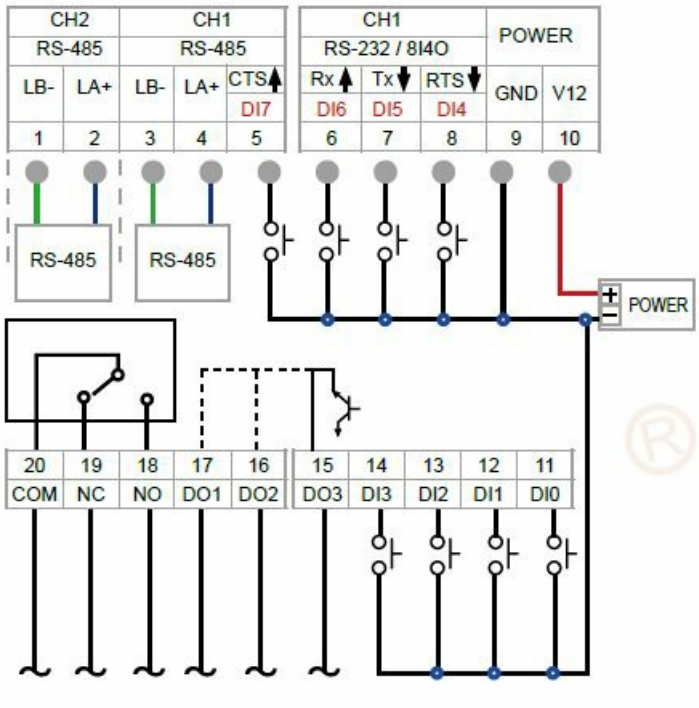
For detailed configuration instructions, please refer to : 701ServerSQL Manual

Wiring Diagram

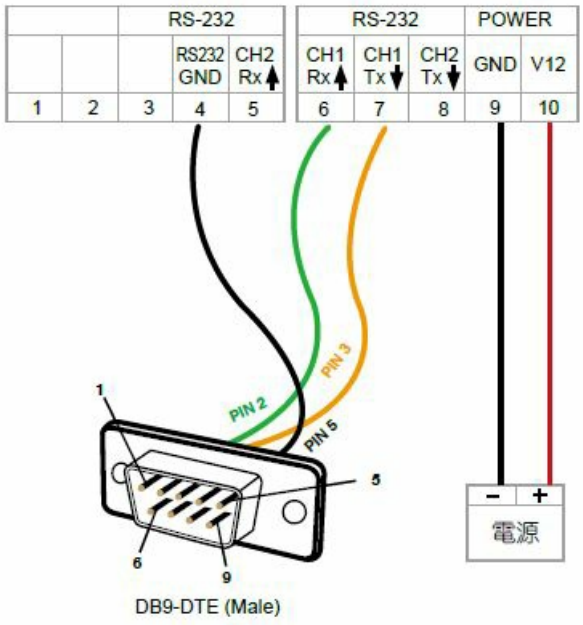
Dual-Channel Gateway (AR-727-CM / AR-727-CM-485)



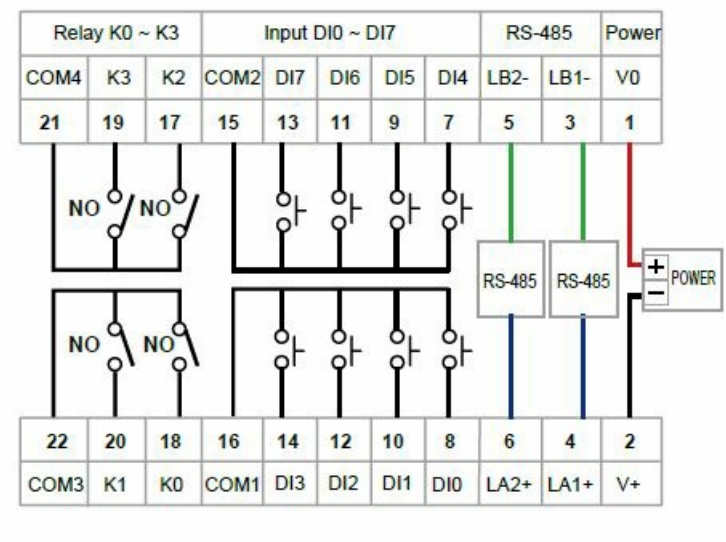
Dual-Channel Gateway with I/O (AR-727-CM-IO-0804M)



Dual-Channel Gateway(AR-727-CM-232)



Dual-Channel Gateway with I/O–Mini PLC (AR-727-CM-IO-0804R)



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Dual-Channel Gateway
AR-727-CM / AR-727-CM-485
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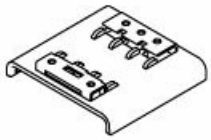
Dual-Channel Gateway with I/O
AR-727-CM-IO-0804M

Dual-Channel Gateway with I/O --Mini PLC
AR-727-CM-IO-0804R

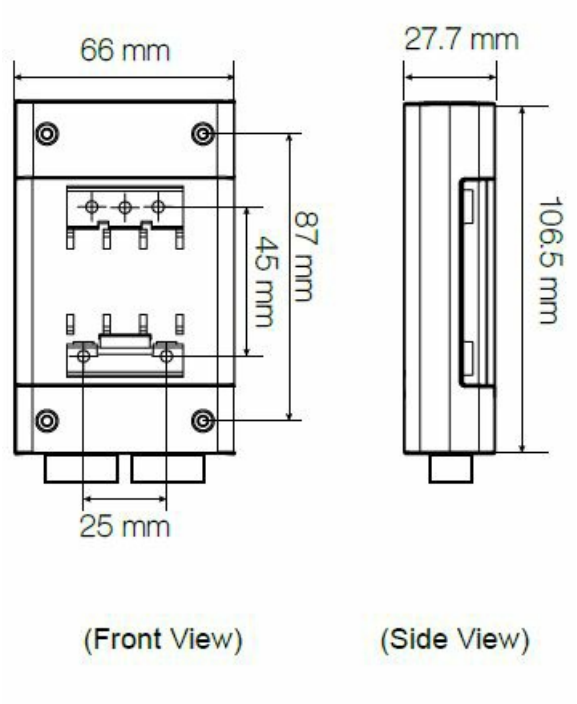


Specification

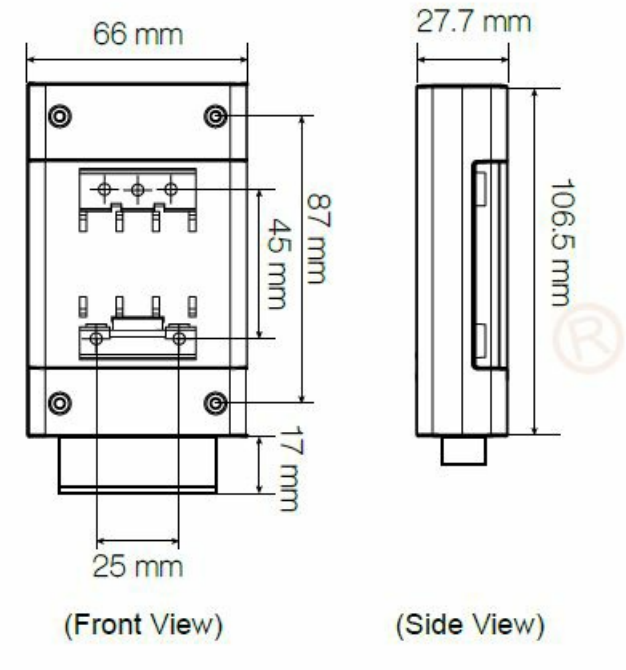
	Dual-Channel Gateway [CH 1:RS232+ CH 2:RS485] **AR-727-CM**	Dual-Channel Gateway [RS485] **AR-727-CM-485**	Dual-Channel Gateway [RS232] **AR-727-CM-232**	Dual-Channel Gateway with I/O **AR-727-CM-IO-0804M**	Dual-Channel Gateway with I/O–Mini PLC **AR-727-CM-IO-0804R**
Ethernet	10/100 Mbps BaseT Ethernet <–> UART	10/100 Mbps BaseT Ethernet <–> RS485	10/100 Mbps BaseT Ethernet<–> RS232	10/100 Mbps Base T Ethernet <–> RS485	
Serial port	Baud Rate 2400 bps – 115200 bps Support TCP/Sever, TCP/Client, UDP Mode				
Baud Rate	4800 bps – 115200 bps				
Inputs	—			8 Digital Input	
Outputs	—			1 Relay Output (Form C) 3 MOSFET Output	4 Relay Output

WG port	—	DO-1 & DO-2 Output WG 128bits maximum,supporting user defined format,auto add even parity bit and odd parity bit and various format, etc.	—
Protocol	ARP, IP,TCP Client,UDP, CMP, HTTP, DHCP, NetBIOS	ModBus-TCP, ARP, IP, TCP Client,UDP, ICMP, HTTP, DHCP, NetBIOS	
Serial Buffer	1K each channel		
LED Indicator	9 LED : Power ,Tx/Rx, D.O./D.I	Power ,Tx/Rx, D.O./D.I	
Watchdog Function	YES		
Active Distance	300m~1200m (RS485)		
Bulit-in linkage function	—	YES	
Surge Suppression	400W peak power dissipation.Clamping time < 1 picosecond(theoretical) Power: 30 Volt, bi-directional avalanche breakdown device. RS485 6.5 Volt, bi-directionalavalanche breakdown device.	400W peak power dissipation. Clamping time < 1 picosecond (theoretical) Power: bi-directional avalanche breakdown device. RS485 bi-directional avalanche breakdown device.	
Fuses	Power PTC 150mA , RS485 PTC 30mA	Power & RS485 both with PTC Protector	
Isolation	—	—	DI Opto-isolation
Power Supply	9-24 VDC		
Power Consumption	<2W		
Network/Device setting	701ServerSQL, 701ClientSQL, HTTP Web page for any browser		
OS Supported	Windows 7/8/10, Win Server 2008/2012/2016		

Dual-Channel Gateway
(AR-727CM / AR-727CM-485 / AR-727CM-232) Dual-Channel Gateway with I/O
(AR-727-CM-IO-0804M)



Dual-Channel Gateway with I/O-Mini PLC (AR-727-CM-IO-0804R)



Documents / Resources

	SOYAL AR-727-CM Serial Device Network Server [pdf] User Guide AR-727-CM Serial Device Network Server, AR-727-CM, Serial Device Network Server, Device Network Server, Network Server, Server

References

- SOYAL TECHNOLOGY CO., LTD
- User Manual