

Autonics

Slim Remote I/O [Analog I/O Module]

ARIO-S-AI/AO SERIES

INSTRUCTION MANUAL

Thank you very much for selecting Autonics products.
For your safety, please read the following before using.

■ Safety Considerations

⊗ Please observe all safety considerations for safe and proper product operation to avoid hazards.

⊗ ⚠ symbol represents caution due to special circumstances in which hazards may occur.

⚠ **Warning** Failure to follow these instructions may result in serious injury or death.

⚠ **Caution** Failure to follow these instructions may result in personal injury or product damage.

⚠ Warning

1. **Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss.** (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)

Failure to follow this instruction may result in personal injury, fire or economic loss.

2. **Do not use the unit in the place where flammable/explosive/corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.**

Failure to follow this instruction may result in explosion or fire.

3. **Do not disassemble or modify the unit.**

Failure to follow this instruction may result in fire.

4. **Do not connect, repair, or inspect the unit while connected to a power source.**

Failure to follow this instruction may result in fire.

5. **Check 'Connections' before wiring.**

Failure to follow this instruction may result in fire.

⚠ Caution

1. **Use the unit within the rated specifications.**

Failure to follow this instruction may result in fire or shortening the life cycle of the product.

2. **Use dry cloth to clean the unit, and do not use water or organic solvent.**

Failure to follow this instruction may result in fire or electric shock.

3. **When connecting the power input and output, use AWG 22-16 cable and check the connecting method of crimp terminal.**

Failure to follow this instruction may result in fire or malfunction due to contact failure.

4. **Keep metal chip, dust, and wire residue from flowing into the unit.**

Failure to follow this instruction may result in fire or product damage.

5. **Do not connect or disconnect connector (terminal) wire or power, when the product is operating.**

Failure to follow this instruction may result in fire or malfunction of the product.

⊗ **The above specifications are subject to change and some models may be discontinued without notice.**

⊗ **Be sure to follow cautions written in the instruction manual, user manual and the technical descriptions (catalog, website).**

■ Specifications

Type	Analog input module		Analog output module				
Model	2CH	ARIO-S-AI02V1	ARIO-S-AI02C1	ARIO-S-AO02V1	ARIO-S-AO02C1		
	4CH	ARIO-S-AI04V1	ARIO-S-AI04C1	ARIO-S-AO04V1	ARIO-S-AO04C1		
I/O method	Voltage input		Current input		Current output		
I/O range	-10 to 10VDC=		0 to 20mA		-10 to 10VDC=	0 to 20mA	
Accuracy	Room temp.		±0.3% F.S.				
	Out of room temp.		±0.6% F.S.				
Input impedance	Min. 1MΩ		Max. 250Ω		—		
Load resistance	—		Min. 5kΩ		Max. 350Ω		
Status indicator ON conditions	Below -1V or over 1V		Over 1mA		Below -1V or over 1V		Over 1mA
Resolution	12bit						
Power consumption	ABUS	5VDC=, max. 180mA (max. 0.9W)		5VDC=, max. 100mA, (max. 0.5W)			
	I/O	24VDC=, max. 15mA (max. 0.36W)		24VDC=, max. 60mA, (max. 1.44W)			
Installation method	DIN rail mounting						
Insulation resistance	100MΩ (at 500VDC= megger) I/O to inner circuit: photocoupler insulated, between channels: non-insulated						
Environ-ment	Ambient temp.	-10 to 55°C, storage: -25 to 70°C					
	Ambient humi.	35 to 85%RH, storage: 35 to 85%RH					
Protection structure ^{x1}	IP20 (IEC standards)						
Material	Terminal: polyamide6, Body: modified polyphenylene oxide, Base: polyamide6, poly oxy methylene						
Approval	CE, UL, VDE, TUV, KCC						
Weight ^{x2}	Approx. 108g (approx. 75g)						

⊗ 1. Autonics test standard

⊗ 2. The weight includes packaging. The weight in parenthesis is for unit only.

⊗ Environment resistance is rated at no freezing or condensation.

⊗ Power supply is from ARIOP Series. Normal operation is available when I/O power voltage is supplied. In case of one coupler module connecting, the ARIO analog module is available to connect up to 4 units. For connecting the modules, consider power consumption of the sensors and drivers connected the ARIO coupler.

■ Connecting & Removing Wires

• Connecting

Push the wire connected with the crimp terminal towards direction ① to complete the connection.

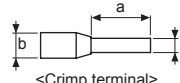
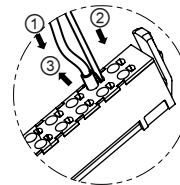
• Removing

1) Press and hold the catch above the terminal in direction ② with a non-conductive flat head screwdriver (width max. 3mm).

2) Pull and remove the wire towards direction ③.

⊗ Use the UL certified End Sleeve (Ferrule Terminal) crimp terminals and wire.

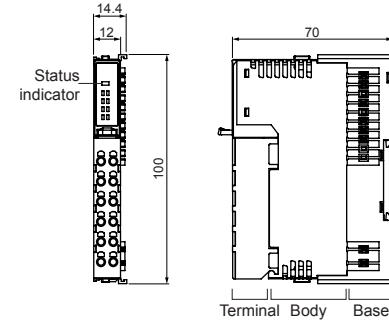
Use the copper-conductor wire with the temperature class 60°C.



	a	b	c	Certified spec.
Range	8 to 12mm	Max. 3mm	0.6 to 1.3mm	AWG22-16
Recommended	10mm		1mm	AWG18

■ Dimensions

(unit: mm)



■ Manuals

For the detail information and instructions, you must refer to the each manual, and be sure to follow cautions written in the technical descriptions (catalog, website).

Visit our website (www.autonics.com) to download manuals.

■ Comprehensive Device Management program [DAQMaster]

DAQMaster is a comprehensive device management software for setting parameters and monitoring processes. DAQMaster can be downloaded from our website at www.autonics.com.

■ Caution during Use

- Follow instructions in 'Cautions during Use'. Otherwise, It may cause unexpected accidents.
- ABUS power and I/O power should be insulated by the individually insulated power device.
- Power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
- Use the rated standard cables and connectors. Do not apply excessive power when connecting or disconnecting the connectors of the product.
- Keep away from high voltage lines or power lines to prevent inductive noise. In case installing power line and input signal line closely, use line filter or varistor at power line and shielded wire at input signal line. For stable operation, use shield wire and ferrite core, when wiring communication wire, power wire, or signal wire. Do not use near the equipment which generates strong magnetic force or high frequency noise.
- Do not touch the module communication connector part of the base.
- Do not connect, or remove the base while connected to a power source. For removing the terminal, body or base, do not operate units for a long time without it
- This unit may be used in the following environments.

① Indoors	② Altitude max. 2,000m
③ Pollution degree 2	④ Installation category II

■ Major Products

- Photoelectric Sensors
- Fiber Optic Sensors
- Door Sensors
- Door Side Sensors
- Area Sensors
- Proximity Sensors
- Pressure Sensors
- Rotary Encoders
- Connector/Sockets
- Switching Mode Power Supplies
- Control Switches/Lamps/Buzzers
- I/O Terminal Blocks & Cables
- Stepper Motors/Drivers/Motion Controllers
- Graphic Logic Panels
- Field Network Devices
- Laser Marking System (Fiber, Co., Nd:Yag)
- Laser Welding/Cutting System
- Temperature Controllers
- Temperature/Humidity Transducers
- SSRs/Power Controllers
- Counters
- Timers
- Panel Meters
- Tachometer/Pulse (Rate) Meters
- Display Units
- Sensor Controllers

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