

Module manual

Field Network Devices

ARIO Series

MOO-ARIOMU-V1.1-2007US

Thank you for purchasing an Autonics product.
This user manual contains information about the product and its proper use,
and should be kept in a place where it will be easy to access.

Preface

Thank you for purchasing Autonics product.





Please familiarize yourself with the information contained **in the Safety Considerations section** before using this product.

This user manual contains information about the product and its proper use, and should be kept in a place where it will be easy to access.

Module Manual Guide

- Please familiarize yourself with the information in this manual before using the product.
- This manual provides detailed information on the product's features. It does not offer any guarantee concerning matters beyond the scope of this manual.
- This manual may not be edited or reproduced in either part or whole without permission.
- This manual is not provided as part of the product package.
Please visit our website (www.autonics.com) to download a copy.
- The manual's content may vary depending on changes to the product's software and other unforeseen developments within Autonics, and is subject to change without prior notice. Upgrade notice is provided through our homepage.
- We contrived to describe this manual more easily and correctly. However, if there are any corrections or questions, please notify us these on our website.

Module Manual Symbols

Symbol	Description
 Note	Supplementary information for a particular feature.
 Warning	Failure to follow instructions can result in serious injury or death.
 Caution	Failure to follow instructions can lead to a minor injury or product damage.
 Ex.	An example of the concerned feature's use.
※1	Annotation mark.

Safety Considerations

- Please observe all safety considerations for safe and proper product operation to avoid hazards.
- Safety considerations consist of 'warning' and 'caution'. The following symbols represent caution due to particular circumstances in which hazards may occur.

	Warning	Warning	Failure to follow instructions can result in serious injury or death.
---	----------------	----------------	---

	Caution	Caution	Failure to follow instructions can lead to a minor injury or product damage.
---	----------------	----------------	--

Warning

- 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, economic loss or fire.
- 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.
- Do not disassemble or modify the unit.
Failure to follow this instruction may result in fire.
- Do not connect, repair, or inspect the unit while connected to a power source.
Failure to follow this instruction may result in fire.
- Check 'Connections' before wiring.
Failure to follow this instruction may result in fire.

Caution

- Use the unit within the rated specifications.
Failure to follow this instruction may result in fire or shortening the life cycle of the product.
- Use a 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.
- When connecting the power input and I/O wiring, use AWG 22 to 16 cable. After checking the connecting and removing the wire, use the crimp terminal.
Failure to follow this instruction may result in fire or malfunction due to contact failure.
- Keep the product away from metal chip, dust, and wire residue which flow into the unit.
Failure to follow this instruction may result in fire or product damage.
- Do not cut off power or disconnect connectors (or terminals) while operating the unit.
Failure to follow this instruction may result in fire or product damage.
- ※ The specifications and dimensions of this manual are subject to change without any notice

Caution during Use

- Follow instructions in 'Caution 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 the 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

Table of Contents

	Preface	iii
	Module Manual Guide.....	iv
	Module Manual Symbols.....	v
	Safety Considerations	vi
	Caution during Use	vii
	Table of Contents	viii
1	Reference manuals	9
2	Digital I/O module [ARIO-S-DI/DO]	10
2.1	Specifications	10
2.2	Dimensions	12
2.3	Indicators	12
2.4	Wiring diagram.....	13
3	Analog I/O module [ARIO-S-AI/AO]	17
3.1	Specifications	17
3.2	Dimensions	19
3.3	Indicators	19
3.4	Wiring diagram.....	20
3.5	Data display	22
4	Temperature input module [ARIO-S-AI-TC/RTD]	23
4.1	Specifications	23
4.2	Dimensions	25
4.3	Indicators	25
4.4	Wiring diagram.....	26
4.5	Parameter	27
4.6	Input type and range.....	27
5	Power module [ARIO-P]	28
5.1	Specifications	28
5.2	Dimensions	30
5.3	Power indicator.....	30
5.4	Wiring diagram.....	31

1 Reference manuals

Refer to the following manuals to use the ARIO system stably and safely.

Instruction manual	It describes an overview of ARIO system, installation environment, and maintenance, etc.
Coupler manual	It describes the overview of each communication, specifications, dimensions, memory map and troubleshooting.
Module manual	It describes the dimensions, specifications, and connections of each module.
DAQMaster user manual	You can use module setting, real-time control of input/output signal, and monitoring/diagnosis function (except ARIO-C-PN and ARIO-C-PB) via DAQMaster. Also, the virtual mode and recommended sorting provides an arrangement the coupler and modules.

2 Digital I/O module [ARIO-S-DI/DO]




Caution

Be sure to see the “Instruction Manual of ARIO Series” to install the module.
Failure to follow this instruction may result in malfunction and product damage.

2.1 Specifications

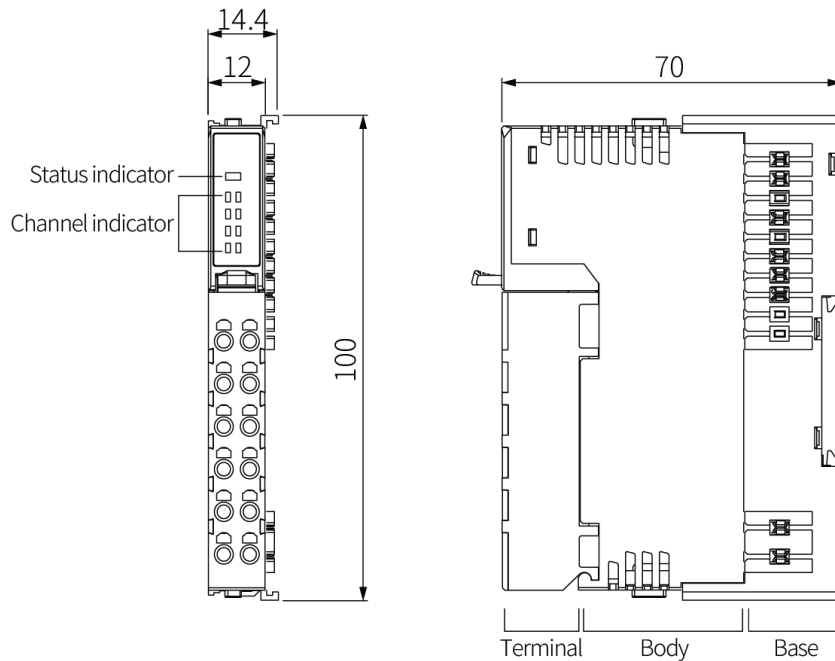
Type		Digital input module		Digital output module	
Model	4CH	ARIO-S-DI04N	ARIO-S-DI04P	ARIO-S-DO04N	ARIO-S-DO04P
	8CH	ARIO-S-DI08N	ARIO-S-DI08P	ARIO-S-DO08N	ARIO-S-DO08P
I/O common		NPN	PNP	NPN	PNP
Input voltage		Turn ON: min. 7VDC= Turn OFF: max. 0.4VDC= —		—	
Output leakage voltage		—		Max. 1.2VDC= —	
I/O signal level※1		24VDC= ±10%			
I/O current consumption	4CH	Max.6mA/CH, 4CH/COM		—	
	8CH	Max. 6mA/CH, 8CH/COM		—	
Rated output current	4CH	—		Max. 500mA/CH, 4CH/COM	
	8CH	—		Max. 500mA/CH, 8CH/COM	
On delay time		Max. 0.5ms			
Off delay time		Max. 1.5ms			
Power consump. (ABUS)		5VDC= max.100mA (max. 0.5W)			
Internal transmission speed		4Mbps			
Installation method		DIN rail mounting			

Type	Digital input module	Digital output module
Insulation resistance	100M Ω (at 500VDC= megger), I/O to inner circuit: photocoupler insulated	
Dielectric strength	1000VAC ~ 50/60Hz for 1 min	
Noise immunity	\pm 500VDC= the square wave noise (pulse width: 1 μ s) by the noise simulator	
Vibration	0.7mm amplified at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 1 hour	
Vibration (malfunction)	0.5mm amplified at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 min	
Shock	300m/s ² (approx. 30G) in each X, Y, Z direction for 3 times	
Shock (malfunction)	100m/s ² (approx. 10G) in each X, Y, Z direction for 3 times	
Ambient temperature	-10 to 55°C, storage: -25 to 70°C (a non-freezing or condensation environment)	
Ambient humidity	35 to 85%RH, storage: 35 to 85%RH (a non-freezing or condensation environment)	
Protection structure	IP20 (IEC standards)	
Material	Terminal: polyamide6, Body: modified polyphenylene oxide, Base: polyamide6, poly oxy methylene	
Approval		
Weight (packaging)	Approx. 75g (approx. 108g)	

- ※1. Power supply is from ARIO-P Series. Normal operation is available when I/O power voltage is supplied.
- ※ For connecting the modules, consider power consumption of the sensors and drivers connected the ARIO coupler.
In case of one coupler module connecting, the ARIO digital module is available to connect up to 8 units.

2.2 Dimensions

(Unit: mm)



2.3 Indicators

(1) Status indicator

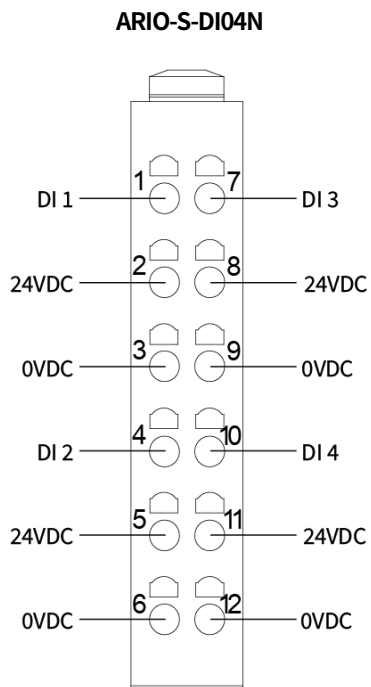
LED color	ON	OFF	Flashing
Green	Normal operation Internal network (ABUS) is operating	Stop operating, communication error, module failure	Operational readiness of Internal network (ABUS)
Red	Module failure, error in module components (error in main and auxiliary MCU)	Normal operation	Internal network (ABUS) error

(2) Channel indicator

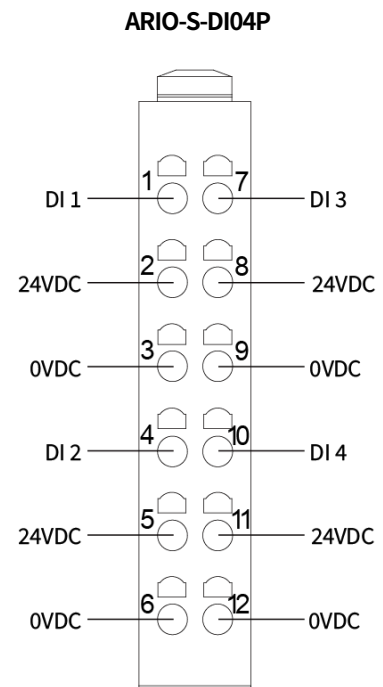
LED color	ON	OFF
Green	Input / Output state	No input / output

2.4 Wiring diagram

- Digital input module

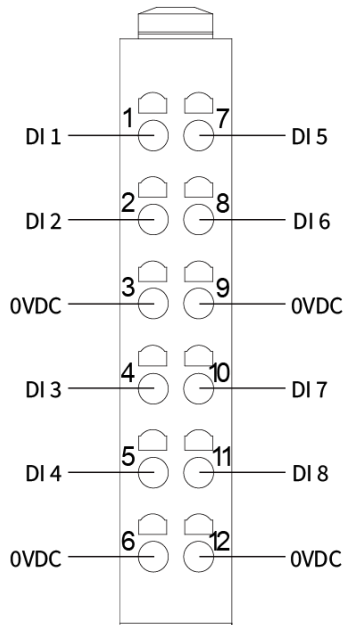


Terminal No.	Descriptions
1	Input channel 1
2	Field Power (24VDC)
3	Field Ground (0VDC)
4	Input channel 2
5	Field Power (24VDC)
6	Field Ground (0VDC)
7	Input channel 3
8	Field Power (24VDC)
9	Field Ground (0VDC)
10	Input channel 4
11	Field Power (24VDC)
12	Field Ground (0VDC)

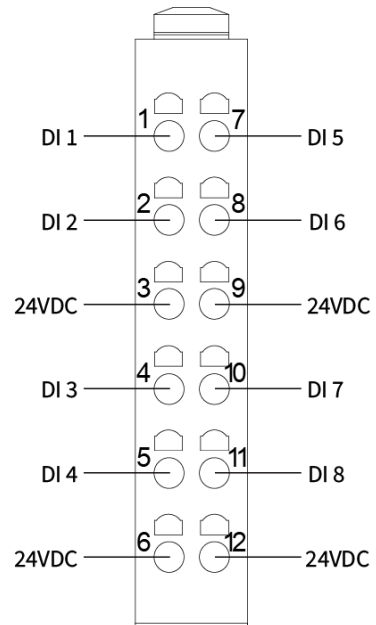


Terminal No.	Descriptions
1	Input channel 1
2	Field Power (24VDC)
3	Field Ground (0VDC)
4	Input channel 2
5	Field Power (24VDC)
6	Field Ground (0VDC)
7	Input channel 3
8	Field Power (24VDC)
9	Field Ground (0VDC)
10	Input channel 4
11	Field Power (24VDC)
12	Field Ground (0VDC)

ARIO-S-DI08N



ARIO-S-DI08P

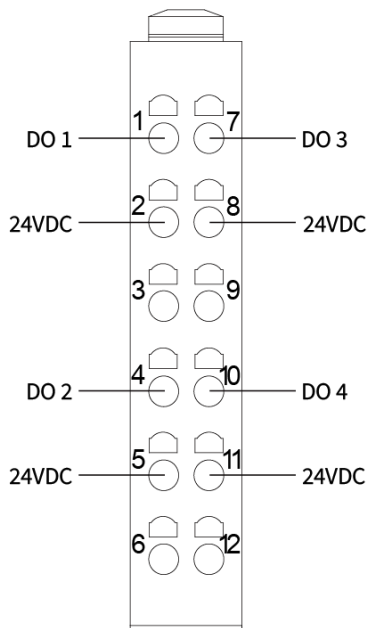


Terminal No.	Descriptions
1	Input channel 1
2	Input channel 2
3	Field Ground (0VDC)
4	Input channel 3
5	Input channel 4
6	Field Ground (0VDC)
7	Input channel 5
8	Input channel 6
9	Field Ground (0VDC)
10	Input channel 7
11	Input channel 8
12	Field Ground (0VDC)

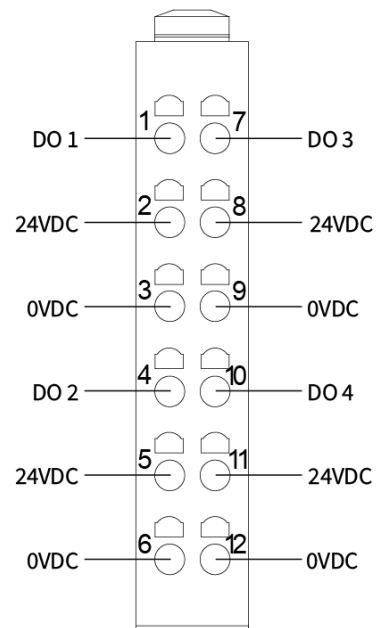
Terminal No.	Descriptions
1	Input channel 1
2	Input channel 2
3	Field Power (24VDC)
4	Input channel 3
5	Input channel 4
6	Field Power (24VDC)
7	Input channel 5
8	Input channel 6
9	Field Power (24VDC)
10	Input channel 7
11	Input channel 8
12	Field Power (24VDC)

- Digital output module

ARIO-S-DO04N



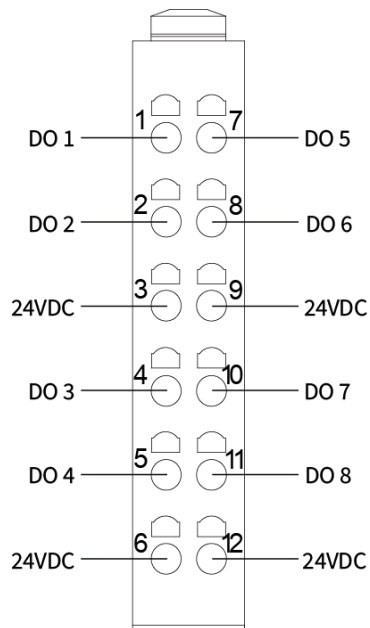
ARIO-S-DO04P



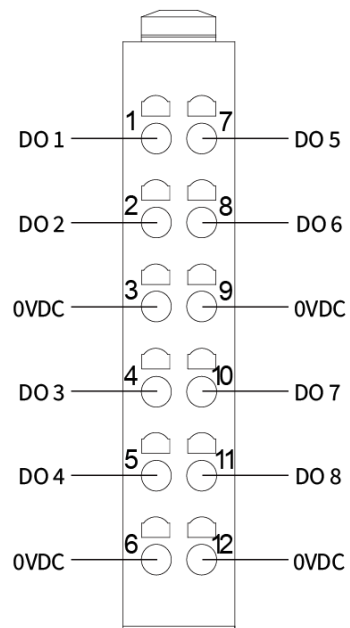
Terminal No.	Descriptions
1	Output channel 1
2	Field Power (24VDC)
3	N.C. (Not Connected)
4	Output channel 2
5	Field Power (24VDC)
6	N.C. (Not Connected)
7	Output channel 3
8	Field Power (24VDC)
9	N.C. (Not Connected)
10	Output channel 4
11	Field Power (24VDC)
12	N.C. (Not Connected)

Terminal No.	Descriptions
1	Output channel 1
2	Field Power (24VDC)
3	Field Ground (0VDC)
4	Output channel 2
5	Field Power (24VDC)
6	Field Ground (0VDC)
7	Output channel 3
8	Field Power (24VDC)
9	Field Ground (0VDC)
10	Output channel 4
11	Field Power (24VDC)
12	Field Ground (0VDC)

ARIO-S-DO08N



ARIO-S-DO08P



Terminal No.	Descriptions
1	Output channel 1
2	Output channel 2
3	Field Power (24VDC)
4	Output channel 3
5	Output channel 4
6	Field Power (24VDC)
7	Output channel 5
8	Output channel 6
9	Field Power (24VDC)
10	Output channel 7
11	Output channel 8
12	Field Power (24VDC)

Terminal No.	Descriptions
1	Output channel 1
2	Output channel 2
3	Field Ground (0VDC)
4	Output channel 3
5	Output channel 4
6	Field Ground (0VDC)
7	Output channel 5
8	Output channel 6
9	Field Ground (0VDC)
10	Output channel 7
11	Output channel 8
12	Field Ground (0VDC)

3 Analog I/O module [ARIO-S-AI/AO]



Caution

Be sure to see the “Instruction Manual of ARIO Series” to install the module.
Failure to follow this instruction may result in malfunction and product damage.

3.1 Specifications




(1) Analog input module

Model	2CH	ARIO-S-AI02V1	ARIO-S-AI02V2	ARIO-S-AI02C1	ARIO-S-AI02C2
	4CH	ARIO-S-AI04V1	ARIO-S-AI04V2	ARIO-S-AI04C1	ARIO-S-AI04C2
Input method	Voltage input			Current input	
Input range	Rated range	-10 to 10VDC \equiv	0 to 10VDC \equiv	0 to 20mA	4 to 20mA
	Allowable range	-11 to 11VDC \equiv	-1.0 to 11VDC \equiv	0 to 22mA	2.4 to 21.6mA
Input impedance	Min. 1M Ω / Max. 250 Ω				
Accuracy	Room temp.: $\pm 0.3\%$ F.S. / Out of room temp.: $\pm 0.6\%$ F.S.				
Resolution	12bit				
Internal transmission speed	4Mbps				
Power consumption	ABUS: 5VDC \equiv , Max. 180mA (Max. 0.9W), I/O: 24VDC \equiv , Max. 15mA (Max. 0.36W)				
Status indicator ON	$\leq -1\text{VDC}\equiv$ or $\geq 1\text{VDC}\equiv$	$\geq 1\text{VDC}\equiv$	$\geq 1\text{mA}$	$\geq 4\text{mA}$	

(2) Analog output module

Model	2CH	ARIO-S-AO02V1	ARIO-S-AO02V2	ARIO-S-AO02C1	ARIO-S-AO02C2
	4CH	ARIO-S-AO04V1	ARIO-S-AO04V2	ARIO-S-AO04C1	ARIO-S-AO04C2
Output method	Voltage output			Current output	
Output range	-10 to 10VDC \equiv	0 to 10VDC \equiv	0 to 20mA	4 to 20mA	
Load resistance	Min. 5k Ω / Max. 350 Ω				
Accuracy	Room temp.: $\pm 0.3\%$ F.S. / Out of room temp.: $\pm 0.6\%$ F.S.				
Resolution	12bit				
Internal transmission speed	4Mbps				
Power consumption	ABUS: 5VDC \equiv , Max. 180mA (Max. 0.9W) I/O: 24VDC \equiv , Max. 15mA (Max. 0.36W)			ABUS: 5VDC \equiv , Max. 100mA (Max. 0.5W) I/O: 24VDC \equiv , Max. 60mA (Max. 1.44W)	
Status indicator ON	$\leq -1\text{VDC}\equiv$ or $\geq 1\text{VDC}\equiv$	$\geq 1\text{VDC}\equiv$	$\geq 1\text{mA}$	Always on	

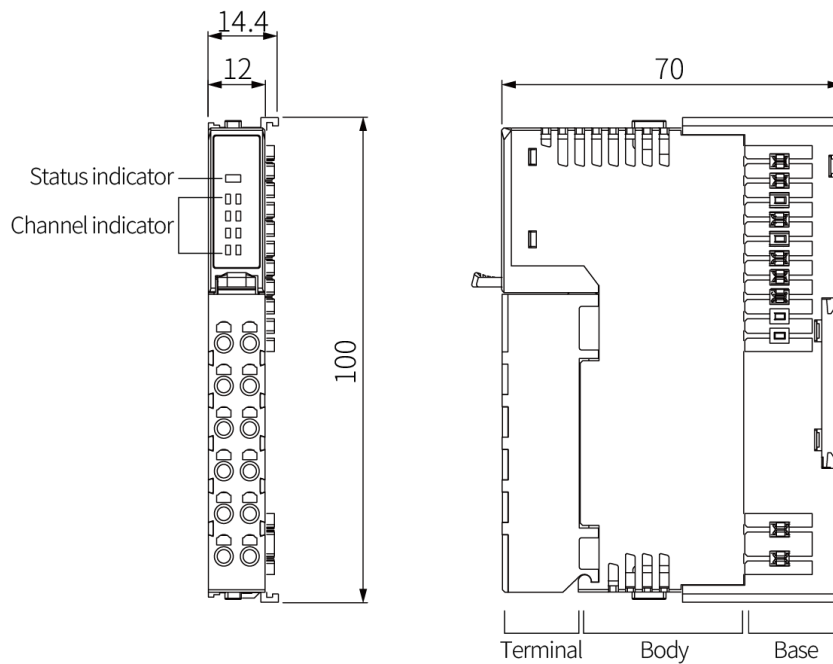
(3) General specifications

Installation method	DIN rail mounting
Insulation resistance	100M Ω (at 500VDC= megger) I/O to inner circuit: photocoupler insulated, between channels: non-insulated
Dielectric strength	1000VAC~ 50/60Hz for 1 min
Noise immunity	\pm 500VDC= the square wave noise (pulse width: 1 μ s) by the noise simulator
Vibration	0.7mm amplified at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 1 hour
Vibration (malfunction)	0.5mm amplified at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 min
Shock	300m/s ² (approx. 30G) in each X, Y, Z direction for 3 times
Shock (malfunction)	100m/s ² (approx. 10G) in each X, Y, Z direction for 3 times
Ambient temperature	-10 to 55°C, storage: -25 to 70°C (a non-freezing or condensation environment)
Ambient humidity	35 to 85%RH, storage: 35 to 85%RH (a non-freezing or condensation environment)
Protection structure	IP20 (IEC standards)
Material	Terminal: polyamide6, Body: modified polyphenylene oxide, Base: polyamide6, poly oxy methylene
Approval	  
Weight (packaging)	Approx. 75g (approx. 108g)

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

3.2 Dimensions

(Unit: mm)



3.3 Indicators

(1) Status indicator

LED color	ON	OFF	Flashing
Green	Normal operation Internal network (ABUS) is operating	Stop operating, communication error, module failure	Operational readiness of Internal network (ABUS)
Red	Module failure, error in module components (error in main and auxiliary MCU)	Normal operation	Internal network (ABUS) error

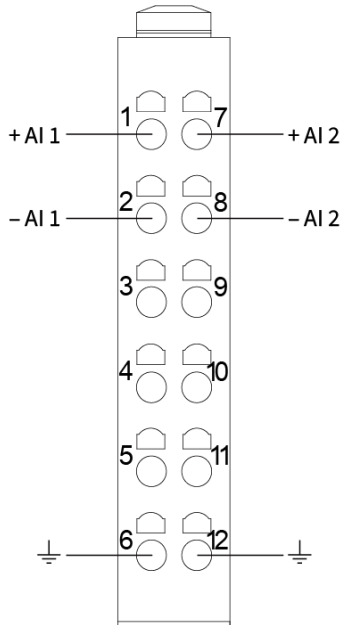
(2) Channel indicator

LED color	ON	OFF
Green	Input/Output state	No input/output

3.4 Wiring diagram

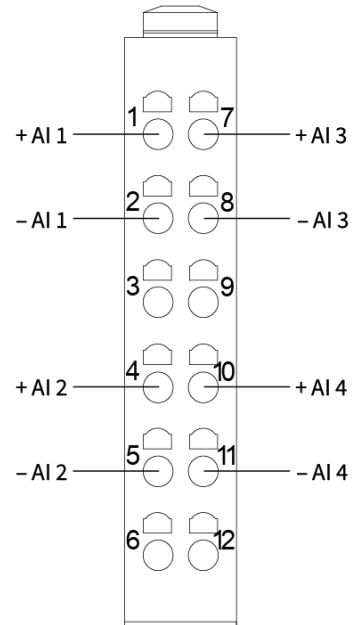
- Analog input module

ARIO-S-AI02V1/V2
ARIO-S-AI02C1/C2



Terminal No.	Descriptions
1	Input channel 1 +
2	Input channel 1 -
3	N.C. (Not Connected)
4	N.C. (Not Connected)
5	N.C. (Not Connected)
6	Ground / Shield
7	Input channel 1 +
8	Input channel 1 -
9	N.C. (Not Connected)
10	N.C. (Not Connected)
11	N.C. (Not Connected)
12	Ground / Shield

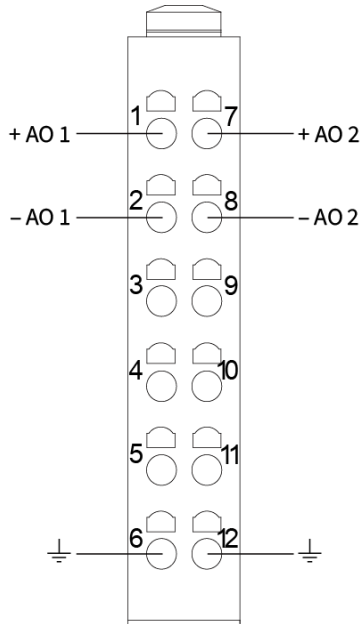
ARIO-S-AI04V1/V2
ARIO-S-AI04C1/C2



Terminal No.	Descriptions
1	Input channel 1 +
2	Input channel 1 -
3	N.C. (Not Connected)
4	Input channel 2 +
5	Input channel 2 -
6	N.C. (Not Connected)
7	Input channel 3 +
8	Input channel 3 -
9	N.C. (Not Connected)
10	Input channel 4 +
11	Input channel 4 -
12	N.C. (Not Connected)

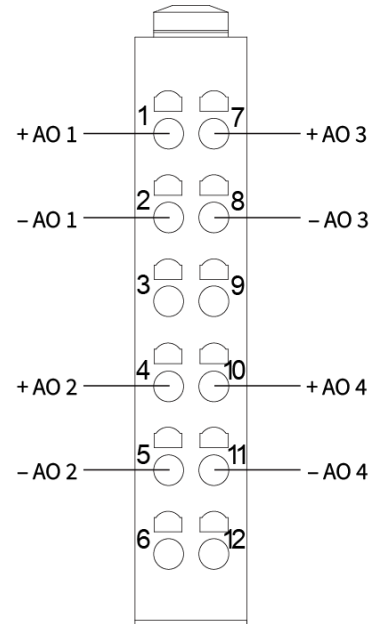
▪ Analog output module

ARIO-S-AO02V1/V2
ARIO-S-AO02C1/C2



Terminal No.	Descriptions
1	Output channel 1 +
2	Output channel 1 -
3	N.C. (Not Connected)
4	N.C. (Not Connected)
5	N.C. (Not Connected)
6	Ground / Shield
7	Output channel 1 +
8	Output channel 1 -
9	N.C. (Not Connected)
10	N.C. (Not Connected)
11	N.C. (Not Connected)
12	Ground / Shield

ARIO-S-AO04V1/V2
ARIO-S-AO04C1/C2



Terminal No.	Descriptions
1	Output channel 1 +
2	Output channel 1 -
3	N.C. (Not Connected)
4	Output channel 2 +
5	Output channel 2 -
6	N.C. (Not Connected)
7	Output channel 3 +
8	Output channel 3 -
9	N.C. (Not Connected)
10	Output channel 4 +
11	Output channel 4 -
12	N.C. (Not Connected)

3.5 Data display

Model	ARIO-S-AI□V1, ARIO-S-AO□V1			ARIO-S-AI□V2, ARIO-S-AO□V2		
Input/Output voltage	-10.000V	0.000V	10.000V	0.000V	5.000V	10.000V
Data (dec)	-10000	0	10000	0	5000	10000
Data (hex)	D8F0	0000	2710	0000	1388	2710

Model	ARIO-S-AI□C1, ARIO-S-AO□C1			ARIO-S-AI□C2, ARIO-S-AO□C2		
Input/Output current	0.000mA	10.000mA	20.000mA	4.000mA	12.000mA	20.000mA
Data (dec)	0	10000	20000	0	12000	20000
Data (hex)	0000	2710	4E20	0FA0	2EE0	4E20

4 Temperature input module [ARIO-S-AI-TC/RTD]





Caution

Be sure to see the “Instruction Manual of ARIO Series” to install the module.
Failure to follow this instruction may result in malfunction and product damage.

4.1 Specifications

Type	Temperature input module	
Model	4CH	ARIO-S-AI04TC ARIO-S-AI04RTD
Input method	Voltage input	Resistance input
Input range	See “4.6 Input type and range.”	
Display accuracy※1	$\pm 0.2\%$ F.S. (or $\pm 2^{\circ}\text{C}$, select the higher one) ± 1 digit	$\pm 0.2\%$ F.S. ± 1 digit
Status indicator ON condition	Temperature input within the rated range ※ No operation when the thermometer is not attached	
Resolution / Display	16bit / 0.1°C	
Sampling period	50msec/CH	
Power consumption	ABUS: 5VDC \leq , Max. 180mA (Max. 0.9W), I/O: 24VDC \leq , Max. 15mA (Max. 0.36W)	
Internal transmission speed	4Mbps	
Installation method	DIN rail mounting	

Type	Temperature input module
Insulation resistance	100M Ω (at 500VDC= megger), I/O to inner circuit: photocoupler insulated
Dielectric strength	1000VAC \sim 50/60Hz for 1 min
Noise immunity	\pm 500VDC= the square wave noise (pulse width: 1 μ s) by the noise simulator
Vibration	0.7mm amplified at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 1 hour
Vibration (malfunction)	0.5mm amplified at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 min.
Shock	300m/s ² (approx. 30G) in each X, Y, Z direction for 3 times
Shock (malfunction)	100m/s ² (approx. 10G) in each X, Y, Z direction for 3 times
Ambient temperature	-10 to 55°C, storage: -25 to 70°C (a non-freezing or condensation environment)
Ambient humidity	35 to 85%RH, storage: 35 to 85%RH (a non-freezing or condensation environment)
Protection structure	IP20 (IEC standards)
Material	Terminal: polyamide6, Body: modified polyphenylene oxide, Base: polyamide6, poly oxy methylene
Approval	 
Weight (packaging)	Approx. 75g (approx. 108g)

※1. At room temperature (23°C \pm 5°C)

- Below -100°C of TC K, J, T, N, E and TC L, U, PLII: \pm 4°C \pm 1 digit
- Below \pm 200°C of TC R, S: \pm 4°C \pm 1 digit
- Below 400°C of TC B: No display accuracy
- RTD Cu 50 Ω / 100 Ω , Ni 100 Ω / 120 Ω / 1000 Ω : \pm 2°C \pm 1 digit

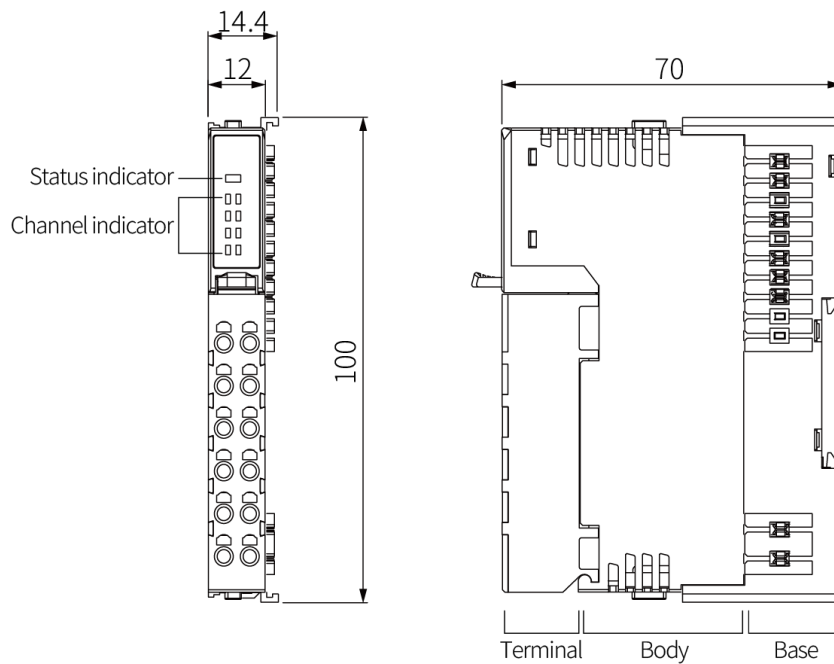
Out of room temperature range

- TC: (\pm 0.5% F.S or \pm 7°C, select the higher one) \pm 1digit
- RTD: (\pm 0.5% F.S or \pm 3°C, select the higher one) \pm 1digit

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

4.2 Dimensions

(Unit: mm)



4.3 Indicators

(1) Status indicator

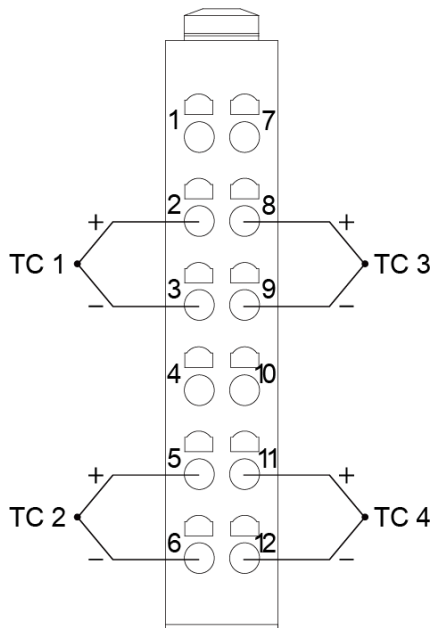
LED color	ON	OFF	Flashing
Green	Normal operation Internal network (ABUS) is operating	Stop operating, communication error, module failure	Operational readiness of Internal network (ABUS)
Red	Module failure, error in module components (error in main and auxiliary MCU)	Normal operation	Internal network (ABUS) error

(2) Channel indicator

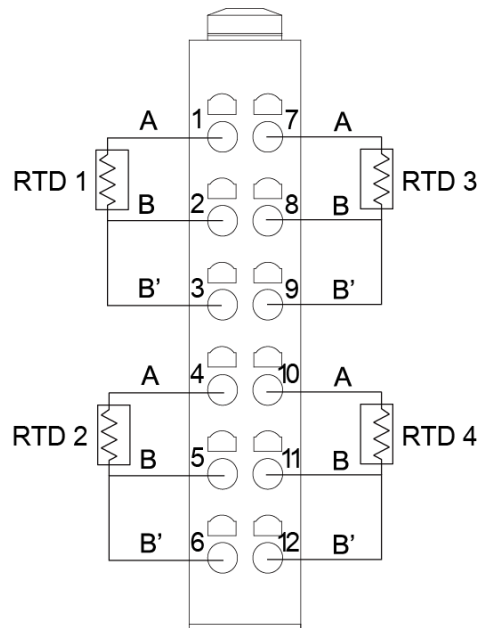
LED color	ON	OFF
Green	Input / Output state	No input / output

4.4 Wiring diagram

ARIO-S-AI04TC



ARIO-S-AI04RTD



Channel	Terminal No.	Descriptions
1	1	N.C. (Not Connected)
	2	Sensor 1: + TC
	3	Sensor 1: - TC
2	4	N.C. (Not Connected)
	5	Sensor 2: + TC
	6	Sensor 2: - TC
3	7	N.C. (Not Connected)
	8	Sensor 3: + TC
	9	Sensor 3: - TC
4	10	N.C. (Not Connected)
	11	Sensor 4: + TC
	12	Sensor 4: - TC

Channel	Terminal No.	Descriptions
1	1	Sensor 1: RTD A terminal signal
	2	Sensor 1: RTD B terminal signal
	3	Sensor 1: RTD B' terminal signal
2	4	Sensor 2: RTD A terminal signal
	5	Sensor 2: RTD B terminal signal
	6	Sensor 2: RTD B' terminal signal
3	7	Sensor 3: RTD A terminal signal
	8	Sensor 3: RTD B terminal signal
	9	Sensor 3: RTD B' terminal signal
4	10	Sensor 4: RTD A terminal signal
	11	Sensor 4: RTD B terminal signal
	12	Sensor 4: RTD B' terminal signal

4.5 Parameter

Parameter	Descriptions	Setting range	Factory defaults
INPUT_Type	Type of temperature sensor	See “4.6 Input type and range”	TC input module: K (CA)
			RTD input module: DPt 100 Ω
UNIT	Temperature unit	Celsius (°C)	°C

4.6 Input type and range

Input type		Rated input range (°C)	Data display (dec)
TC	K (CA)	-200.0 to 1350.0	-2000 to 13500
	J (IC)	-200.0 to 800.0	-2000 to 8000
	E (CR)		
	T (CC)	-200.0 to 400.0	-2000 to 4000
	B (PR)	0.0 to 1800.0	0 to 18000
	R (PR)	0.0 to 1750.0	0 to 17500
	S (PR)		
	N (NN)	-200.0 to 1300.0	-2000 to 13000
	C (TT)※1	0.0 to 2300.0	0 to 23000
	G (TT)※2		
	L (IC)	-200.0 to 900.0	-2000 to 9000
	U (CC)	-100.0 to 400.0	-1000 to 4000
	Platinel II	0.0 to 1390.0	0 to 13900
	RTD	Cu 50 Ω	-200.0 to 200.0
Cu 100 Ω			
DPt 50 Ω		-200.0 to 650.0	-2000 to 6500
DPt 100 Ω			
DPt 1000 Ω			
JPt 50 Ω		-200.0 to 650.0	-2000 to 6500
JPt 100 Ω			
JPt 1000 Ω		-200.0 to 500.0	-2000 to 5000
Nickel 100 Ω		-50.0 to 200.0	-500 to 2000
Nickel 120 Ω			
Nickel 1000 Ω			

※1. Same as existing W5(TT).

※2. Same as existing W(TT).

5 Power module [ARIO-P]





Caution

Be sure to see the “Instruction Manual of ARIO Series” to install the module.
Failure to follow this instruction may result in malfunction and product damage.




5.1 Specifications

(1) Slim Remote ABUS Power Module

Model		ARIO-P-B
Power supply	ABUS (external consumption)	24VDC \pm , max. 320mA (max. 7.5W, max. 160mA/CH, 2CH/COM)
	ABUS (internal supply)	5VDC \pm , max. 1,500mA (max. 7.5W)
Installation method		DIN rail mounting
Insulation resistance		100M Ω (at 500VDC \pm megger)
Dielectric strength		1000VAC \sim 50/60Hz for 1 min
Noise immunity		\pm 500VDC \pm the square wave noise (pulse width: 1 μ s) by the noise simulator
Vibration		0.7mm amplified at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 1 hour
Vibration (malfunction)		0.5mm amplified at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 min.
Shock		300m/s ² (approx. 30G) in each X, Y, Z direction for 3 times.
Shock (malfunction)		100m/s ² (approx. 10G) in each X, Y, Z direction for 3 times.
Ambient temperature		-10 to 55°C, storage: -25 to 70°C (a non-freezing or condensation environment)
Ambient humidity		35 to 85%RH, storage: 35 to 85%RH (a non-freezing or condensation environment)
Protection structure		IP20 (IEC standards)
Material		Terminal: polyamide6, Body: modified polyphenylene oxide, Base: polyamide6, poly oxy methylene
Approval		 
Weight (packaging)		Approx. 75g (approx. 108g)

- ※ The ARIO digital module is available to connect up to 8 units, and the ARIO analog and special module are available to connect up to 4 units.
- ※ For connecting the modules, consider power consumption of the sensors and drivers connected the ARIO power module.

(2) Slim Remote I/O Power Module

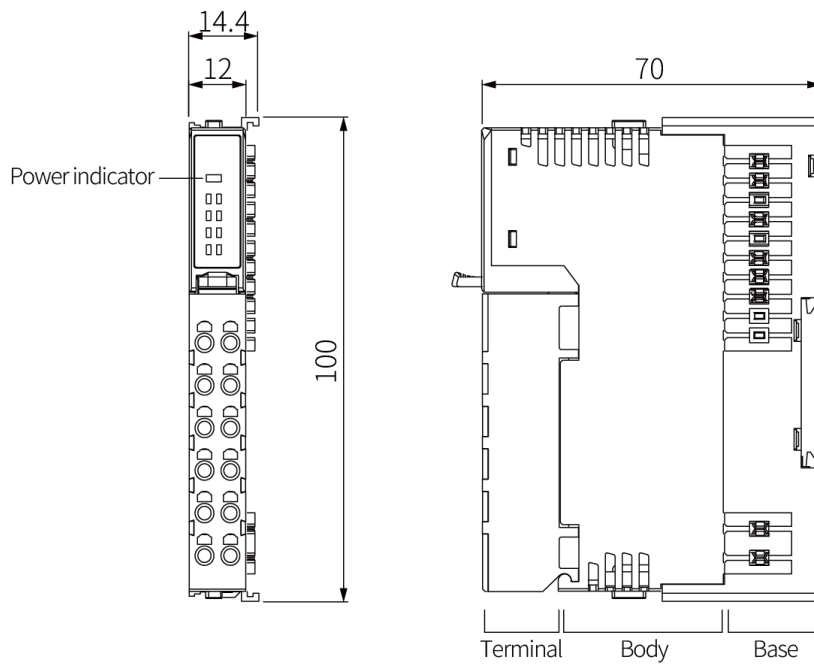
Model		ARIO-P-F1	ARIO-P-F2	ARIO-P-T1	ARIO-P-T2
Input	Voltage	24VDC \pm 10% (max. 48W)		—	
	Max. current	Max. 2,000mA/CH, 2CH/COM		—	
Output	Voltage	24VDC \pm 10% (max. 48W)		24VDC \pm 10% (max. 48W)	
	Max. current	Max. 2,000mA/CH, 6CH/COM		Max. 2,000mA/CH, 8CH/COM	
No. of I/O supply power \times 1	24V	6	2	8	4
	0V	2	6	4	8
Installation method		DIN rail mounting			
Insulation resistance		100M Ω (at 500VDC \equiv megger)			
Dielectric strength		1000VAC \sim 50/60Hz for 1 min			
Noise immunity		\pm 500VDC \equiv the square wave noise (pulse width: 1 μ s) by the noise simulator			
Vibration		0.7mm amplified at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 1 hour			
Vibration (malfunction)		0.5mm amplified at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 min.			
Shock		300m/s 2 (approx. 30G) in each X, Y, Z direction for 3 times			
Shock (malfunction)		100m/s 2 (approx. 10G) in each X, Y, Z direction for 3 times			
Ambient temperature		-10 to 55°C, storage: -25 to 70°C (a non-freezing or condensation environment)			
Ambient humidity		35 to 85%RH, storage: 35 to 85%RH (a non-freezing or condensation environment)			
Protection structure		IP20 (IEC standards)			
Material		Terminal: polyamide6, Body: modified polyphenylene oxide, Base: polyamide6, poly oxy methylene			
Approval		  US LISTED 			
Weight (packaging)		Approx. 75g (approx. 108g)			

※1. For more information on the number of I/O supply power, see “5.4 Wiring diagram.”

※ For connecting the modules, consider power consumption of the sensors and drivers connected the ARIO power module.

5.2 Dimensions

(Unit: mm)

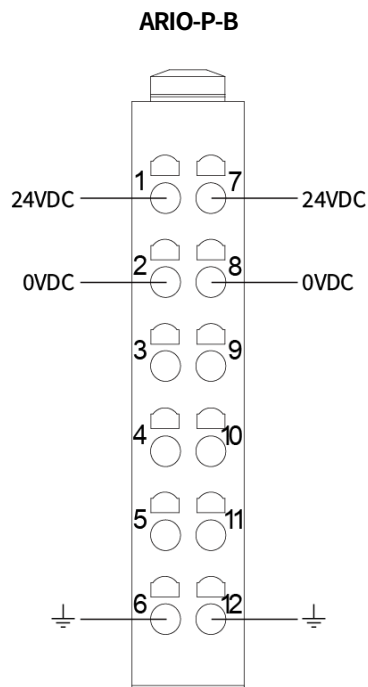


5.3 Power indicator

Green LED	Operation state
ON	Bus or I/O supply voltage is connected.
OFF	Bus or I/O supply voltage is not connected.

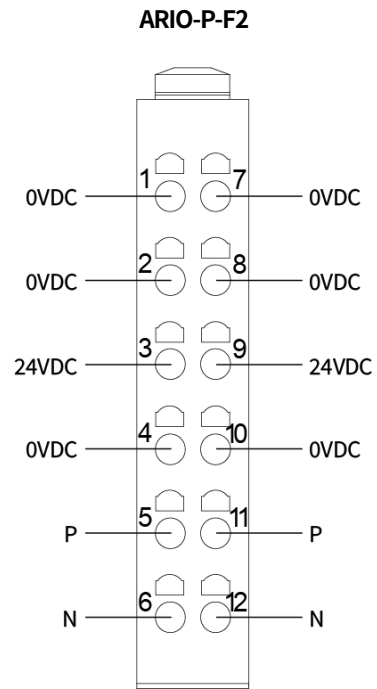
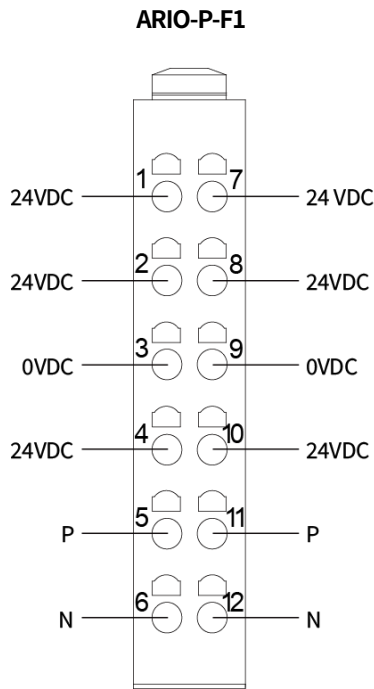
5.4 Wiring diagram

- ABUS power module



Terminal No.	Descriptions
1	System Power (24VDC)
2	System Power (0VDC)
3	N.C. (Not Connected)
4	N.C. (Not Connected)
5	N.C. (Not Connected)
6	Ground / Shield
7	System Power (24VDC)
8	System Power (0VDC)
9	N.C. (Not Connected)
10	N.C. (Not Connected)
11	N.C. (Not Connected)
12	Ground / Shield

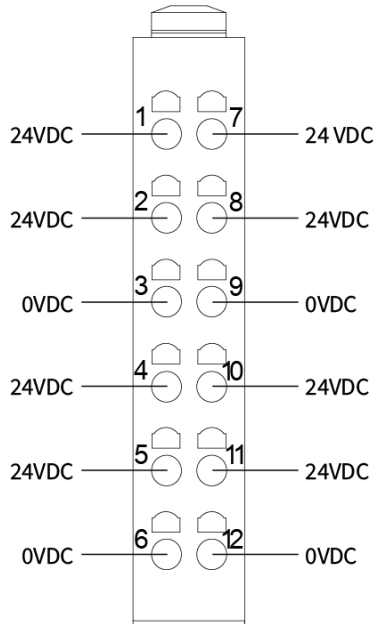
- I/O power module



Terminal No.	Descriptions
1	24VDC
2	24VDC
3	0VDC
4	24VDC
5	Field Power (P)
6	Field Power (N)
7	24VDC
8	24VDC
9	0VDC
10	24VDC
11	Field Power (P)
12	Field Power (N)

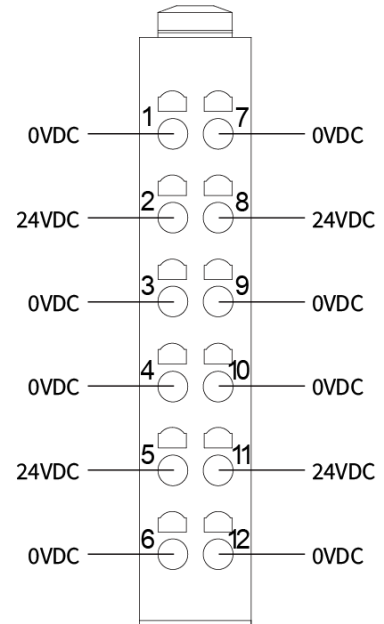
Terminal No.	Descriptions
1	0VDC
2	0VDC
3	24VDC
4	0VDC
5	Field Power (P)
6	Field Power (N)
7	0VDC
8	0VDC
9	24VDC
10	0VDC
11	Field Power (P)
12	Field Power (N)

ARIO-P-T1



Terminal No.	Descriptions
1	24VDC
2	24VDC
3	0VDC
4	24VDC
5	24VDC
6	0VDC
7	24VDC
8	24VDC
9	0VDC
10	24VDC
11	24VDC
12	0VDC

ARIO-P-T2



Terminal No.	Descriptions
1	0VDC
2	24VDC
3	0VDC
4	0VDC
5	24VDC
6	0VDC
7	0VDC
8	24VDC
9	0VDC
10	0VDC
11	24VDC
12	0VDC

Make Life Easy : **Autonics**