Autonics

Modbus Remote I/O

ARM Series
CATALOG

For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.
The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.

Features

- Modbus RTU standard protocol
- Saving work time for wiring with sensor connector (CNE series, sold separately)
- Compact size
  : Small size with W 26 × L 76 × H 54 mm to install at narrow space
  : Available DIN Rail mounting and panel mounting method
- Low-speed (16 bit / 30 CPS) counter function
- Real-time monitoring by various functions
  : Communication speed auto-recognition
  : Reading number of expansion units and specifications, Reading model name of basic and expansion units
  : Monitoring Single byte input/output, Multi byte input/output and status Flag
- Easy expansion
  : Available to connect up to 63 basic units per 1 master unit
  : Available to connect up to 7 expansion units per 1 basic units (controllable input/output for max. 64 points)
  : Combines the desired specifications of input/output by various input/output units
  : Organizes power and communication system by only communication cable lines
- High reliability
  : Built-in surge, short, overheat, reverse power polarity and ESD protection circuits

CE EHC

Ordering Information

This is only for reference, the actual product does not support all combinations.
For selecting the specified model, follow the Autonics website.

AR	❶	-	D	❷	08	❸	-	4S

❶ **Network**
M: Basic unit - Modbus
X: Expansion unit - Modbus / DeviceNet compatible

❷ **I/O**
I: Input
O: Output

❸ **I/O specifications**
N: NPN open collector
P: PNP open collector

Product Components

Model	ARM-D□08□-4S	ARX-D□08□-4S
Product components	Product, instruction manual	
Network connector	× 1	-
Expansion connector	-	× 1
Terminating resistance	× 2	-

Specifications

Model		AR□-DI08□-4S	AR□-DO08□-4S
Power supply		Rated voltage: 24 VDC⎓, voltage range: 12-28 VDC⎓	
Power consumption		≤ 3 W	
I/O points		NPN or PNP input 8-point	NPN or PNP output 8-point
Control I/O	Voltage	10-28 VDC⎓ input	10-28 VDC⎓ output (voltage drop: ≤ 0.5 VDC⎓)
	Current	10 mA/point (sensor current: 150 mA/point)	0.3 A/point (leakage current: ≤ 0.5 mA)
	COMMON method	8-point, common	
Number of connected expansion unit		≤ 7 units	
I/O points		≤ 64-point	
Counter function [01]		16 bits low-speed counter (30 CPS)	-
Insulation method		I/O and internal circuit: photocoupler insulation, Modbus to internal bus and internal circuit: insulation, unit power: non-insulation	
Insulation resistance		≥ 200 MΩ (500 VDC⎓ megger)	
Noise immunity		±240 VDC⎓ the square wave noise (pulse width: 1 μs) by the noise simulator	
Dielectric strength		1,000 VAC∼ at 50/60 Hz for 1 min	
Vibration		1.5 mm amplitude at frequency 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours	
Shock		500 m/s² (≈ 50 G) in each X, Y, Z direction for 3 times	
Ambient temperature		-10 to 55 °C, storage: -25 to 75 °C (no freezing or condensation)	
Ambient humidity		35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)	
Protection rating		IP20 (IEC standard)	
Protection circuit		Surge, short-circuit, overheat and ESD protection, reverse power protection circuit	
		Overcurrent protection circuit (operation: ≥ 0.17 A)	Overcurrent protection circuit (operation: ≥ 0.7 A)
Indicator		Network status (NS) and unit status (MS) indicator (green, red LED), I/O status indicator (input: green LED, output: red LED)	
Material		Front and body case: PC	
Mounting method		DIN rail or panel mounting	
Approval		CE EHC	
Unit weight (packaged)	Basic unit	≈ 61.8 g (≈ 123.3 g)	≈ 61.8 g (≈ 123.3 g)
	Expansion unit	NPN type: ≈ 56 g (≈ 117.5 g) PNP type: ≈ 57 g (≈ 118.5 g)	NPN type: ≈ 58 g (≈ 119.5 g) PNP type: ≈ 59 g (≈ 120.5g)

01) CPS (counter per second): Specification of accepting external signals per second
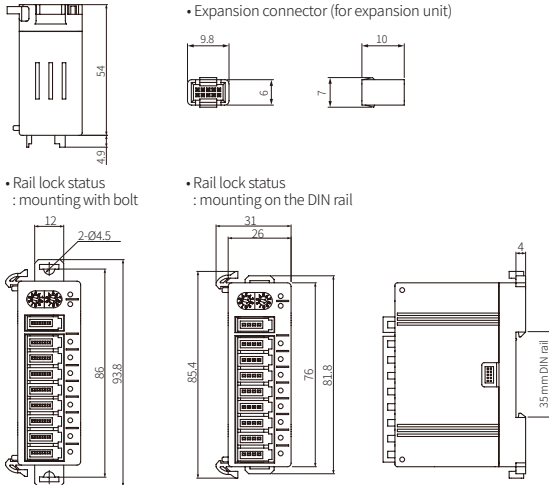The digital output type is available to use the counter when using with digital input type.

Communication Interface

■ RS485

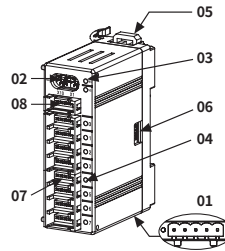| Comm. protocol	Modbus RTU
Application standard	Compliance with EIA RS485
Max. connection	32-unit
Medium access	POLL
Comm. method	2-wire half duplex
Comm. distance	≤ 800 m
Comm. speed	2,400 / 4,800 / 9,600 (default) / 19,200 / 38,400 / 57,600 / 115,200 bps
Data bit	8-bit (fixed)
Parity bit	None (default), Even, Odd
Stop bit	1-bit, 2-bit (default)

Dimensions

- Unit: mm, For the detailed drawings, follow the Autonics website.
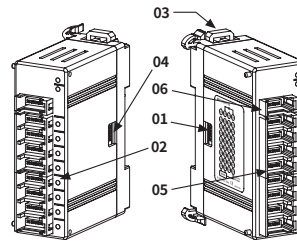- Same dimensions are applied to both basic and expansion unit.

- Expansion connector (for expansion unit)

- Rail lock status
  : mounting with bolt

- Rail lock status
  : mounting on the DIN rail

Unit Descriptions

■ Basic unit

01. **Network connector**
02. **Rotary switch**
    For setting NODE ADDRESS
03. **Status indicator**
    For unit status (MS) and network status (NS)
04. **I/O Status indicator**
    For I/O status
05. **Rail lock**
    For the DIN rail and panel mount
06. **Connector output part**
    For connecting the expansion unit
07. **Sensor connector**
    For I/O with the external device
08. **External power connector**
    For connecting the external power

■ Expansion unit

01. **Connector input part**
    For connecting the basic and expansion units
02. **I/O status indicator**
    For I/O status
03. **Rail lock**
    For the DIN rail and panel mount
04. **Connector output part**
    For connecting the expansion unit
05. **Sensor connector**
    For I/O with the external device
06. **External power connector**
    For connecting the external power

■ Network connector

No.	Function	Pinout
5	24 VDC⎓ (+)	5: 24 VDC⎓
4	GND	4: GND
3	N.C	3: N·C
2	B	2: B
1	A	1: A

■ I/O status indicator

Input	Green LED, ON
Output	Red LED, ON

■ Status indicator

		Red LED	Green LED	Description
Unit status (MS) indicator		ON	OFF	Error of the expansion units
		Flashing	OFF	MAC ID error
		OFF	ON	Normal operation
		OFF	OFF	Power is not supplied.
Network status (NS) indicator		ON	OFF	Not supported communication speed (at auto baud rate)
		Flashing	OFF	Packet error
		OFF	ON	Normal communication
		OFF	Flashing	Communication standby

Sold Separately

- Sensor connector: CNE Series