Analog Input Module
AI300

- 9 Programmable Analog Input Type (Isolated)
- 8 Digital Input/Output Channels
- Digital Input can be Programmable (Status, Counter, Frequency, Quadrature Counter, etc.)
- Support Protocol MODBUS RTU / ASCII Command (RS485)

Analog Input Module AI300 is a device that can receive 9 Analog Input signals, 8 Digital Input channels and control 8 Digital Output channels. Can be connected via port. USB or RS485 port, users can develop programs on PC, PLC or Touch Screen to read. Input values and control Digital Output using the MODBUS ASCII/RTU or Wisco protocol. ASCII by AI300 can also be powered from a USB port.

Analog Input can be programmed to be used with sensors such as Thermocouple, RTD, and Programmed to receive signals Voltage (0-125, 0-500 mVDC, 0-5, 0-10 VDC), Current (4-20 mA) etc.

Digital Input can receive both Logic and Counter signals. Logic will show the "ON" or "OFF" for Counter can be programmed to be different types of Counters, such as showing total values. (Totalized) of the number of Input Pulse, record the Totalized value of Flow, rotational speed (RPM), Frequency (Hz), measure the distance of movement of the workpiece (Rotary Encoder), record the Kwh. value of electricity usage or timekeeping (Timer), etc.

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Specifications

USB Interface

Compliance: USB 1.1/2.0/3.0
Connector: USB Type C (Female)

Serial Interface

Serial Standards: 2 Port RS485 (Isolated) 2 Pin Terminal Block
Loading: RS485 Max 32 Unit
Distance: RS485 Length 1 Km.
Protocol: MODBUS (ASCII, RTU) or Wisco ASCII
Support Software: Node-RED, Citect, Wonderware, Lab View, iFix, Genesis, etc.

Serial Parameter

Baud Rate: 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 115200
Data Bits: 7, 8
Stop Bits: 1, 2
Parity: None, Even, Odd

Analog Input

Number of Channel: 9 Channels
Input Type: Programmable Input
Thermocouple: R, S, K, E, J, T, B, N
RTD: PT100, PT1000, Cu10
Resistance: 0 to 100 Ω, 0 to 1 KΩ, 0 to 10 KΩ, 0 to 100 KΩ
Voltage: ± 0 to 125, ± 0 to 250, ± 0 to 500, ± 0 to 1000, ± 0 to 2000 mVDC
High Voltage: 0 to 5, 0 to 7.5, 0 to 10, 0 to 15, 0 to 30 VDC
Current: 4 to 20, ± 0 to 20, ± 0 to 40 mA
Input Impedance:
Voltage (mVDC): More Than 10 MΩ
High Voltage (VDC): Approx. 200 KΩ
Current (mA): Approx. 47 Ω
Ambient Temperature: 9 Point, Internal Sensor Accuracy ±1 °C
ADC Resolution: 16 Bits

Digital Input

Number of Channel: 8 Channels
Sensor Type: Wet Contact or Dry Contact (Opto Isolated)
Wet Contact (DI to COM):
ON: 10 to 30 VDC
OFF: <2.5 VDC
Dry Contact (DI to GND):
ON: DI Short to GND
OFF: Open
Status Mode: ON, OFF
Counter Mode: Counter, Rate (RPM, Hz, L/min), Timer, Counter A + Counter B, Counter A - Counter B, Direction, Preset/Reset, Run/Hold, Quadrature
Frequency Pulse: Low: 0.01 Hz, High: 1 KHz
Minimum Pulse Width: 1 msec.

Digital Output

Number of Channel: 8 Channels
Output Type: NPN Open Collector
Max. Current: 30 VDC @ 1 A

Power Requirements

Power Supply: 110 to 230 VAC (12 to 35 VDC Optional)
Port USB: 4.5 to 5.5 VDC

Power Consumption

Operating: 12 VDC @ 160 mA (1.92 W), 5 VDC @ 250 mA (1.25 W)

Environmental Limits

Operating Temperature: 0 to 55 °C
Operating Humidity: 5 to 95% RH
Storage Temperature: 0 to 70 °C

Physical Characteristics

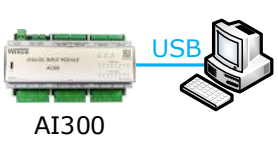
Dimension: W160 x H90 x D60 mm.
Mounting: DIN Rail

Warranty

Warranty Period: 5 Year

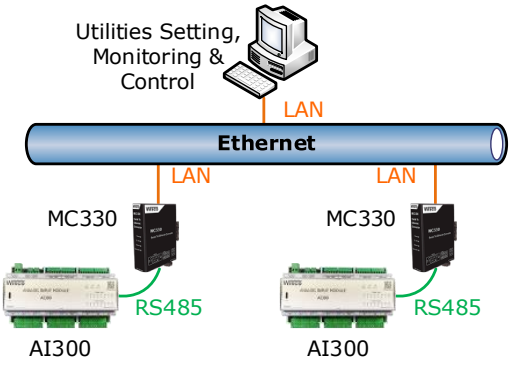
Ordering Information: Specify Power Supply
Example AI300/110-230VAC
Package Checklist
1. AI300 2. USB Cable

Connection Example

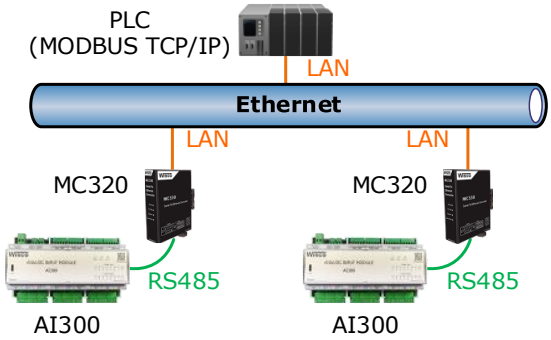


Connection via USB

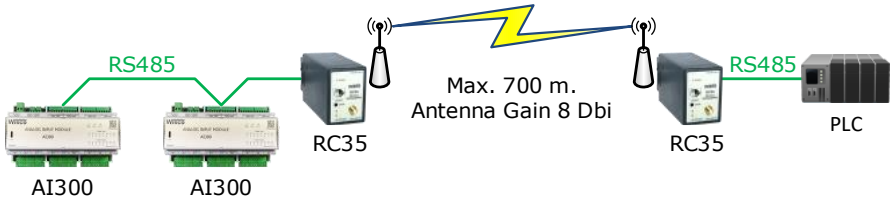
Connection via RS485



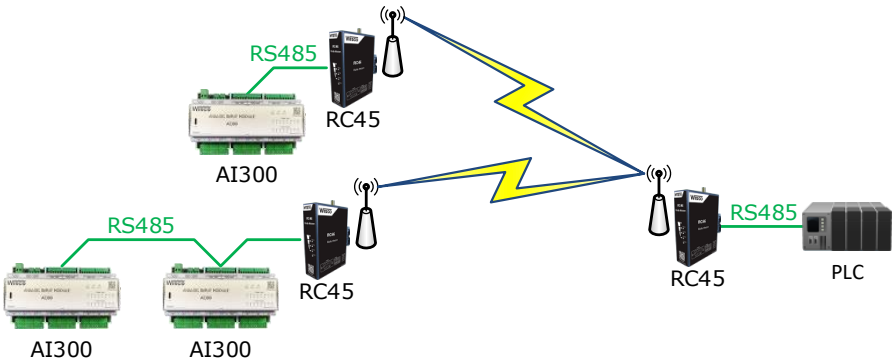
Connection via Ethernet (LAN)



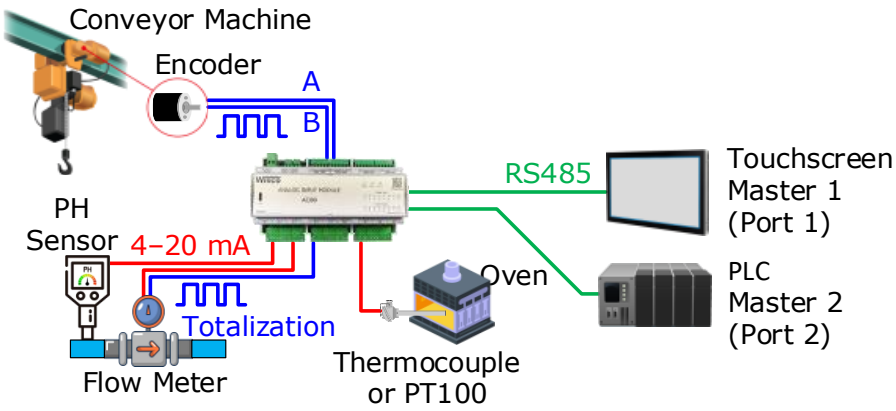
Connection via MODBUS TCP/IP



Connection via Wireless System (Wireless Point to Point: RC35)



Connection via Wireless System (Wireless Point to Multipoint: RC45)



Example of connection

Table 1. Shown Accuracy and Resolution Each Input Type

Input Type		Measuring Range	Decimal Point	Resolution	Accuracy (%FS) @ 25 C	Remark
Thermocouple (°C)	R	0 - 1700	0	1 °C	± 0.1% + 2 °C	
	S	0 - 1700	0	1 °C	± 0.1% + 2 °C	
	K	(-)200 - 1300	1	0.1 °C	± 0.1% + 1.5 °C	
	E	(-)200 - 1000	1	0.1 °C	± 0.1% + 1.5 °C	
	J	(-)200 - 1200	1	0.1 °C	± 0.1% + 1.5 °C	
	T	(-)200 - 400	1	0.1 °C	± 0.1% + 1.5 °C	
	B	600 - 1800	0	1 °C	± 0.1% + 2 °C	
	N	(-)200 - 1300	1	1 °C	± 0.1% + 3 °C	
R.T.D. (°C)	PT100	(-)200 - 800	1	0.1 °C	± 0.1% + 1.5 °C	Excitation Current: 0.25 mA
	PT1000	(-)200 - 800	1	0.1 °C	± 0.1% + 1.5 °C	Excitation Current: 0.25 mA
	CU10	(-)200 - 260	1	0.1 °C	± 0.1% + 1.5 °C	Excitation Current: 0.5 mA
Resistance (Ohm)	R100	0 - 100	2	0.01 Ω	± 0.05 + 0.1 Ω	Excitation Current: 1 mA
	1 K	0 - 1	4	0.0001 kΩ	± 0.05 + 0.001 kΩ	Excitation Current: 0.5 mA
	10 K	0 - 10	3	0.001 kΩ	± 0.05 + 0.01 kΩ	Excitation Current: 0.1 mA
	100 K	0 - 100	2	0.01 KΩ	± 0.05 + 0.1 kΩ	Excitation Current: 0.01 mA
Voltage (mVDC)	± 100	(-)110 - 110	3	0.005 mV	± 0.02% + 0.015 mV	Input Impedance: More than 10 MΩ
	± 250	(-)250 - 250	3	0.010 mV	± 0.02% + 0.025 mV	
	± 500	(-)500 - 500	3	0.015 mV	± 0.02% + 0.05 mV	
	± 1000	(-)1000 - 1000	2	0.030 mV	± 0.02% + 0.1 mV	
	± 2000	(-)2000 - 2000	1	0.060 mV	± 0.02% + 0.2 mV	
High Voltage (VDC)	5	0 - 5	4	0.0005 V	± 0.04% + 0.002 V	Input Impedance: Approx. 200 KΩ
	7.5	0 - 7.5	4	0.0005 V	± 0.04% + 0.002 V	
	10	0 - 10	3	0.001 V	± 0.04% + 0.005 V	
	15	0 - 15	3	0.001 V	± 0.04% + 0.005 V	
	30	0 - 30	2	0.01 V	± 0.04% + 0.01 V	
Current (mA)	4 - 20	4 - 20	3	0.001 mA	± 0.03% + 0.004 mA	Input Resistance: Approx. 47 Ω
	± 20	(-)20 - 20	3	0.001 mA	± 0.03% + 0.004 mA	
	± 40	(-)40 - 40	3	0.001 mA	± 0.03% + 0.004 mA	

Note: Accuracy = +/- (% of Reading + Error)