

# **CWT-MB307A**

## **Modbus I O Module**

### **manual**

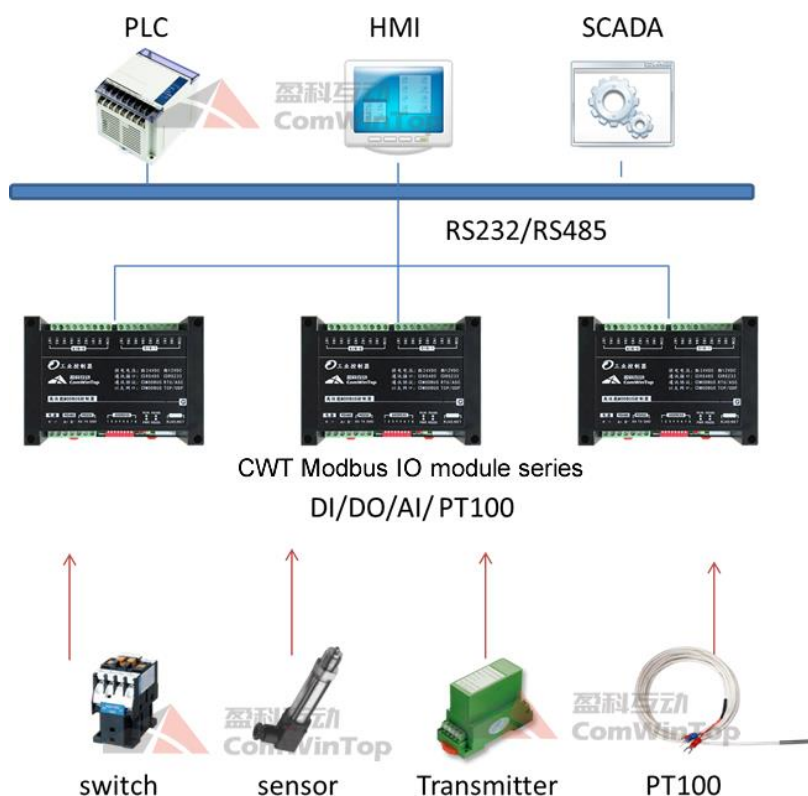
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# 1 OVERVIEW

Model	Options	IO Port	Communication Port	Protocol
CWT-MB307A	I-485-232	8AI (4-20mA) + 4AO	RS485+RS232	Modbus RTU
	I-V-485-232	8AI (4-20mA/0-10V) + 4AO	RS485+RS232	Modbus RTU
	I-V-E-485-232	8AI (4-20mA/0-10V) + 4AO	Ethernet+RS485+RS232	Modbus TCP, Modbus RTU

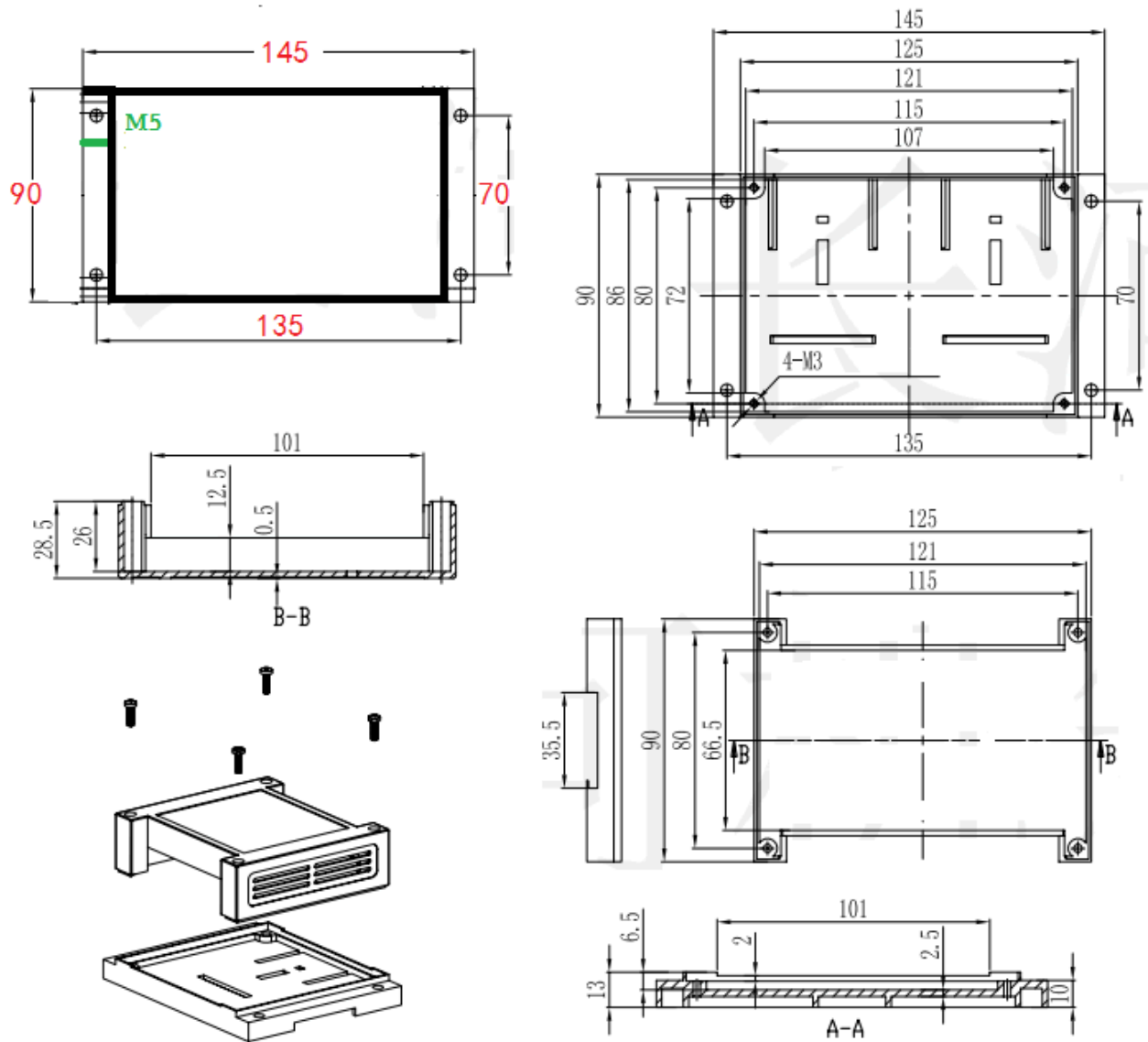


## 1.1 System Parameter

CPU	32-bit ATMEL ARM, 72MHZ
OS	GCOS, 10ms scheduling mechanism
Power	7-35VDC @2W, power supply reverse protection, isolation design
Installation	DIN rail mounting or screw fixing 
Working Environment	-40℃~85℃, 5%~95%RH(non-condensing)
Protection	IP20
Watchdog	1.5m guard

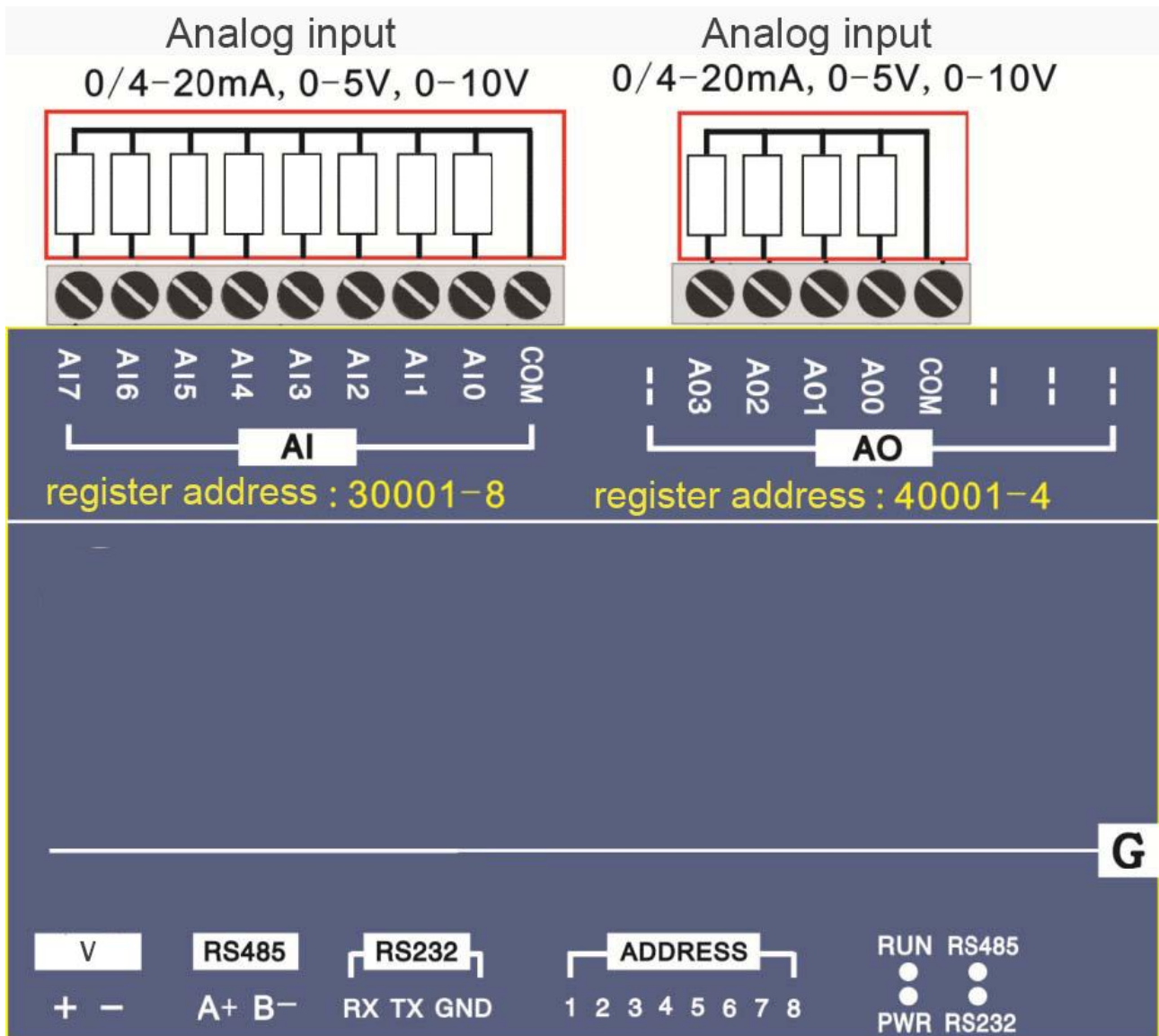
## 2 INSTALL

### 2.1 size



145 x 90 x 40 (mm)

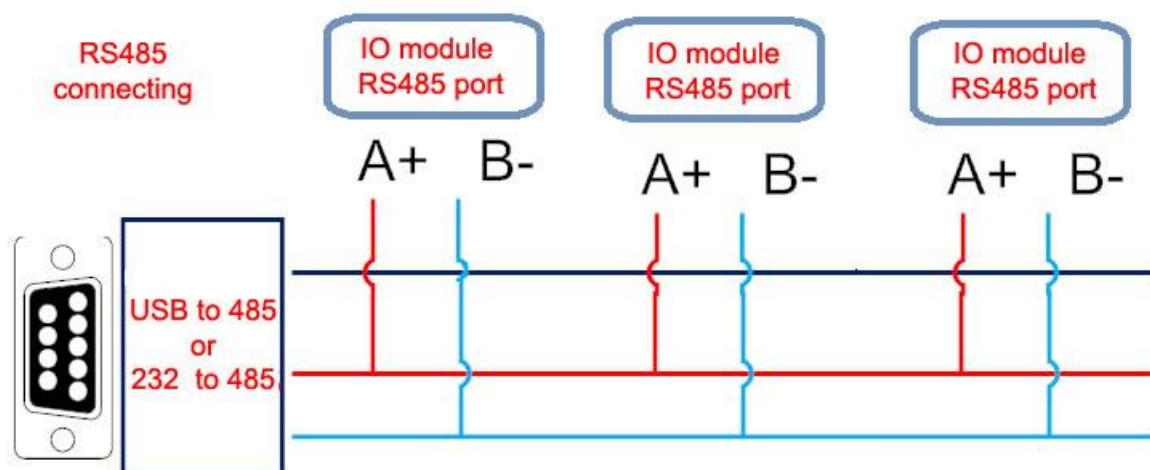
## 2.2 wiring



### 3 CONFIGURATION

#### 3.1 RS232/RS485

Port type	1RS485 & 1RS232
Protection	DCDC isolation design, 2500V lightning protection, ESD, overvoltage, overcurrent protection
Baud rate	1200~115200, <b>default 9600</b>
Parity	Even, Odd, None
start bit	1 bit
data bits	8 bit
Stopbits	1,2bits
Protocol	MODBUS RTU
default	9600.N.8.1, slave id is 1



### 3.2 Configuration software

The screenshot shows the 'Data Acquisition Module' configuration window. It features a title bar with standard window controls. The main area is divided into several functional sections:

- INFO Section:** Contains input fields for 'ID1', 'ID2', and 'USER'. Below these is a 'MODULE INFO' button.
- Central Display:** A large, empty rectangular box with a scroll bar, likely for displaying data or logs.
- RS232/RS485 Section:** Configures serial communication parameters:
  - COM ID: Dropdown menu (set to COM4)
  - Parity: Dropdown menu (set to NONE)
  - Baud Rate: Dropdown menu (set to 9600)
  - Word Length: Dropdown menu (set to 8)
  - Device Id: Input field (set to 1)
  - Stop Bits: Dropdown menu (set to 1)
- TCP/IP Section:** Configures network parameters:
  - IP Address: Input field (set to 192.168.1.75)
  - Service Port: Input field (set to 502)
- UART0-RS485 Section:** Configures UART0 parameters:
  - Address: Input field
  - Baud Rate: Dropdown menu
  - Parity: Dropdown menu
  - Length: Dropdown menu
  - Stop Bits: Dropdown menu
  - Dev Type: Dropdown menu
  - Protocol: Dropdown menu
  - TimeOut: Input field (set to 10ms)
- UART1-RS232 Section:** Configures UART1 parameters:
  - Address: Input field
  - Baud Rate: Dropdown menu
  - Parity: Dropdown menu
  - Length: Dropdown menu
  - Stop Bits: Dropdown menu
  - Dev Type: Dropdown menu
  - Protocol: Dropdown menu
  - TimeOut: Input field (set to 10ms)
- TCP IP Section:** Configures TCP/IP parameters:
  - Address: Input field (set to ==RS485)
  - IP Address: Input field (set to . . .)
  - Service Port: Input field (set to . . .)
  - Net\_Subr: Input field (set to . . .)
  - GateWay: Input field (set to . . .)
  - MAC: Input field
  - KeepLive: Input field (set to \*30s)
  - TimeOut: Input field (set to <=255)
- USER Section:** Contains a 'SEL' dropdown menu (set to RS232/RS485) and two buttons: 'READ' and 'WRITE'.

Set salve ID, default is 1

### 3.3 Ethernet

Port type	RJ45
Communicate protocol	MODBUS TCP、MODBUS UDP
Communicate rate	1000 times/s
bandwidth	10M/100Mbps
IP address	192.168.1.75
Port	502

4 DESCRIPTION OF IO CHANNEL

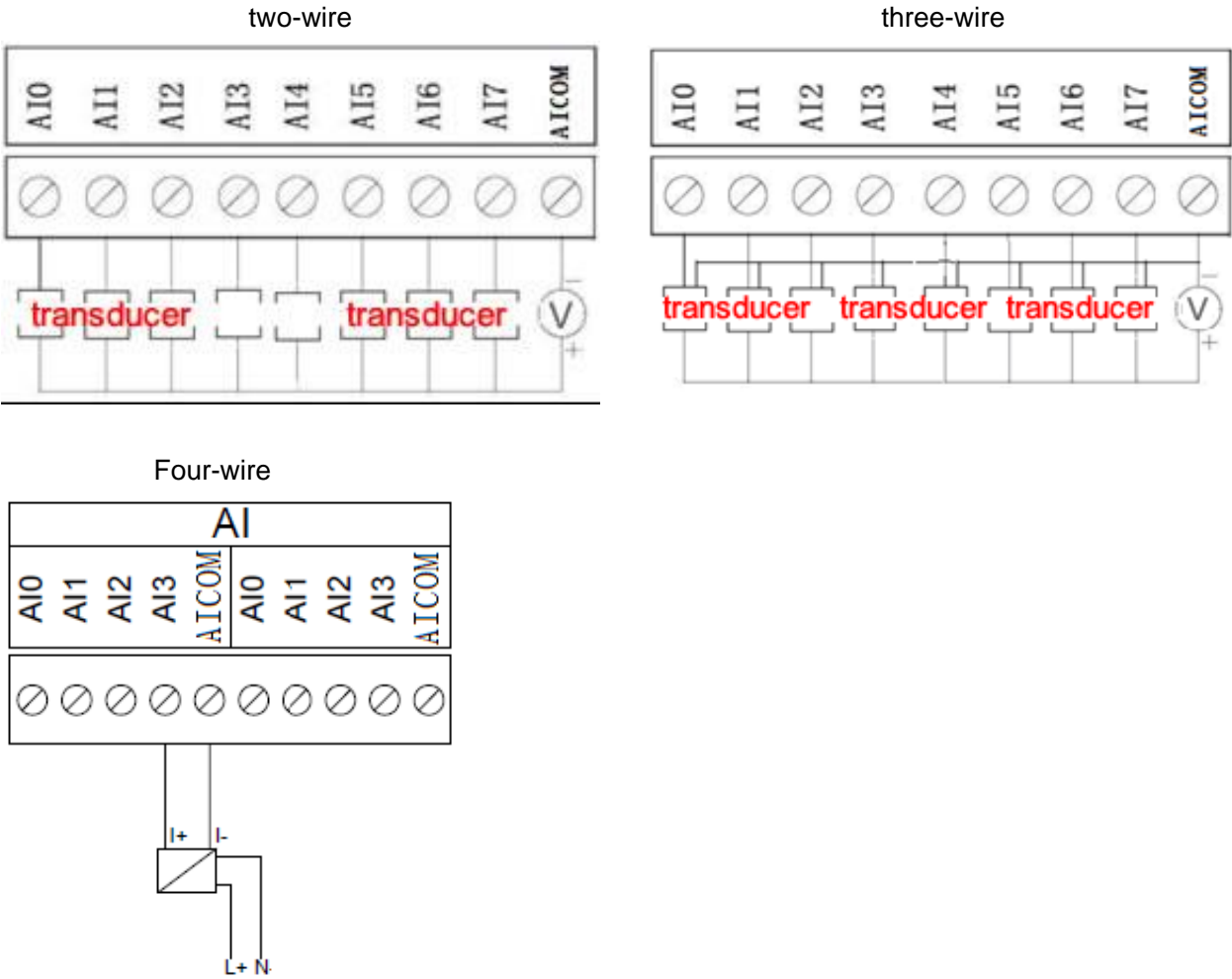
4.1 Analog input

Input type	4~20mA<default>, support: 0~20mA/0~5/1~5/0~10V (need open housing to jumper)
Precision	0.1%, 16 bit
Refresh rate	0.01m

Modbus Register map

channel	Register address	Function code	Format	Scaling	
AI0-AI7	30001-30008	04	UINT16	0.0004	4-20mA
				0.0004	0-20mA
				0.0001	0-5V
				0.0002	0-10V

AI wiring diagram





## 4.2 Analog output

Modbus address	40001~40004 Function code: -- Write multiple: 16 -- Write single: 06 -- read multiple: 03
Output type	Current: 4~20mA/0~20mA <b>&lt;default&gt;</b> <b>Option(need open housing to jumper):</b> Voltage: 0~5V/1~5V/0~10V
Output Precision	0.2%, 12 bit
Isolation	2500V, High speed Opt coupler isolation
Load resistor	current output: load $R \leq 750 \Omega$ voltage output: load $R \geq 2K \Omega$
Range	4~20mA corresponding 10000~50000 <unsigned 16-bit integer> 0~20mA corresponding 00000~50000 0~5V corresponding 00000~25000 0~10V corresponding 00000~50000
Calculation	4~20mA : register value * (50000 / 20) 0~20mA : register value * (50000 / 20) 0~5V : register value * (50000 / 10) 0~10V : register value * (50000 / 10) E.g. Output 6mA register value = 6mA * (50000 / 20) = 15000

### AO wiring diagram

