User Manual

RS485 Modbus Water Proof Temperature Humidity Sensor Probe

**Link**：RS485 Modbus Water Proof Temperature Humidity Sensor Probe|Building Automation| - AliExpress

Basic feature

- Power: DC5V~DC24V
- Temperature Measuring Range : -30℃~80℃
- Humidity Measuring Range: 0～100%RH
- Measuring Precision：
- Temperature：±0.5℃ (resolution: 0.1℃) / Humidity：±5%rh (resolution: 0.1 rh)
- Output: RS485 (Protocol MODBUS RTU)
- Consumption ＜0.1W
- RS485 Communication distance: up to 800m
- Cable length: 1m

Model: CWT-TH02S
-30~80℃ / 0~100%RH
RS485 output (Modbus)
waterproof and dustproof

Model: CWT-TH02S

Measuring Range	-30℃~80℃
	0～100%RH
Measuring Precision	±0.5℃ (25℃)
	±5%rh (60% 25℃)
Protection	IP44
Probe size	70*18mm

With dustproof and waterproof capacity, can be used in greenhouses and other high-humidity sand-dust environment, such as tea and medicine warehouses etc.
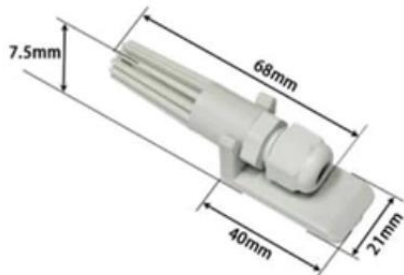
Wiring

Cable color	Description
Brown	Power +(DC5-30V)
black	Power -
Yellow （or green)	RS485 A+
Blue	RS485 B-

RS485 communication Default parameters: 4800,n,8,1

Default device address is 1

Modbus RTU protocol

Read status registers, read function code: 0x30					
Register address (Hex)	PLC Address (decimal)	meaning	Number of bytes	unit	remark
0000	40001	humidity	2	0.1%rh	Read
0001	40002	temperature	2	0.1℃	Read
Parameters registers, read function code: 0x30, write function code: 0x60					
07D0	42001	Slave ID	2	1-254	Read/Write
07D1	42002	baud rate	2	0: 2400 1: 4800 2: 9600 Default 4800	Read/Write
0050	40081	Temperature calibration value	2	0.1℃	Read/Write
0051	40082	Humidity calibration value	2	0.1%rh	Read/Write

E.g. master read temperature humidity:

Address	Function Code	Start Address (Hi)	Start Address (Lo)	Number of Points (Hi)	Number of Points (Lo)	Error Check (Lo)	Error Check (Hi)
0x01	0x03	0x00	0x00	0x00	0x04	0xC4	0X0B

Sensor responds:

Temperature calculates:
When temperature less than 0, value will be responded in complement
Temperature: FF9F H= -97 => temperature= -9.7℃
Humidity: 1E6 H= 486 => humidity= 48.6%

Set slave ID

E.g., set slave ID=2, Master sends

Address	Function Code	Start Address (Hi)	Start Address (Lo)	ID	Error Check (Lo)	Error Check (Hi)
0x01	0x03	0x07	0xD0	0x00 0x02	0x08	0x86

Sensor responds:

Address	Function Code	Start Address (Hi)	Start Address (Lo)	ID	Error Check (Lo)	Error Check (Hi)
0x01	0x03	0x07	0xD0	0x00 0x02	0x08	0x86

Set baud rate

E.g., set baud rate to 9600, Master sends

Address	Function Code	Start Address (Hi)	Start Address (Lo)	command	Error Check (Lo)	Error Check (Hi)
0x01	0x03	0x07	0xD1	0x00 0x02	0x59	0x46

Sensor responds:

Address	Function Code	Start Address (Hi)	Start Address (Lo)	command	Error Check (Lo)	Error Check (Hi)
0x01	0x03	0x07	0xD1	0x00 0x02	0x59	0x46

Enquiry slave ID

Master sends

Address	Function Code	Start Address (Hi)	Start Address (Lo)	Number of Points (Hi)	Number of Points (Lo)	Error Check (Lo)	Error Check (Hi)
0xFF	0x03	0x07	0xD0	0x00	0x01	0x91	0x59

Sensor responds:

Address	Function Code	Number of Points	address	Error Check (Lo)	Error Check (Hi)
0xFF	0x03	0x02	0x00 0x01	0x50	0x50