

CWT-DTH RS485 temperature humidity sensor manual

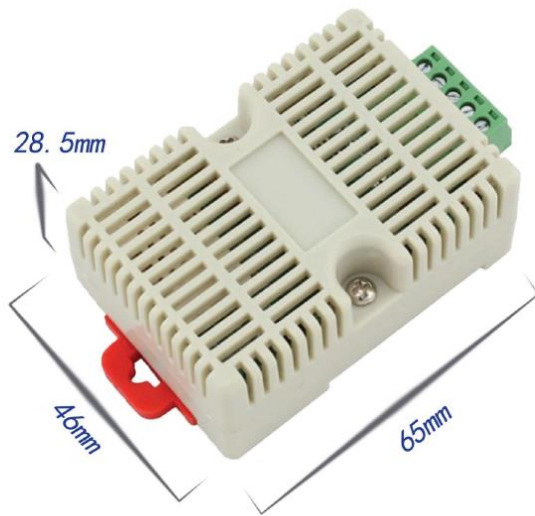


Use for detecting air temperature and humidity, not waterproof, widely used in communication rooms, intelligent buildings, workshops, warehouse, medicine warehouse, library, museum, laboratory, office, ventilation duct and others normal environment.

Specification

- Power: DC10V~DC30V
- Standard 35mm rail installation.
- Temperature Measuring Range : -40℃~80℃
- Humidity Measuring Range: 0~100%RH
- Protection: IP30
- Measuring Precision temperature: $\pm 0.5^{\circ}\text{C}$ (resolution: 0.1℃)
- Humidity: $\pm 5\%\text{rh}$ (resolution: 0.1 rh)
- Output: RS485 (Protocol MODBUS RTU)
- Consumption $< 0.1\text{W}$
- RS485 Communication distance: up to 800m

Size



Wiring

terminals	description
1	RS485 A+
2	RS485 B-
3	Power + (DC10-30V)
4	Power -
5	null

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	meaning	Number of bytes	unit	remark
0	humidity	2	0.1%rh	
1	temperature	2	0.1℃	
Parameters registers, read function code: 0x30 (0x40), write function code: 0x10				
2000	Slave ID	2		1-254
2001	baud rate	2		0: 2400 1: 4800 2: 9600 Default is 4800

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:

Address	Function Code	Number of byte	Humidity value	Temperature value	Error Check (Lo)	Error Check (Hi)
0x01	0x03	0x04	0x01 0xE6	0xFF 0x9F	0x1B	0xA0

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	0x06	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	0x06	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	0x06	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	0x06	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