

# CWT-TS-XX Series R485 Temperature Transmitter

## 1. Product overview

CWT-TS-XX series R485 temperature transmitter uses low power consumption ST microcontroller to collect temperature in real time, It can be easily networked with computer monitoring host or other industrial computer, output temperature value by RS485, It has the characteristics of accuracy, stability and long life.






## 2. Features

- Wide voltage supply and low power consumption.
- High sensitivity, good stability, full range automatic temperature compensation.
- Standard RS485 output, TVS and self - recovery fuse are added to enhance its stability, RS485 achieves long-distance communication.
- Support standard Modbus-RTU protocol and use widely used in the industrial field.

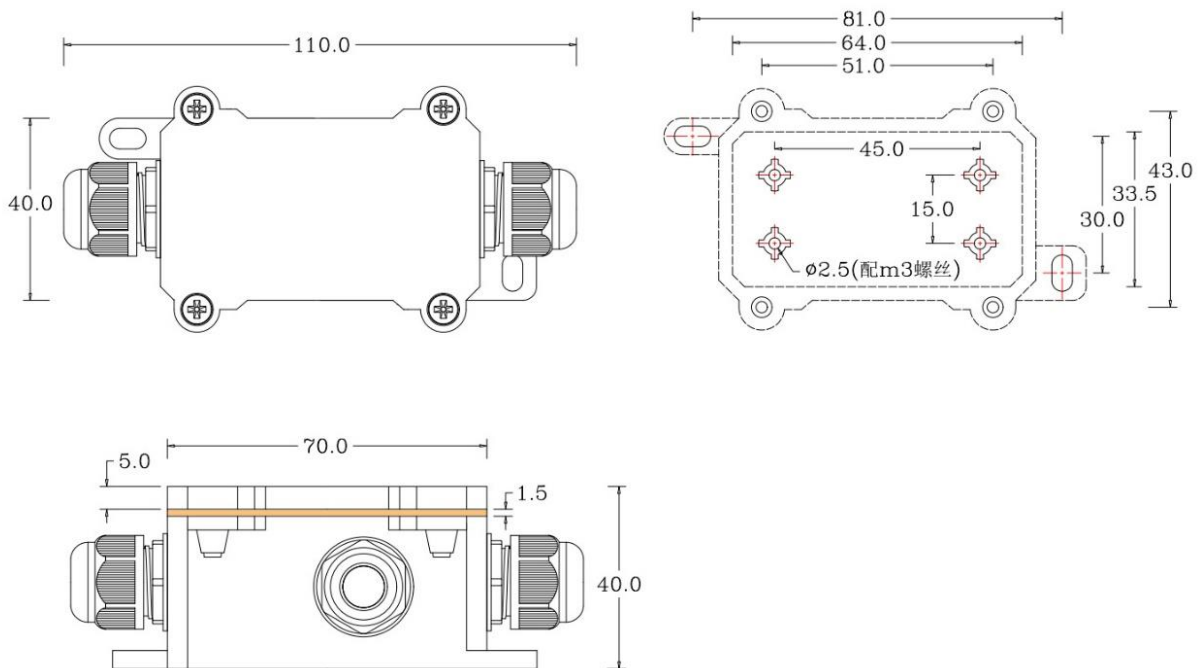
## 3. Technical parameters

- Power supply: DC5-30V
- Power consumption: < 0.1W
- IP68 protection, Waterproof, dustproof, can be put underground
- RS485 digital output/Modbus-RTU protocol
- Device address: 1~247
- Baud rate: 1200、2400、4800、9600、19200
- 8 data bits, 1 stop bit, none parity
- Default length of temperature probe cable: 3 meters

## 4. equipment selection

Type	Picture	Parameters	description
CWT-TS-PT		<b>Probe type:</b> PT100 <b>Measuring range:</b> -200 - 350℃ <b>Error range:</b> ±(0.3+0.5%  t )	Suitable for measuring low temperature (below zero)
CWT-TS-TC		<b>Probe type:</b> k-type thermocouple <b>Measuring range:</b> 0 - 1000℃ <b>Error range:</b> ±0.75%t	Suitable for measuring high temperature
CWT-TS-DS		<b>Probe type:</b> DS18B20 <b>Measuring range:</b> -55 - 125℃ <b>Error range:</b> ± 0.5℃	Suitable for measuring normal temperature, high precision and low error

## 5. dimensional drawing



## 6. wiring

Color	Description
Red	Power+
black	Power-
yellow	RS485+
green	RS485-

## 7. RS485 parameters

Default slave ID: 1

Default baud rate: 9600,

8 data bits, 1 stop bit, none parity

Modbus registers map:

Read status registers, read function code: 0x30				
Register address (DEC)	Meaning	Number of bytes	Unit	Description
2001	Temperature	2	0.01°C	Output value
Parameters registers, read function code: 0x30, write function code: 0x06				
3001	Slave ID	2	1	1-247 (default is 1)
3002	Baud rate	2	1	Integer multiples of 1200 Default is 8 (rate=9600)
3007	Temperature unit	2	1	0: Celsius (default) 1: Fahrenheit
3011	Calibration value	2	1	Output value=Collection value - Calibration value default calibration value=0

E.g., master read temperature:

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	0x07	0xD0	0x00	0x01	0x84	0X87

transmitter responds:

Address	Function Code	Number of byte	Temperature value	Error Check (Lo)	Error Check (Hi)
0x01	0x03	0x02	0x08 0x53	0xFF	0xB9

Temperature calculates:

Temperature: 0853 H=2131 => temperature= 21.31°C