# Temperature and humidity transmitter SHT20 sensor Modbus RS485

**Product Description:**

 Product adopts industrial-grade chip, high-precision SHT20 temperature and humidity sensors, ensure the products with good reliability, high precision and interchangeability.
Adopt RS485 hardware interface (with the lightning protection design), the protocol layer compatible with standard industrial Modbus Rtu protocol.
This product integrating MODBUS protocol with ordinary, users can choose communication protocols, common agreement with automatic upload function(Connect the RS485 serial interface mode tool by automatically output temperature and humidity).

**Product Highlights:**

**Industrial products, high progress SHT20 temperature and humidity sensor, the RS485 communication;**

**Standard MODBUS protocol with ordinary at an organic whole, the user can choose communication protocol;**

**Baud rate can decide for themselves;**

**General agreement with automatic upload function, upload speed can decide for themselves.**

**Product Parameters:**

Work voltage: DC4-30 v (highest do not exceed 33 v) .

Most powerful: 0.2 W .

Work environment: Temperature 20 ℃ - 60 ℃, Humidity 0-100.

Control precision: Temperature±0.3℃, Humidity ±3%RH.

Output interface: RS485 communication (standard MODBUS protocol and custom ordinary), see note agreement device.

Device address: 1-247 can be set, the default is 1.

Baud rate: 9600(the user can set), 8bits, one stop, no check;

Shape size:60\*30\*18(mm)

# MODBUS PROTOCAL

## Modbus Function Code:

0x03:Read keep register

0x04: Read input register

0x06: Write a single keep register

0x10: Write more keep registers



## Modbus Frame format:

**Master send format:**

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**The response format of slave:**



## MODBUS COMMAND

### Master read temperature command frame (0x04)：



The response data from slave:



Temperature value=0x131, converted to a decimal 305，the actual temperature value = 305 / 10 = 30.5℃

Note: the temperature is signed hexadecimal number, temperature value = 0xFF33, converted to a decimal - 205, the actual temperature = -20.5 ℃;

### Master read humidity command frame(0x04)



The response data from slave:



Humidity value = 0x222, converted to a decimal 546, actual humidity value = 546/10 = 54.6 %;

### Continuous read temperature and humidity command frame (0x04)：



The response data from slave:



### Read keep register(0x03)：

Read device address from the slave :



The response data from slave:



### Modify the contents of the registers (0x06)：

Modify the slave address register：



Modify the slave address: 0x08 = 8

The response data from slave(**And send the same**)：



### Continuously change keep registers (0x10)：



Slave address : 0x20 = 32

Baud rate : 0x2580 = 9600

The response data from slave:



# General Protocal

**The default baud rates 9600 (the user can set), 8 bits of data, one stop, no check**

**RS485**

|  |  |
| --- | --- |
| CMD | instructions |
| READ | Report triggered a temperature and humidity(27.4℃,67.7% 温度27.4℃湿度67.7%) |
| AUTO | Start the temperature and humidity automatically report function (Same as above) |
| STOP | Stop the temperature and humidity automatically report function |
| BR:XXXX | Set the baud rate9600~19200(BR:9600) |
| TC:XX.X | Set the temperature calibration (-10.0~10.0)(TC:02.0温度修正值为2.0℃) |
| HC:XX.X | Set the humidity ration (-10.0~10.0)(HC:-05.1 湿度修正值为 -5.1%) |
| HZ:XXX | Set the temperature and humidity reporting rate (0.5,1,2,5,10)(HZ:2 reporting rate 2Hz) |
| PARAM | Read the system current Settings |

PARAM CMD:

TC:0.0,HC:0.0,BR:9600,HZ:1 ->Temp calibration 0.0, Humi calibration0.0, Baud rate 9600,report rate 1Hz

SLAVE\_ADD:1 ->MODBU Slave address 1