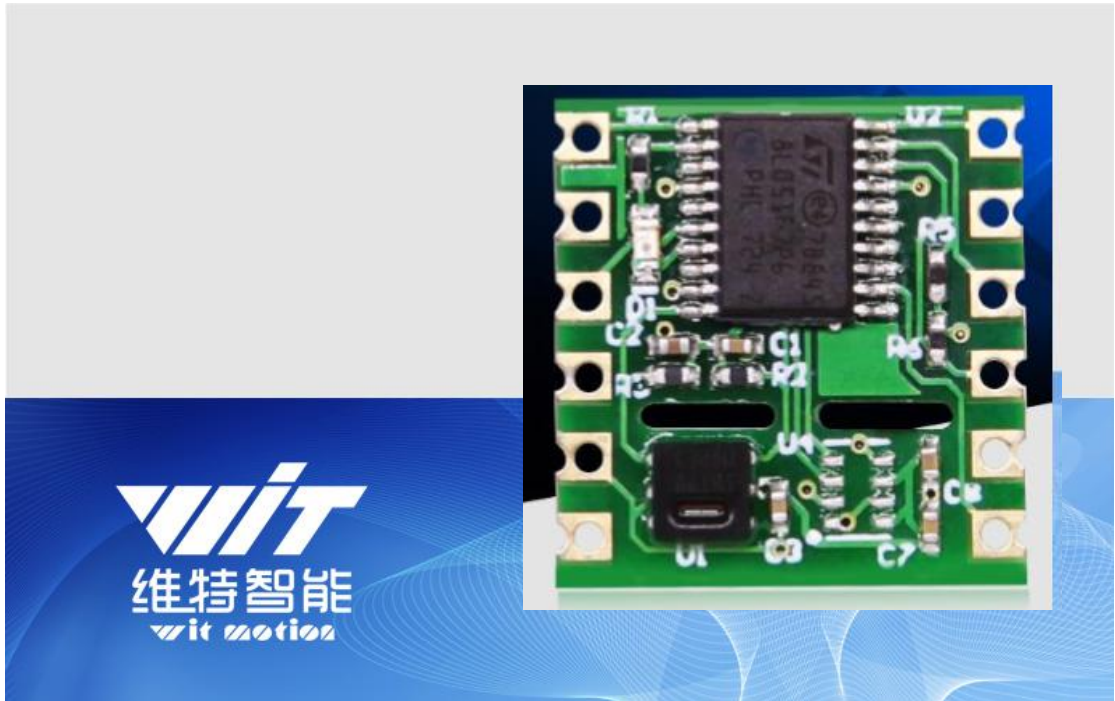


Temperature And Humidity *Sensor* WT-SHT20



SPECIFICATION

Model : WT-SHT20

Description : Temperature and humidity sensor

Production Standard

Enterprise quality system standard: ISO9001:2016

Tilt switch production standard : GB/T191SJ 20873-2016

Criterion of detection : GB/T191SJ 20873-2016

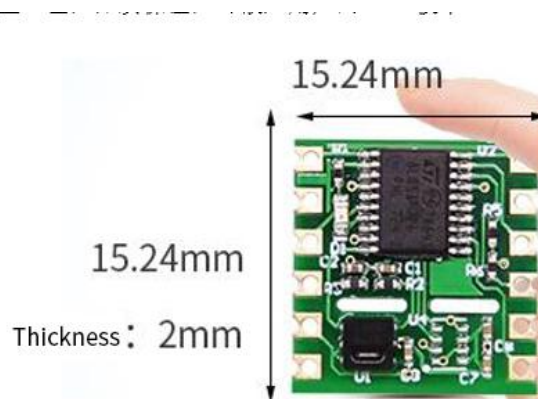
Revision date : 2019.07.25

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1 Description

- The SHT20 digital temperature and humidity sensor from Switzerland is based on the world-leading CMOSens ® digital sensing technology for high reliability and excellent long-term stability. Full-scale calibration, two-wire digital interface, can be directly connected to the microcontroller, greatly reducing development time, simplifying peripheral circuits and reducing costs. In addition, it is small in size, fast in response, low in energy consumption, immersible, strong in anti-interference ability, integrated in temperature and humidity, combined with dew point measurement, and cost-effective, making the product suitable for a variety of applications.
- Stamp hole gold plating PCB design, can be embedded in the user's PCB board.

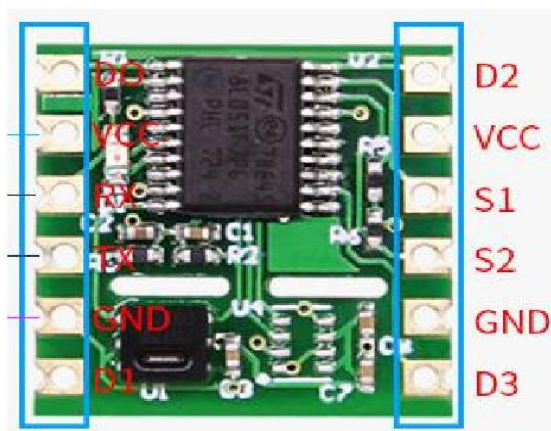


Dimension	15.24mmX15.24mm X 2mm
Weight	0.8g

2 Product parameters

- 1) Voltage: 2.1~3.3V
- 2) Current: 0.21mA (10Hz 3.3v)
0.08mA (0.1Hz 3.3v)
- 3) Size : 15.24mmx 15.24mm X 2mm
- 4) Pad pitch: up and down100mil (2.54mm), left and right 600mil(15.24mm).
- 5) Output content: temperature, humidity
- 6) Baud rate : 115200kps
- 7) Range: Temperature -40 ~ 125 ° C Humidity: 0 ~ 100 % RH
- 8) Measurement accuracy: Temperature ± 0.3 ° C Humidity: $\pm 3\%$ RH
- 9) Data interface: serial port (UART/TTL)
- 10) Data format: digital output (ASCII code)
- 11) Return rate: 10 5 2 1 0.5 0.2 0.1HZ Optional

3 Product display



4 Pin description

Name	Function
VCC	Module power supply, 2-3.3V output
RX	Serial data input, TTL
TX	Serial data output, TTL
GND	Ground wire
D0	Temperature upper limit alarm value output
D1	Temperature lower limit alarm value output
D2	Humidity upper limit alarm value output
D3	Humidity lower limit alarm value output

Note: S1, S2 ports do not make sense

5 Connection

5.1 Serial connection

Hardware connection :

VCC = 5 V , TX = RX , RX = TX , GND = GND

Module 6 in 1 Convert:

<https://www.aliexpress.com/item/Free-shipping-usb-converter-cp2102-usb-ttl-48>

[5-232-3-3v-and-5v-output-Six-multifunctional/32607767675.html](https://www.aliexpress.com/item/Free-shipping-usb-converter-cp2102-usb-ttl-48-5-232-3-3v-and-5v-output-Six-multifunctional/32607767675.html)



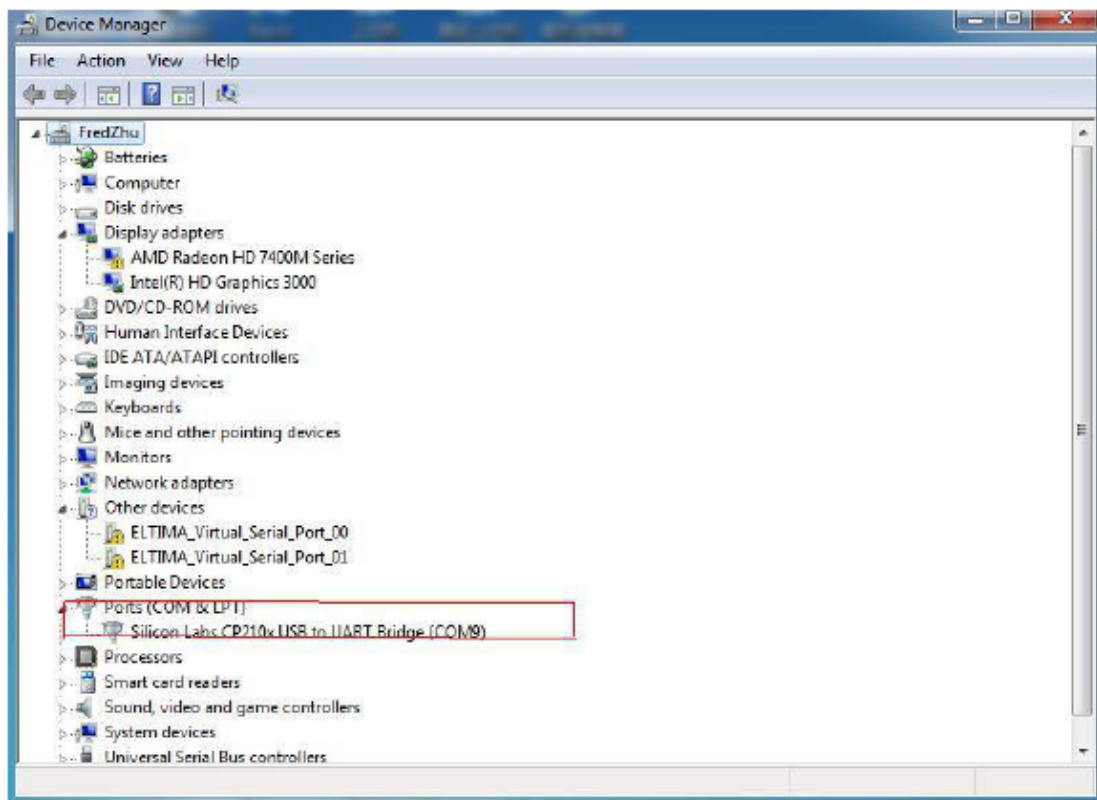
Driver installation:

Fisrt, install the driver CP2102 when we used the USB serial module ,after installed the driver. then get the corresponding Com number in the device manager. Driver as followed:

https://wiki.wit-motion.com/english/doku.php?id=communication_module

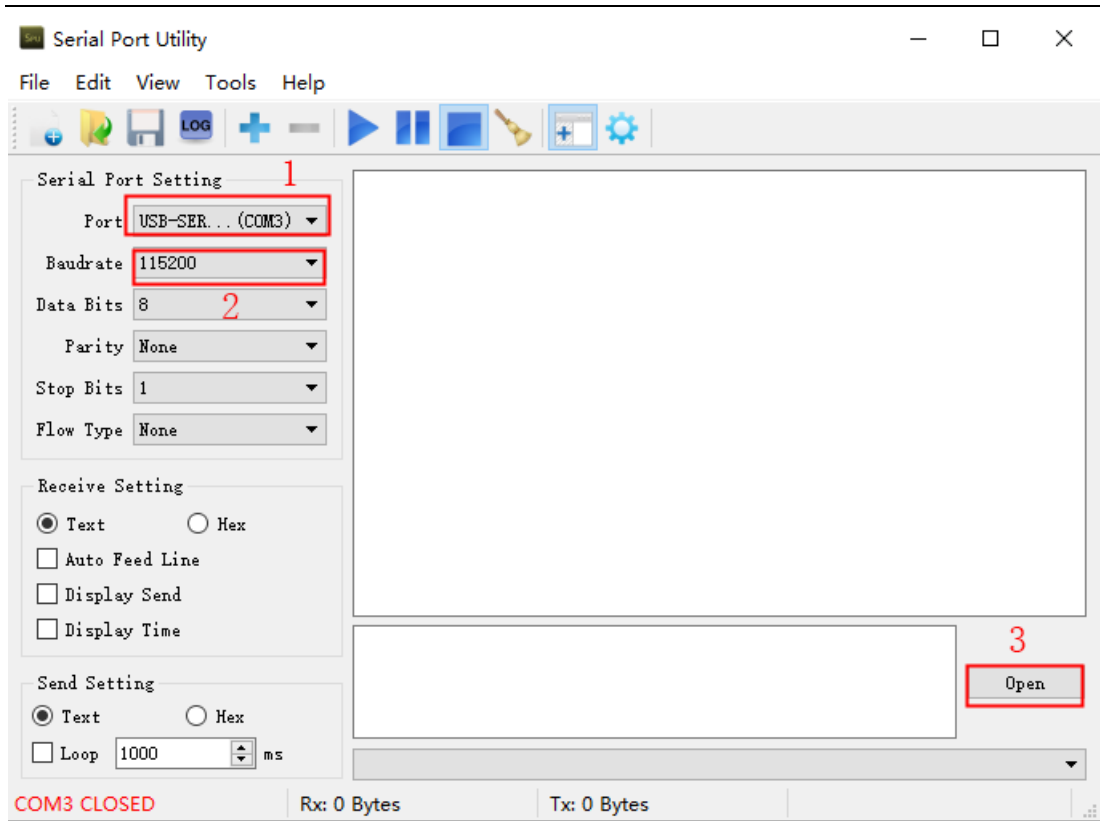
Resource Summary

User Manual and Development Documents : [communication_module document center](#)
Device driver : [serial_port_debugging_assistant](#) [CH340](#) [CP2102](#)

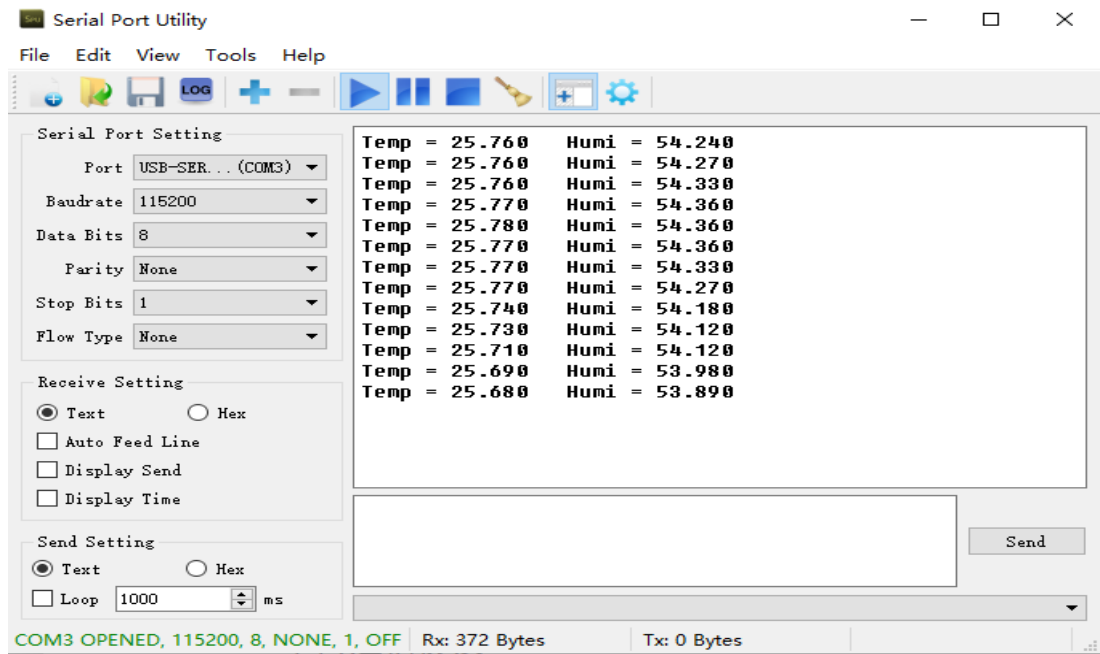


5.2 Connect with PC software

- 1) Open the software "SerialPorUtility.exe" and select the Com number which you have got in the device manager before.
- 2) Choose Baudrate 115200
- 3) Click open



Then the data will show



6 Communication protocol

6.1 Host computer to module

6.1.1 Set the return rate

0xFF	0xAA	0x09	RATE	0x00
------	------	------	------	------

RATE: return rate

0x00: 10Hz

0x01: 5Hz

0x02: 2Hz

0x03: 1Hz (default)

0x04: 0.5Hz

0x05: 0.2Hz

0x06: 0.1Hz

6.1.2 Set alarm value

Temperature alarm value upper limit setting:

0xFF	0xAA	0x02	TmaxL	TmaxH
------	------	------	-------	-------

$T_{max} = ((T_{maxH} \ll 8) | T_{maxL}) / 100 \text{ } ^\circ\text{C}$

For example Set the upper limit of temperature alarm value 40 $^\circ\text{C}$

0xFF 0xAA 0x02 0xA0 0x0F

Temperature alarm value lower limit setting:

0xFF	0xAA	0x01	TminL	TminH
------	------	------	-------	-------

$T_{min} = ((T_{minH} \ll 8) | T_{minL}) / 100 \text{ } ^\circ\text{C}$

For example Set the lower limit of temperature alarm value 20 $^\circ\text{C}$

0xFF 0xAA 0x01 0xD0 0x07

Humidity alarm value upper limit setting:

0xFF	0xAA	0x04	HmaxL	HmaxH
------	------	------	-------	-------

$H_{min} = ((H_{minH} \ll 8) | H_{minL}) / 100 \text{ \%RH}$

For example Set the upper limit of humidity alarm value 70%RH

0xFF 0xAA 0x04 0x58 0x1B

Humidity alarm value lower limit setting:

0xFF	0xAA	0x03	HminL	HminH
------	------	------	-------	-------

Example: Setting the lower limit of the humidity alarm value 40%RH
 0xFF 0xAA 0x030 xA0 0x0F

1. Setting the hold time (ms)

The hold time is the time that the output alarm signal is held after the module goes from the alarm state to the normal state (the default time is 100ms).

0xFF	0xAA	0x06	DELAYTL	DELAYTH
------	------	------	---------	---------

Example: Set the save time to 100ms Unit: ms
 0xFF 0xAA 0x06 0x64 0x00

2. Set the temperature and humidity alarm status

Normally open: The output of the non-alarm switch port is high. When the alarm value is exceeded, the port output is low.

0xFF	0xAA	0x05	0x01	0xFF
------	------	------	------	------

Normally closed: the output of the non-alarm switch port is low, and the port output is high when the alarm value is exceeded.

0xFF	0xAA	0x05	0x00	0x00
------	------	------	------	------

7 Application area

Agricultural machinery



Internet of things



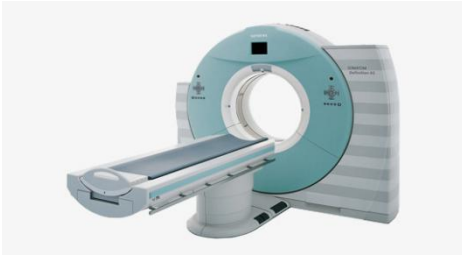
Solar energy



Power monitoring



Medical instruments



Construction machinery



Geological monitoring



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Temperature And Humidity *Sensor* WT-SHT20

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