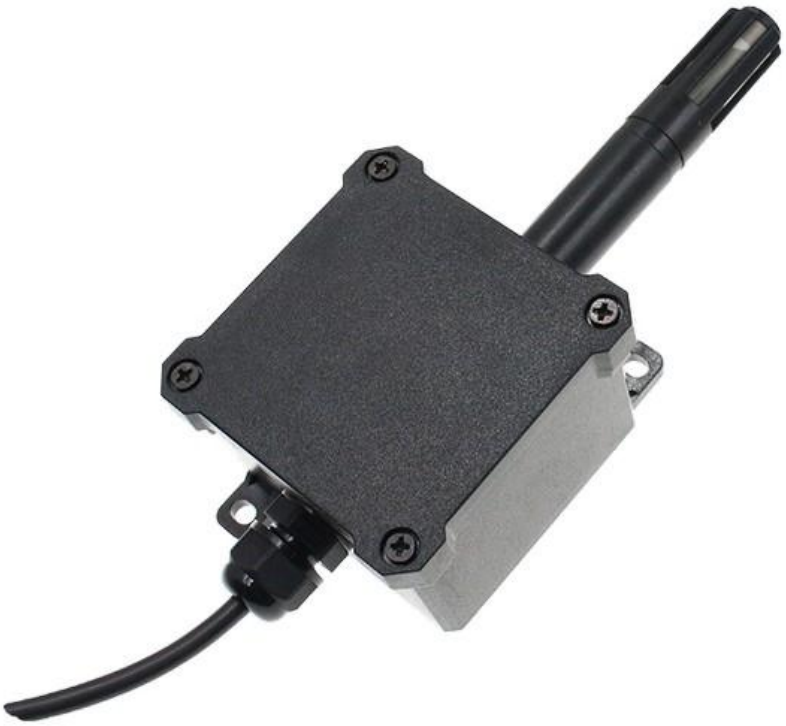
YM5113

Wall-mounted High-precision Temperature and Humidity Sensor

User Manual

File Version: V26.2.23

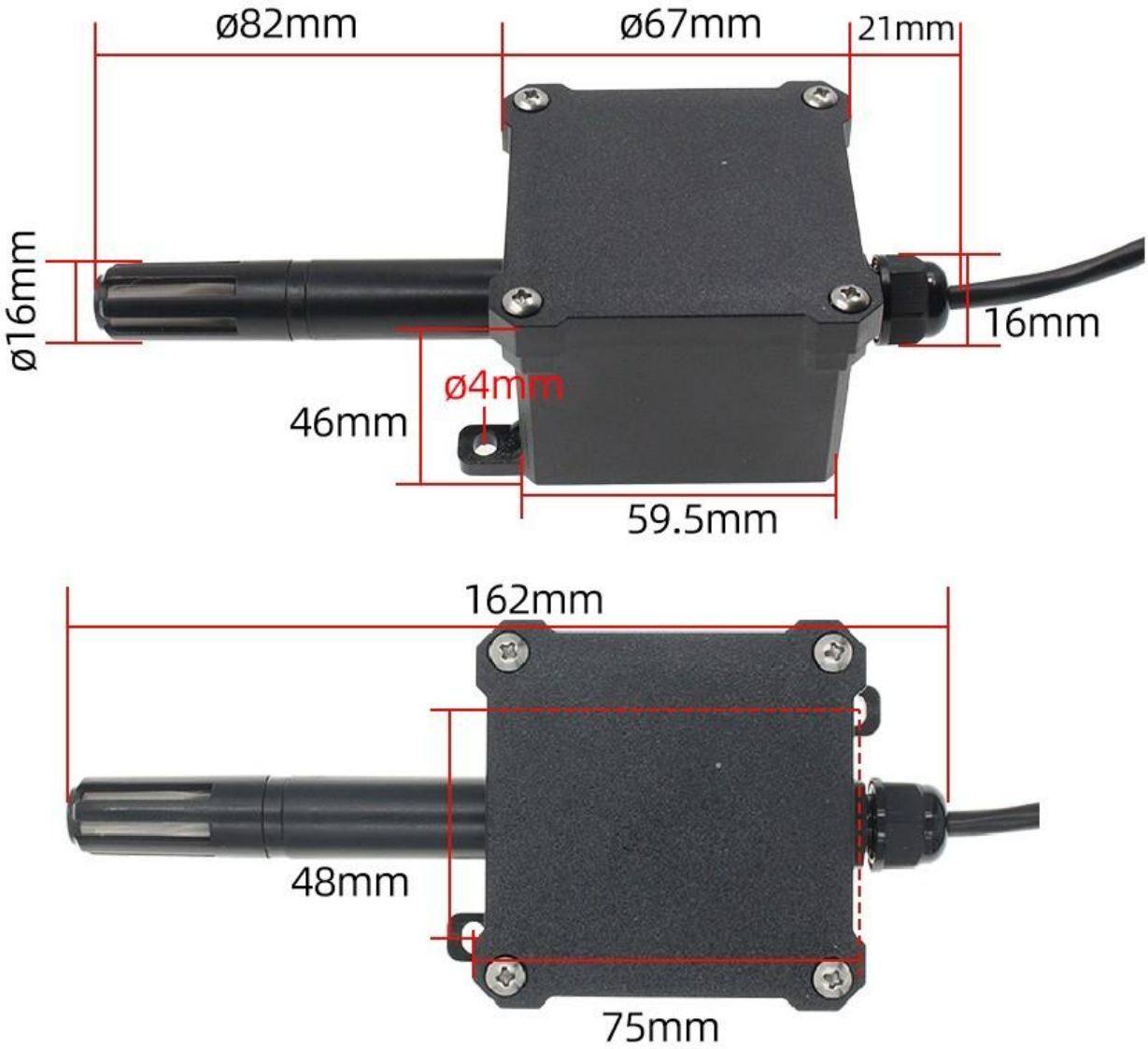


YM5113 using the standard DC4-20mA current output signal,easy access to PLC，DCS and other instruments or systems for monitoring temperature,humidity state quantities.The internal use of high-precision sensing core and related devices to ensure high reliability and excellent long-term stability,can be customized RS232,RS485,CAN,4-20mA,DC0~5V\10V,ZIGBEE,Lora,WIFI,GPRS and other output methods.

Technical Parameters

Technical parameter	Parameter value
Temperature measuring range	-30℃~80℃
Temperature measuring accuracy	±0.5℃ @25℃
Humidity measuring range	0~100%RH
Humidity accuracy	±3%RH @25℃
Communication Interface	DC4~20mA
Power	DC12~24V 1A
Running temperature	-30~80℃
Working humidity	5%RH~90%RH

Product Size



Note: Manual measurement, please refer to the actual product.

software to test

Read the data function code 03

All operation commands are hexadecimal data, and the default communication baud rate: 9600,8,N,1

Query frame (hexadecimal), send example: query 1# device 1 data,

The host computer sends the command: 01 03 00 00 00 02 c4 0b

CMD	ADD	MOD	SA	LEN	CAPTCHA
CMD	01	03	00 00	00 02	C4 0B

Response frame (hexadecimal): 01 03 02 02 18 B9 2E

CMD	ADD	MOD	LEN	DATA	CAPTCHA
CMD	01	03	02	00 79 00 7A	AA 09

In the response data in the above example, since the temperature and humidity are two measurement points, the data occupies a total of 4 bytes, for example, the data is00 79 00 7A, where the first two bytes are temperature data and the last two bytes are humidity data. temperature,The magnification of the humidity is 100, which is the true value of the read data divided by 100.

For the temperature 00 79 (hexadecimal), converted to 10 decimal data is 121, then the true value is:121/100 = 1.21, that is, the temperature is 1.21 degrees.

When the value is negative, the data is uploaded in the form of a complement. Positive or negative is usually determined by the method of judging whether the value is greater than 32768. When the received value is greater than 32768 is negative, and the previous value minus 65535 divided by 100 is the true value.

For example, the temperature received.If the degree data is 62999 (hexadecimal F617), then the true value = (62999-65535)/100=-25.36.

For humidity 00 7A (hexadecimal), converted to 122 in decimal data, the true value is:122/100 = 1.22, i.e. the temperature is 1.21%RH.

Use of Software

STATUS QUANTITY DATA REGISTER

ADDR.	REG	TITLE	R/W	NOTE
40001	00 00	T REGISTERS	R	0~65535
40002	00 00	H REGISTERS	R	0~65535

PARAMETER REGISTERS

ADDR.	REG	TITLE	R/W	NOTE
40101	00 65	TYPE ID	R	0~59999
40102	00 65	POINTS	R	1~20
40103	00 66	ADDRESS	R/W	1~249
40104	00 67	BAUD RATE	R/W	0~6
40105	00 68	MODE	R/W	1. QUERY 2. UPLOAD
40106	00 69	PROTOCOL	R/W	1 MODBUS-RTU
40107	00 6A	INTERVAL	R/W	1~36000
40108	00 6B	VALUE	R/W	SOME PRODUCTS ARE AVAILABLE

Wiring instructions

In the case of broken wires, wire the wires as shown in the figure. If the product itself has no leads, the core color is for reference.

How to use software?

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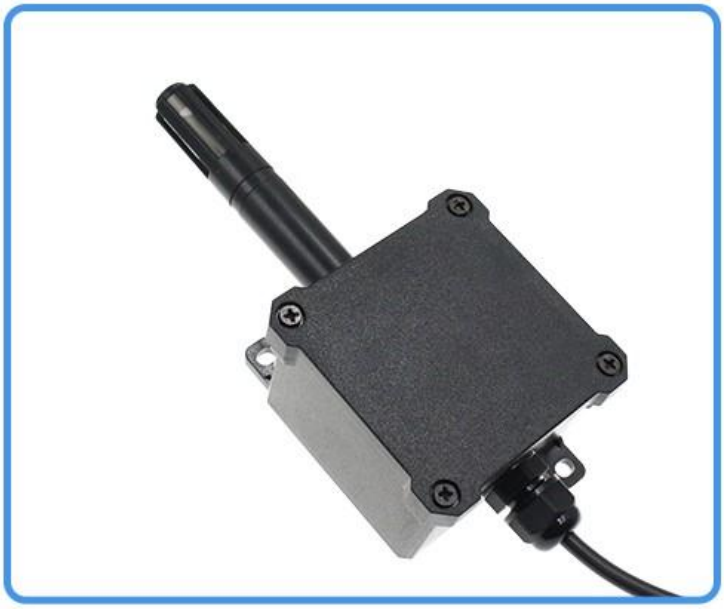
40106	00 69	PROTOCOL	R/W	1 MODBUS-RTU
40107	00 6A	INTERVAL	R/W	1~36000
40108	00 6B	VALUE	R/W	SOME PRODUCTS ARE AVAILABLE

How to use?

Temperature and humidity sensors can be widely used in granary warehouses, heat source heat pumps, computer room workshops, libraries, museums, greenhouses, archives and other indoor measurement fields

Product List



Certificate

The number of T and H sensors in the response data of the above example is 1
(The actual delivery is subject to the user's selection)

1. temperature and current computing relationship

For example, the range is -30~80℃, the analog output is 4~20mA current signal, temperature and current The calculation relationship is as shown in the formula: C = (A2-A1) * (X-B1) / (B2-B1) + A1, where A2 is temperature range upper limit, A1 is the lower limit of the range, B2 is current output range upper limit, B1 is the lower limit, X is the currently read temperature value, and C is the calculated current value. The list of commonly used values is as follows:

current(mA)	temperatureValue (℃)	Calculation Process
4	-30	(80-(-30))*(4-4)÷(20-4)+-30
5	-23.125	(80-(-30))*(5-4)÷(20-4)+-30
6	-16.25	(80-(-30))*(6-4)÷(20-4)+-30
7	-9.375	(80-(-30))*(7-4)÷(20-4)+-30
8	-2.5	(80-(-30))*(8-4)÷(20-4)+-30
9	4.375	(80-(-30))*(9-4)÷(20-4)+-30
10	11.25	(80-(-30))*(10-4)÷(20-4)+-30
11	18.125	(80-(-30))*(11-4)÷(20-4)+-30
12	25	(80-(-30))*(12-4)÷(20-4)+-30
13	31.875	(80-(-30))*(13-4)÷(20-4)+-30
14	38.75	(80-(-30))*(14-4)÷(20-4)+-30
15	45.625	(80-(-30))*(15-4)÷(20-4)+-30

16	52.5	(80-(-30))*(16-4)÷(20-4)+-30
17	59.375	(80-(-30))*(17-4)÷(20-4)+-30
18	66.25	(80-(-30))*(18-4)÷(20-4)+-30
19	73.125	(80-(-30))*(19-4)÷(20-4)+-30
20	80	(80-(-30))*(20-4)÷(20-4)+-30

As shown in the above formula, when measuring 8mA, current current is 31.5℃。

2. humidity and current computing relationship

For example, the range is 0~100%RH, the analog output is 4~20mA current signal, humidity and current The calculation relationship is as shown in the formula: C = (A2-A1) * (X-B1) / (B2-B1) + A1, where A2 is humidity range upper limit, A1 is the lower limit of the range, B2 is current output range upper limit, B1 is the lower limit, X is the currently read humidity value, and C is the calculated current value. The list of commonly used values is as follows:

current(mA)	humidityValue (%RH)	Calculation Process
4	0.0	(100-0)*(4-4)÷(20-4)+0
5	6.3	(100-0)*(5-4)÷(20-4)+0
6	12.5	(100-0)*(6-4)÷(20-4)+0
7	18.8	(100-0)*(7-4)÷(20-4)+0
8	25.0	(100-0)*(8-4)÷(20-4)+0
9	31.3	(100-0)*(9-4)÷(20-4)+0
10	37.5	(100-0)*(10-4)÷(20-4)+0
11	43.8	(100-0)*(11-4)÷(20-4)+0
12	50.0	(100-0)*(12-4)÷(20-4)+0
13	56.3	(100-0)*(13-4)÷(20-4)+0
14	62.5	(100-0)*(14-4)÷(20-4)+0
15	68.8	(100-0)*(15-4)÷(20-4)+0
16	75.0	(100-0)*(16-4)÷(20-4)+0
17	81.3	(100-0)*(17-4)÷(20-4)+0
18	87.5	(100-0)*(18-4)÷(20-4)+0
19	93.8	(100-0)*(19-4)÷(20-4)+0
20	100.0	(100-0)*(20-4)÷(20-4)+0

As shown in the above formula, when measuring 8mA, current current is 29%RH。

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Contact Us

Company: Shanghai Sonbest Industrial Co., Ltd INTOIOT Brand Division
Address:Building 8,No.215 North east road,Baoshan District,Shanghai,China
Web: http://www.intoiot.cn

Web: http://www.intoiot.com
SKYPE: soobuu
Email: sale@sonbest.com
Tel: 86-021-51083595 / 66862055 / 66862075 / 66861077