SM7300B

Product Overview

SM7300B temperature sensor, combined with American special temperature sensor DS18B20 and RS485 bus technology, based on industrial MODBUS-RTU protocol, realizes a practical integrated sensor for on-line monitoring of low-cost temperature state. The sensor can be used for (1) temperature data monitoring of SMT industry (2) temperature data monitoring of electronic equipment plant (3) temperature monitoring of refrigeration storage (4) temperature monitoring of warehouse (5) GMP monitoring system of pharmaceutical factory (6) environmental temperature monitoring (7) temperature monitoring of telecommunication room (8) temperature monitoring of hotel (9) temperature monitoring of archives room (10) temperature monitoring of intelligent home (9) and other occasions where temperature needs to be monitored. In order to facilitate engineering networking and industrial application, the sensor adopts MODBUS-RTU communication protocol widely used in industry, supporting secondary development. According to our communication protocol, users can use any serial communication software to query and set up sensor data.
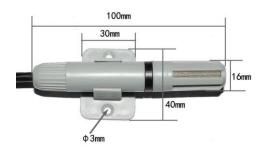
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Parameters

Specifications	Value
Measuring range	-30℃~80℃
Measurement accuracy	±0.5℃@25℃
Resolution	0.01
Input voltage	DC6~24V
Power	<1W
Preservation environment	-40 ~ 70°C , 5 ~ 95% RH (No condensation)
Working temperature	-40 ~ 85°C (Industrial grade)
Communication method	RS485
Dimensions	See **dimensions**

Package dimensions

Wiring method

The device comes with a 1 meter long 4-core cable.

Wire color	Pin	Explanation
Red	V+	Power +
Green	V-	Power -
Yellow	A+	RS485 A+
Blue	B-	RS485 B-

Communication protocol

Equipment operation or Reply All commands are hexadecimal data. The default communication baud rate: 9600,8, n, 1.

Read the data.

Command	Device Address	Function Code	Start Address	Data Length	Check Code
Format	01	03	00 00	00 01	C4 0B
Example	01 03 00 00 00 01 C4 0B				

Response format and examples.

Command	Device Address	Function Code	Data Length	Data	Check Code
Format	01	03	02	06 BE	3B 94
Example	01 03 02 06 BE 3B 94				

In the above example response data: Since the length of the measuring point data is two bytes, for example, the data is 06 BE, and the decimal number is 1726. Since the module resolution is 0.001, the value needs to be divided by 100, that is, the actual value. It is 17.26.

The user can also read the corresponding data according to the above protocol format according to the register address. The list of available registers for the product is as follows:

Address	Register address	Register description	Data type	value range
40001	00 01	Sensor data	uint	0-65535
40102	00 66	Device address	uint	0-65535
40103	00 67	Baud rate	uint	0-65535

Read the device address.

If you do not know the current device address and there is only one device on the bus, you can use this command to query the current device address.

Command	Device Address	Function Code	Start Address	Data Length	Check Code
Format	FA	03	00 00	00 01	D0 5E
Example	FA 03 00 00 00 01 D0 5E				

Response format and examples.

Command	Device Address	Function Code	Data Length	Data	Check Code
Format	01	03	02	07 12	3A 79
Example	01 03 02 07 12 3A 79				

Change device address.

Command	Device Address	Function Code	Start Address	Data Length	Check Code

Format	01	06	00 66	00 02	E8 14
Example	01 06 00 66 00 02 E8 14				

The above example changes device address 1 to 2.

Response format and examples.

Command	Device Address	Function Code	Data Length	Data	Check Code
Format	02	06	00 66	00 02	E8 27
Example	02 06 00 66 00 02 E8 27				

Read and modify baud rate

Read the baud rate. The default factory baud rate of the device is 9600. If you need to change it, you can change it according to the following table and the corresponding communication protocol.

Baud rate	Code
2400	1
4800	2
9600	3
19200	4
38400	5
115200	6

Read baud rate.

Read baud rate send command description.

Command	Device Address	Function Code	Start Address	Data Length	Check Code
Format	01	03	00 67	00 01	35 D5
Example	01 03 00 67 00 01 35 D5				

Response format and examples.

Command	Device Address	Function Code	Data Length	Data	Check Code
Format	01	03	02	00 03	F8 45
Example	01 03 02 00 03 F8 45				

Change baud rate.

Command	Device Address	Function Code	Start Address	Data Length	Check Code
Format	01	06	00 66	00 05	F8 16
Example	01 06 00 66 00 05 F8 16				

The above example changes the baud rate from 9600 to 38400, which changes the code from 3 to 5.

Response instructions. After a successful change, the new baud rate will take effect immediately, at which point the device will lose its response or the response will be incorrect.

Correction value

When the data has an error with the reference standard, we can reduce the display error by adjusting the "Temperature Correction

Value". The correction difference can be modified to be plus or minus 10, that is, the value range is 0-1000 or 64535-65535.

For example, when the display value is 1 degree smaller, we correct by increasing 1 degree. Since the product resolution is 0.01, in actual communication, the value 1 is represented by 100 in hexadecimal 0x64; if it needs to be reduced, it can be set to a negative value, such as -1 degree, corresponding to the sixteen system value. FF 9C, which is calculated as 100-65535=65435, and then converted to hexadecimal to 0x FF 9C.

Command	Device Address	Function Code	Start Address	Data Length	Check Code
Format	01	06	00 6B	00 64	F9 FD
Example	01 06 00 6B 00 64 F9 FD				

After a successful change, the device responds.

Command	Device Address	Function Code	Start Address	Data	Check Code
Format	01	06	00 6B	00 64	F9 FD
Example	01 06 00 6B 00 64 F9 FD				