SONBEST SM1800C CAN Bus Rail Type Temperature Sensor User Manual

**SM1800C CAN Bus Rail Type Temperature Sensor
User Manual**

SM1800C using the standard CAN Bus, easy access to PLC DCS, and other instruments or systems for monitoring temperature 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,

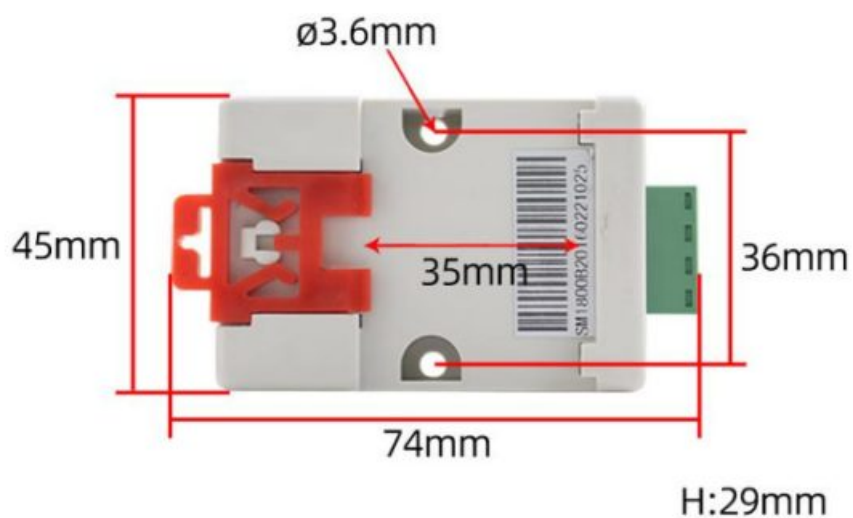DC0~5V\10V, ZIGBEE, Lora, WIFI, GPRS, and other output methods.

Contents

Technical Parameters

Technical parameter	Parameter value
Brand	SONBEST
Temperature measuring range	-50℃~120℃
Temperature measuring accuracy	±0.5℃ @25℃
Communication Interface	CAN
Default rate	50kbps
Power	DC6~24V 1A
Running temperature	-40~80°C
Working humidity	5%RH~90%RH

Product Size

How to wiring?

Rail fixing buckle

Ventilated grid holes

Connection port

DIN35 rail groove

Mounting holes

RS485 Wiring

RD	PWR+	
GN	PWR-	
YE	H+ CAN bus dominant	
BU	H- CAN bus stealth	

Note: When wiring, first connect the positive and negative poles of the power supply and then connect the signal line

Application solution

■ CAN Wiring

CAN Converter
USB-CAN

Data transmission

Wiring

Computer side

SM1800C/SM1810C

How to use?

Communication Protocol

The product uses the CAN2.0B standard frame format. The standard frame information is 11 bytes, including two parts of information and the first 3 bytes of the data part are the information part. The default node number is 1 when the device leaves the factory, which means The text identification code is ID.10-ID.3 in the CAN standard frame, and the default rate is 50k. If other rates are required, they can be modified according to the communication protocol.

The device can directly work with various CAN converters or USB acquisition modules. Users can also choose our industrial-grade USB-CAN converters (as shown in the figure above). The basic format and

composition of the standard frame is as follows As shown in the table.

	7	6	5	4	3	2	1	0
Byte 1	FF	FTR	X	X	DLC.3	DLC.2	DLC.1	DLC.0
Byte 2	ID.10	ID.9	ID.8	ID.7	ID.6	ID.5	ID.4	ID.3
Byte 3	ID.2	ID.1	ID.O	x	x	x	x	x
Byte 4	d1.7	d1.6	d1.5	d1.4	d1.3	d1.2	d1.1	d1.0
Byte 5	d2.7	d2.6	d2.5	d2.4	d2.3	d2.2	d2.1	d2.0
Byte 6	d3.7	d3.6	d3.5	d3.4	d3.3	d3.2	d3.1	d3.0
Byte 7	d4.7	d4.6	d4.5	d4.4	d4.3	d4.2	d4.1	d4.0
Byte 11	d8.7	d8.6	d8.5	d8.4	d8.3	d8.2	d8.1	d8.0

Byte 1 is the frame information. The 7th bit (FF) indicates the frame format, in the extended frame, FF=1; the 6th bit (RTR) indicates the type of the frame, RTR=0 indicates the data frame, RTR=1 means the remote frame; DLC means the actual data length in the data frame. Bytes 2~3 are valid for 11 bits of the message identification code. Bytes 4~11 are the actual data of the data frame, invalid for the remote frame. For example, when the hardware address is 1, as shown in the figure below, the frame ID is 00 00 00 01, and the data can be responded to by sending the correct command.

1. Query data Example: To query all 2 data of 1# device channel 1, the host computer sends the command: 01 03 00 00 00 01.

Frame type	CAN frame ID	mapping address	function code	starting address	data length
00 01	01	01	03	00 00	01

Response frame: 01 03 02 09 EC.

In the query response of the above example: 0x03 is the command number, 0x2 has 2 data, the first data is 09 EC converted into the decimal system: 2540, because the module resolution is 0.01, this The value needs to be divided by 100, that is, the actual value is 25.4 degrees. If it is greater than 32768, it is a negative number, then the current value is reduced to 65536 and then 100 is the true value.

2. Change Frame ID

You can use the master station to reset the node number by command. The node number ranges from 1 to 200. After resetting the node number, you must reset the system. Because the communication is in hexadecimal format, the data in the table Both are in hexadecimal format.

For example, if the host ID is 00 00 and the sensor address is 00 01, the current node 1 is changed to the 2nd. The communication message for changing the device ID is as follows: 01 06 0B 00 00 02.

Frame type	Frame ID	Set Address	Function id	fixed value	target frame ID
Command	00 01	01	06	0B 00	00 02

Return frame after correct setting: 01 06 01 02 61 88. The format is as shown in the table below.

Frame ID	Set Address	Function id	source frame ID	current frame ID	CRC16
00 00	01	06	01	02	61 88

The command will not respond correctly. The following is the command and reply message to change the Set Address to 2.

3. Change device rate

You can use the master station to reset the device rate through commands. The range of the rate number is 1~15. After resetting the node number, the rate will take effect immediately. Because the communication is in hexadecimal format, the rate in the table The numbers are in hexadecimal format.

Rate value	actual rate	rate value	actual rate
1	20kbps	2	25kbps
3	40kbps	4	50kbps
5	100kbps	6	125kbps
7	200kbps	8	250kbps
9	400kbps	A	500kbps
B	800kbps	C	1M
D	33.33kbps	E	66.66kbps

The rate not in the above range is not currently supported. If you have special requirements, you can customize them. For example, the device rate is 250k, and the number is 08 according to the above table. To change the rate to 40k, the number of 40k is 03, the operation communication message is as follows: 01 06 00 67 00 03 78 14, as shown in the figure below.

After the rate modification is performed, the rate will change immediately, and the device will not return any value. At this time, the CAN acquisition device also needs to switch the corresponding rate to communicate normally.

4. Return frame ID and rate after power-on

After the device is powered on again, the device will return the corresponding device address and rate information. For example, after the device is powered on, the reported message is as follows: 01 25 01 05 D1 8

Frame ID	device address	function code	current frame ID	current rate	CRC16
0	01	25	00 01	05	D1 80

In the response frame, 01 indicates that the current frame ID is 00 01, and the speed rate value 05 indicates that the current rate is 50 kbps, which can be obtained by looking up the table.

Disclaimer

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Documents / Resources

	SONBEST SM1800C CAN Bus Rail Type Temperature Sensor [pdf] User Manual SM1800C, CAN Bus Rail Type Temperature Sensor, SM1800C CAN Bus Rail Type Temperature Sensor

References

- ⊕ **Home-ä¸Šæµ·æœåšå®žä¸šæœ‰é™å…¬å¸**
- ⊕ **Home-SONBEST -SONBUS.COM| THE SENSOR COMPANY**
- ⊕ **Home-SONBEST -SONBUS.COM| THE SENSOR COMPANY**

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