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SONBUS SM1000C CAN Bus Intelligent DS18B20 Temperature Data Acquisition Module User Manual

Contents

SONBUS SM1000C CAN Bus Intelligent DS18B20 Temperature Data Acquisition Module

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	DC9~24V 1A
Running temperature	-40~80℃
Working humidity	5%RH~90%RH

Product Size

83mm

SM10 系列 工业型数据采集模块

● POWER ● RX ● TX

SANBEST®搜博 **MODBUS**

SM1000B 温度采集模块

RS485接口: 1.DC6-24V 2.GND 3.A+ 4.B-
注意: 请勿自行拆卸, 拆开视为放弃保修权利

QC PASS

66mm

3mm

H:27mm

How to wiring?

Power RX TX indicator

Sensor interface

● POWER ● RX ● TX

SENSOR

SM10 系列 工业型数据采集模块

● POWER ● RX ● TX

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SM1000B 温度采集模块

RS485接口: 1.DC6-24V 2.GND 3.A+ 4.B-
注意: 请勿自行拆卸, 拆开视为放弃保修权利

QC PASS

RS485

485 output interface

All aluminum material

Mounting holes

RS485 Wiring		Sensor wiring	
RD	PWR+	RD	VCC Sensor bus
GN	PWR-	BU	DQ Bus signal line
YE	RS485+	BK	GND PWR-
BU	RS485-		

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

Application Solution
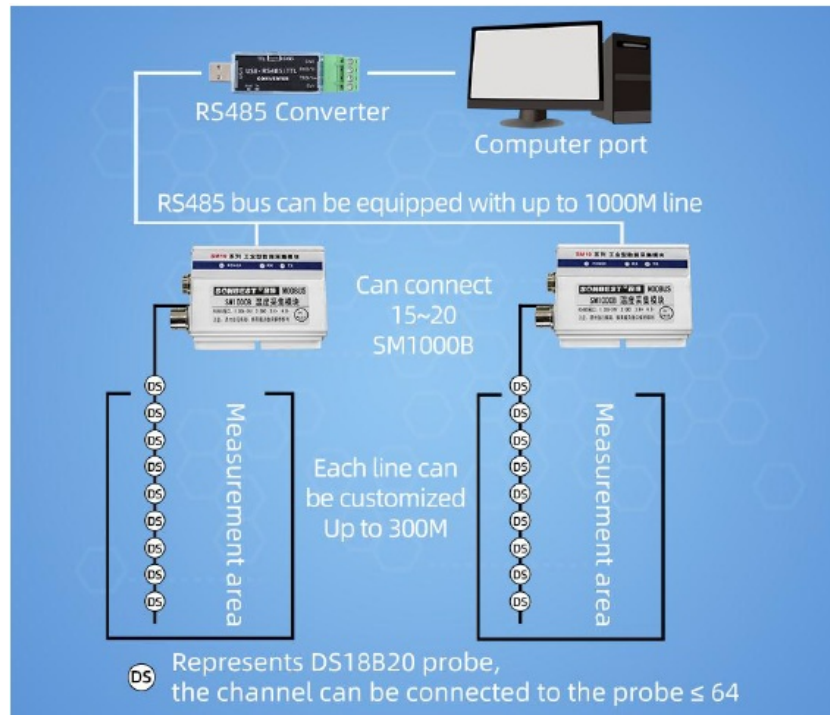
How to use?

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 is the information part. The default node number of the device is 1, the report 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, it can be modified according to the communication protocol. The device can work directly with various CAN converters or USB acquisition modules. Users can also choose our industrial grade USB-CAN converter (as shown above). The basic frame format and composition are as follows: The table shows.

Bit	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.0	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	

Byte 1 is 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, and the RTR=0 indicates the data frame. RTR=1 indicates the remote frame; DLC indicates the actual data length at the data frame. Bytes 2~3 are valid for the message identification code 11 bits. Bytes 4~11 are the actual data of the data frame, and t he remote frame is invalid. For example, if the hardware address is 1, as shown in the figure below, the frame ID is 00 00 00 01, and the data can be replied by sending the correct command.

Query Data
Example: Query 1# device channel 1 all 2 data, the host computer sends the command: 01 03 00 00 00 02.

Frame type	Frame ID	Set address	Function ID	Start Address	Data length
00 01	01	01	03	00 00	02

Response frame: 01 03 04 07 3A 0F 7D.

Frame type	Frame ID	Set address	Function ID	Data length	Data
Response	00 00	01	03	04	08 AD 0F 7D

In the above example query reply: 0x03 table is the command number, 0x4 table has 4 data, the first data is 08 AD folded into decimal is: 2221, because the module resolution is 0.01, the The value needs to be divided by 100, that is, the actual temperature value is 22.21 degrees. Each temperature value occupies two bytes, that is, an integer variable. The actual value needs to be divided by 100 based on this value. Similarly, 0F 7D is the second. The data has a value of 3965, which means the real value is 39.65% RH.

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

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

Change device rate

You can use the master station to reset the device rate by command. The rate number range is from 1 to 11. After resetting the node number, the rate takes effect immediately. Because the communication is in hexadecimal format, the rate in the table. The numbers are all in hexadecimal format.

Rate Number	Rate	Rate Number	Rate
1	10kbps	2	20kbps
3	25kbps	4	40kbps
5	50kbps	6	100kbps
7	125kbps	8	200kbps
9	250kbps	A	400kbps
B	500kbps	C	1M (unused)

The rate not in the above range is not supported at the moment. If there is special demand, it can be customized. For example, the device rate is 50k. According to the above table, the number is 05. To change the rate to 40k, the 40k number is 04, the communication message of the operation is as follows: 01 06 0A 05 00 04, as shown below.

After the execution rate is modified, 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.

Return frame ID and rate after power-on

After the device is powered on again, the device will return the corresponding Set Address and rate information. For example, after the device is powered on, the reported message is as follows: 01 25 01 05 D1 80.

frame ID	Set Address	Function id	current frame ID	current rate	CRC16
00 00	01	25	00 01	05	D1 80

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

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Documents / Resources

	SONBUS SM1000C CAN Bus Intelligent DS18B20 Temperature Data Acquisition Module [pdf] User Manual SM1000C CAN Bus Intelligent DS18B20 Temperature Data Acquisition Module, SM1000C, CAN Bus Intelligent DS18B20 Temperature Data Acquisition Module

References

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- 🌐 **Home-SONBEST -SONBUS.COM| THE SENSOR COMPANY**
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