SONBEST SM3613B RS485 4 Channel Temperature Transmitter User Manual

SM3613B
RS485 4 channel temperature transmitter
User Manual
File Version: V22.1.20

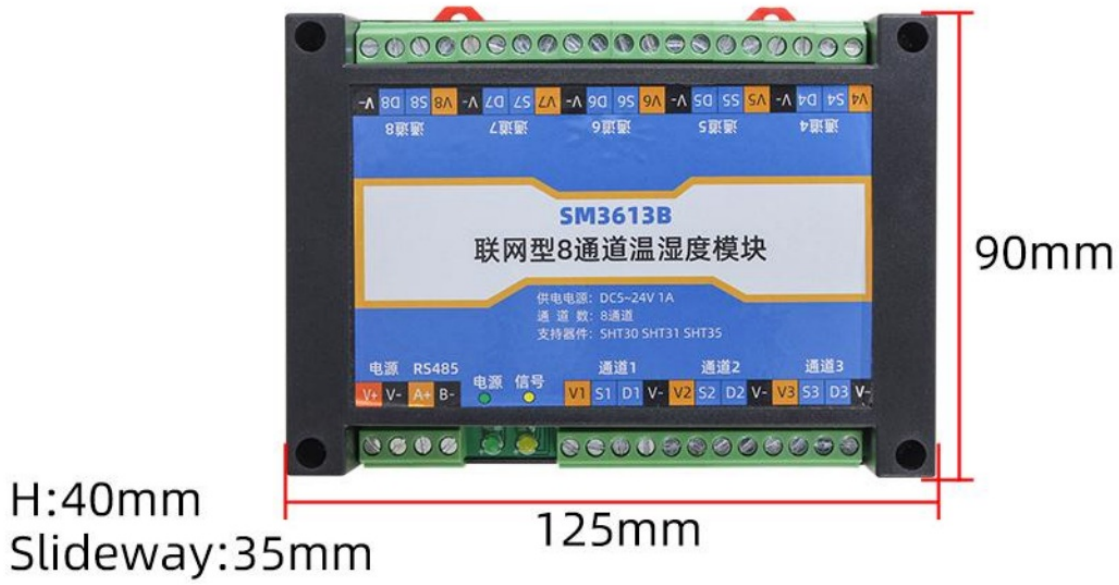
SM3613B using the standard RS485 bus MODBUS-RTU protocol, easy access to PLC DCS, and other instruments or systems for monitoring temperature,humidity@8state quantities. The internal use of high-precision sensing core and related devices to ensure high reliability and excellent long-term stability can 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
Communication Interface	RS485
Default baud rate	9600 8 n 1
Power	DC5′-24V 1 A
Running temperature	-40-80°C
Working humidity	5%RH-90%RH

Product Size



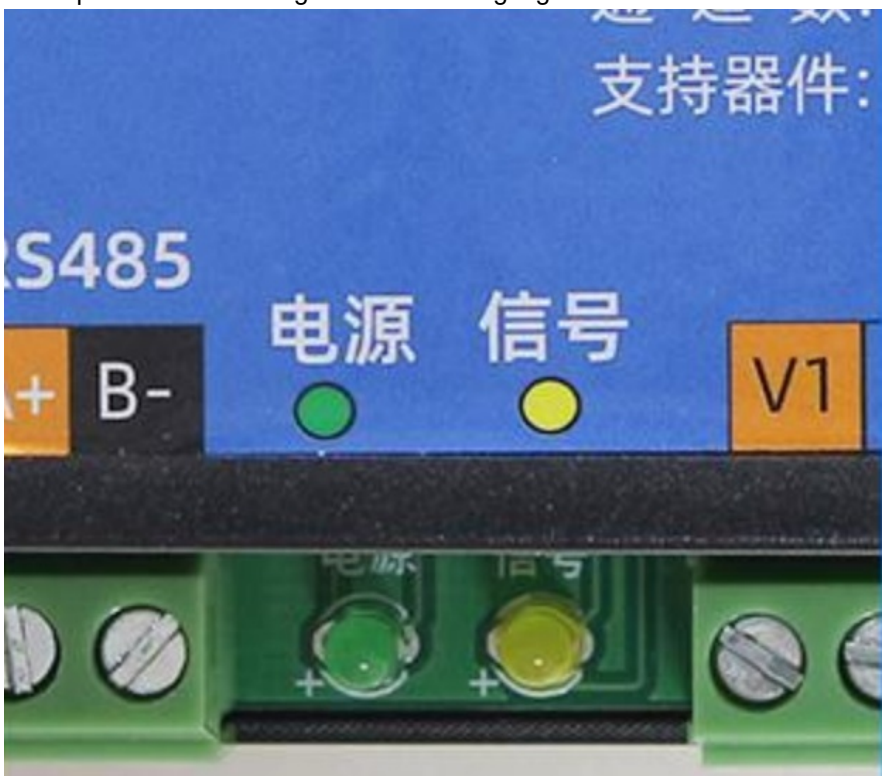
How to wiring?

BREATHABLE GRID HOLES

There are ventilation holes on the left and right sides to Prevent errors caused by internal overheating

STATUS INDICATOR

The green light is on after power on Yellow light flashes during signal transmission



TERMINAL BLOCK

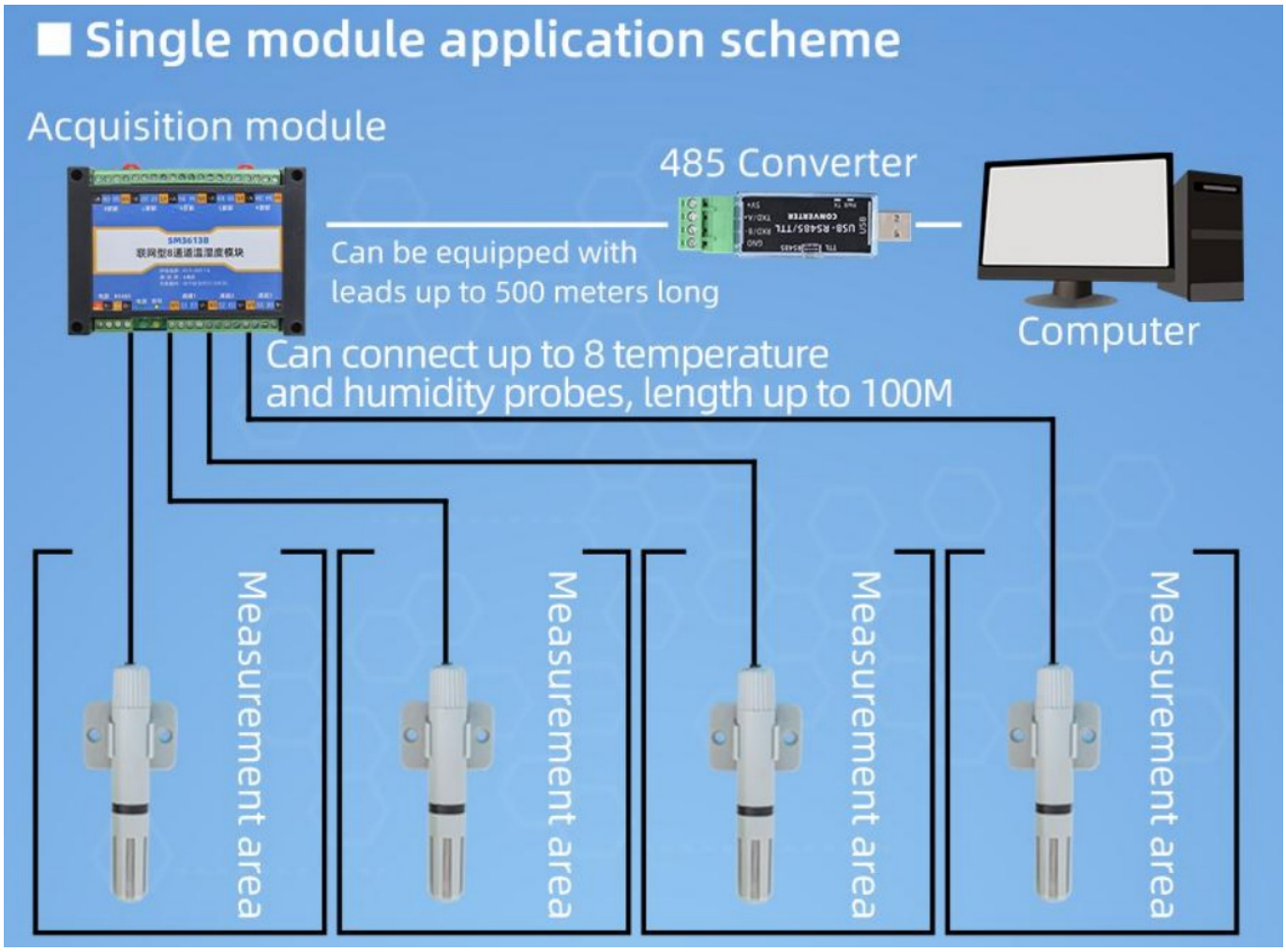
The upper and lower sides of the module have power supply, RS485, and channel wiring ports

WIRING

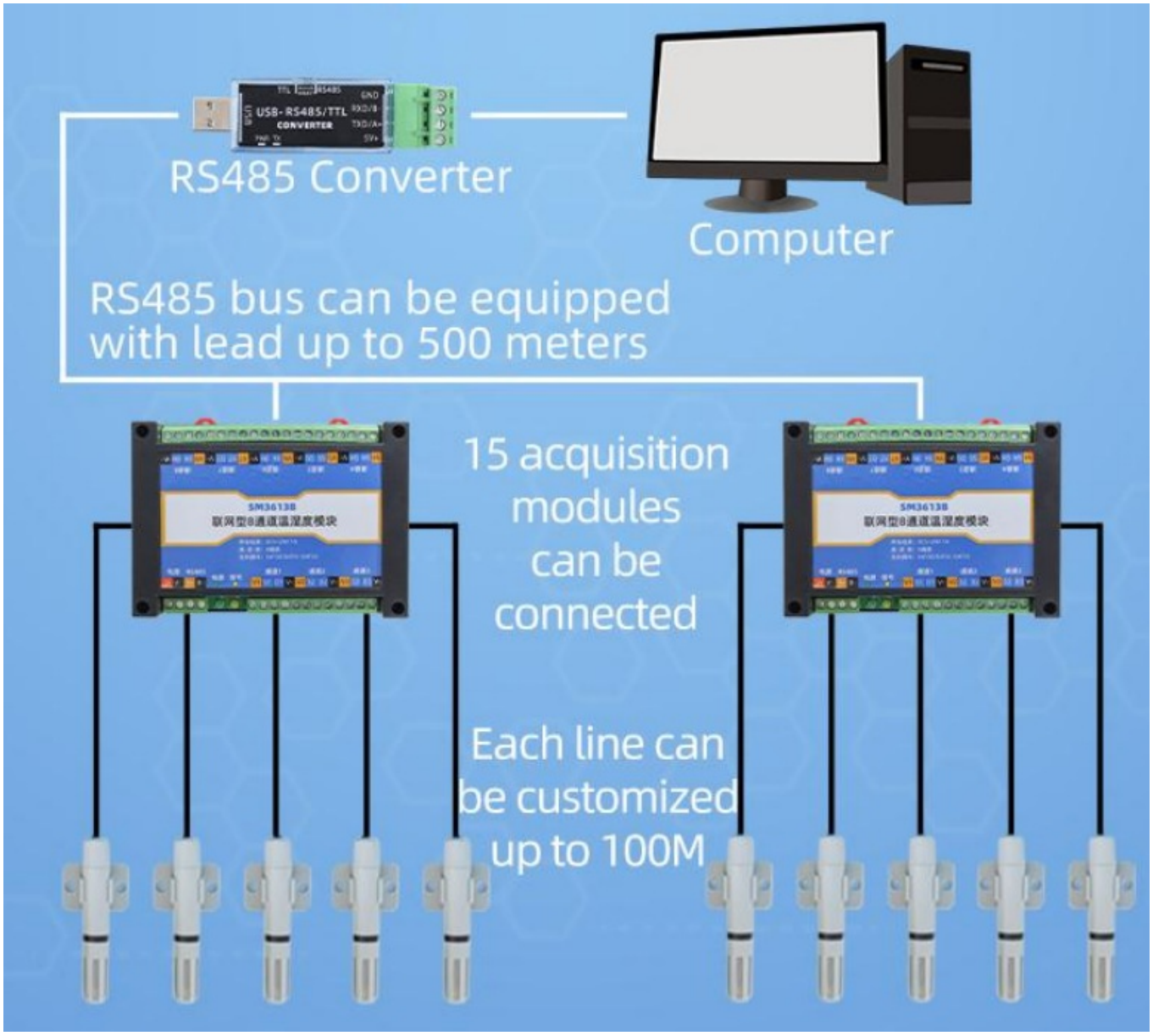
V+	PWR+	V1	Sensor PWR+
V-	PWR-	D1	Sensor output
A+	RS485 A+	S1	Sensor output
B-	RS485 B-	V-	Sensor PWR-
		.....	
		V8	Sensor PWR+
		D8	Sensor output
		S8	Sensor output
		V-	Sensor PWR-

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

Application solution


Single module application scheme
Acquisition module
485 Converter
Can be equipped with
leads up to 500 meters long
Computer
Can connect up to 8 temperature
and humidity probes, length up to 100M
Measurement area
Measurement area
Measurement area
Measurement area

Multi-module application scheme



How to use?

Communication Protocol

The product uses RS485 MODBUS-RTU standard protocol format, all operation or reply commands are hexadecimal data. The default device address is 1 when the device is shipped, the default baud rate is 9600, 8, n, 1

1. Read Data (Function id 0x03)

Inquiry frame (hexadecimal), sending example: Query 1# device 1 data, the host computer sends the command:01 03 00 00 00 02 C4 0B .

Device ID	Function id	Start Address	Data Length	CRC16
1	3	0	2	C4 OB

For the correct query frame, the device will respond with data:01 03 04 00 79 00 00 2B EA, the response format is parsed as follows:

Device ID	Function id	Data Length	Data 1	Data 2	Data 3
1	3	4	79	00 7A	00 7B

Data Description: The data in the command is hexadecimal. Take data 1 as an example. 00 79 is converted to a decimal value of 121. If the data magnification is 100, the actual value is 121/100=1.21.

Others and so on.

Data Address Table

Address	Start Address	Description	Data type	Value range
40001	0	1#temperature register	Read Only	0-65535
40002	1	2#humidity register	Read Only	65535
40003	2	3#temperature register	Read Only	65535
40004	3	4#humidity register	Read Only	65535
40005	4	5#temperature register	Read Only	65535
40006	5	6#humidity register	Read Only	65535
…	…	…	…	…
40015	00 OE	15#temperature register	Read Only	65535
40016	0 F	16#humidity register	Read Only	65535
40101	64	model code	read/write	65535
40102	65	total points	read/write	1-20
40103	66	Device ID	read/write	1-249
40104	67	baud rate	read/write	0-6
40105	68	mode	read/write	1-4
40106	69	protocol	read/write	1-10

3 read and modify device address
(1) Read or query device address
If you don’t know the current device address and there is only one device on the bus, you can use the command FA 03 00 64 00 02 90 5F Query device address.

Device ID	Function id	Start Address	Data Length	CRC16
FA	3	64	2	905 F

FA is 250 for the general address. When you don’t know the address, you can use 250 to get the real device address, 00 64 is the device model register.
For the correct query command, the device will respond, for example, the response data is: 01 03 02 07 12 3A 79, the format of which is as shown in the following table:

Device ID	Function id	Start Address	Model Code	CRC16
1	3	2	55 3C 00 01	3A 79

The response should be in the data, the first byte 01 indicates that the real address of the current device is, 55 3C converted to decimal 20182 indicates that the current device’s main model is 21820, and the last two bytes 00 01 Indicates that the device has a status quantity.

(2)Change device address
For example, if the current device address is 1, we want to change it to 02, the command is:01 06 00 66 00 02 E8 14.

Device ID	Function id	Start Address	Destination	CRC16
1	6	66	2	E8 14

After the change is successful, the device will return information: 02 06 00 66 00 02 E8 27, its format is parsed as shown in the following table:

Device ID	Function id	Start Address	Destination	CRC16
1	6	66	2	E8 27

The response should be in the data, after the modification is successful, the first byte is the new device address. After the general device address is changed, it will take effect immediately. At this time, the user needs to change the query command of the software at the same time.
4 Read and Modify Baud Rate
(1) Read baud rate
The device's default factory baud rate is 9600. If you need to change it, you can change it according to the following table and the corresponding communication protocol. For example, read the curren t device's baud rate ID, the command is:01 03 00 67 00 01 35 D5, its format is parsed as follows.

Device ID	Function id	Start Address	Data Length	CRC16
1	3	67	1	35 D5

Read the baud rate encoding of the current device. Baud rate encoding: 1 is 2400; 2 is 4800; 3 is 9600; 4 is 19200; 5 is 38400; 6 is 115200.
For the correct query command, the device will respond, for example, the response data is: 01 03 02 00 03 F8 45, the format of which is as shown in the following table:

Device ID	Function id	Data Length	Rate ID	CRC16
1	3	2	3	F845

coded according to baud rate, 03 is 9600, ie the current device has a baud rate of 9600. (2)Change the baud rate For example, changing the baud rate from 9600 to 38400, ie changing the code from 3 to 5, the command is 01 06 00 67 00 05 F8 1601 03 00 66 00 01 64 15 .

Device ID	Function id	Start Address	Target Baud Rate	CRC16
1	3	66	1	6415

Change the baud rate from 9600 to 38400, changing the code from 3 to 5. The new baud rate will take effect immediately, at which point the device will lose its response and the baud rate of the device should be queried accordingly. Modified.
5 Read Correction Value
(1) Read Correction Value

When there is an error between the data and the reference standard, we can reduce the display error by adjusting the correction value. The correction difference can be modified to be plus or minus 1000, that is, the value range is 0-1000 or 64535 -65535. For example, when the display value is too small, we can correct it by adding 100. The command is: 01 03 00 6B 00 01 F5 D6 . In the command 100 is hex 0x64 If you need to reduce, you can set a negative value, such as -100, corresponding to the hexadecimal value of FF 9C, which is calculated as 100-65535=65435, and then converted to hexadecimal to 0x FF 9C. The correction value starts from 00 6B. We take the first parameter as an example. The correction value is read and modified in the same way for multiple parameters.

Device ID	Function id	Start Address	Data Length	CRC16
1	3	00 6B	1	F5 D6

For the correct query command, the device will respond, for example, the response data is: 01 03 02 00 64 B9 AF, the format of which is as shown in the following table:

Device ID	Function id	Data Length	Data value	CRC16
1	3	2	64	B9 AF

In the response data, the first byte 01 indicates the real address of the current device, and 00 6B is the first state quantity correction value register. If the device has multiple parameters, other parameters operate in this way. The same, the general temperature, and humidity have this parameter, the light generally does not have this item.
(2)Change correction value
For example, the current state quantity is too small, we want to add 1 to its true value, and the current value plus 100 correction operation command is:01 06 00 6B 00 64 F9 FD

Device ID	Function id	Start Address	Destination	CRC16
1	6	00 6B	64	F9 FD

After the operation is successful, the device will return information: 01 06 00 6B 00 64 F9 FD, the parameters take effect immediately after a successful change.

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Documents / Resources

	SONBEST SM3613B RS485 4 Channel Temperature Transmitter [pdf] User Manual SM3613B, RS485 4 Channel Temperature Transmitter

References

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