



SONBEST SM2130B-CO RS485 interface carbon monoxide sensor User Manual

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SONBEST®

SM2130B-CO

RS485 interface carbon monoxide sensor

User Manual

File Version: V22.4.15



SM2130B-CO using the standard RS485 bus MODBUS-RTU protocol, easy access to PLC, DCS, and other instruments or systems for monitoring carbon monoxide 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.

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Technical Parameters

Technical parameter	Parameter value
Brand	SONBEST
CO range	0~100ppm
CO accuracy	±10ppm
Communication Interface	RS485
Default baud rate	9600 8 n 1
Power	DC9~24V 1A
Running temperature	-40~80°C
Working humidity	5%RH~90%RH

Product Size



Wiring instructions

Any incorrect wiring can cause irreversible damage to the product. Please carefully wire the cable as follows in the case of power failure, and then connect the cable to confirm the correctness and then use it again.

ID	Core color	Identification	Note
1	Red	V+	Power +
2	Green	V-	Power –
3	Yellow	A+	RS485 A+
4	Blue	B-	RS485 B-

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.

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 leaves the factory and the default baud rate is 9600,8,n,1.

1. Read data (function code 0x03)

Inquiry frame (hexadecimal), sending example: query 1 data of 1# device, the upper computer sends the command: 01 03 00 00 00 01 84 0A.

Address	Function Code	Start Address	Data Length	Check Code
1	3	00 00	00 01	84 0A

For the correct query frame, the device will respond with data: 01 03 02 00 79 79 A6, response format:

Address	Function Code	Length	Data 1	Check Code
1	3	2	00 79	79 A6

Data description: The data in the command is hexadecimal, take data 1 as an example, 00 79 is converted to decimal value as 121, assuming the data magnification is 100, then the real value is $121/100=1.21$, Others, and so on.

2. Common data address table

Configuration Address	Register Address	Register Description	Data Type	Value Range
40001	00 00	carbon monoxide	Read Only	0~65535
40101	00 64	Model Code	Read/Write	0~65535
40102	00 65	total number of measuring points	read/write	1~20
40103	00 66	device address	read/write	1~249
40104	00 67	baud rate	read/write	0~6
40105	00 68	communication mode	read/write	1~4
40106	00 69	protocol type	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 query the device address through the command 03 00 66 00 01 71 9E.

4.

Device Address	Function Code	Start Address	Data Length	Check Code
FA	3	00 66	00 01	71 9E

FA means 250 is the general address, when you don't know the address, you can use 250 to get the real device address, 00 66 is the device address register.

For the correct query command, the device will respond, for example, the response data is 0 1 03 02 00 01 79 84, and its format parsing is shown in the following table:

Device Address	Function Code	Start Address	Model Code	Check Code
1	3	2	00 01	79 84

In the response data, the first byte 01 represents the real address of the current device.

(2) Change device address

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

Device Address	Function Code	Register Address	Target Address	Check Code
1	6	00 66	00 02	E8 14

After the change is successful, the device will return the information: 02 06 00 66 00 02 E8 27, and its format

analysis is shown in the following table:

Device Address	Function Code	Register Address	Target Address	Check Code
2	6	00 66	00 02	E8 27

In the response data, after the modification is successful, the first byte is the new device address.

Generally, after the device address is changed, it will take effect immediately. At this time, the user needs to change the query command of his software accordingly.

5. Read and modify the baud rate

(1) Read 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. For example, to read the baud rate ID of the current device, the command is 01 03 00 67 00 01 35 D5, and the format is parsed as follows.

Device Address	Function Code	Start Address	Data Length	Check Code
1	3	00 67	00 01	35 D5

Read the baud rate code of the current device. Baud rate code: 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, and its format analysis is shown in the following table:

Device Address	Function Code	Data Length	Baud Rate Code	Check Code
1	3	2	00 03	F8 45

According to the baud rate code, 03 is 9600, that is, the baud rate of the current device is 9600.

(2) Change the baud rate

For example, change the baud rate from 9600 to 38400, that is, change the code from 3 to 5, the command is: 01 06 00 67 00 05 F8 16.

Device Address	Function Code	Register Address	Target Baud Rate	Check Code
1	6	00 67	00 05	F8 16

Change the baud rate from 9600 to 38400, that is, change the code from 3 to 5. The new baud rate will take effect immediately, and the device will lose response at this time, and the baud rate of the device needs to be checked accordingly and Modified.

6. Read and modify 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 in a range of plus or minus 1000, that is, the value range is 0-1000 or 64535 -65535. For example, when the displayed value is too small by 100, we

can correct it by adding 100. The command is: 01 03 00 6B 00 01 F5 D6 . In the command, 100 is hexadecimal 0x64; If you need to reduce it, you can set a negative value, such as -100, the corresponding hexadecimal value is FF 9C, the calculation method is 100 -65535=65435, and then converted to hexadecimal, it is 0x FF 9C. Device The correction value starts from 00 6B. We take the first parameter as an example to illustrate. When there are multiple parameters, the correction value is read and modified in the same way.

Device Address	Function Code	Start Address	Data Length	Check Code
1	3	00 6B	00 01	F5 D6

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

Device Address	Function Code	Data Length	Correction Value	Check Code
1	3	2	00 64	B9 AF

In the response data, the first byte 01 represents the real address of the current device, and 00 6B is the first state correction value register. If the device has multiple parameters, other parameters operate in the same way as this The same, generally, temperature and humidity have this parameter, and lighting generally does not have this parameter.

(2) Change the correction value

For example, if the current state is too small, we want to add 1 to its real value and add 100 to the current value. The correction operation command is: 01 06 00 6B 00 64 F9 FD.

Device Address	Function Code	Register Address	Target Address	Check Code
1	6	00 6B	00 64	F9 FD

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

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	<p>SONBEST SM2130B-CO RS485 interface carbon monoxide sensor [pdf] User Manual SM2130B-CO, RS485, interface carbon monoxide sensor, carbon monoxide sensor</p>
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