SONBEST SD3790B High Temperature Pipe LED Wind Speed Sensor User Manual

Contents

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SON BEST SD3790B High-Temperature Pipe LED Wind Speed Sensor

INTRODUCTION

SD3790B using the standard, easy access to PL C DCS and other instruments or systems for monitoring wind speed 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.

Technical Parameters

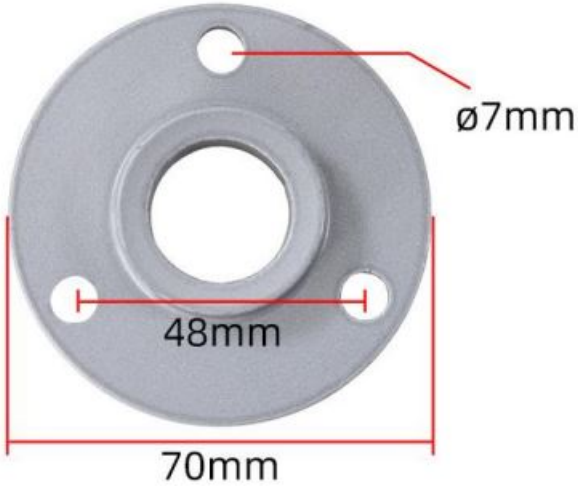
Technical parameter	Parameter value
Brand	SONBEST

Wind speed range	0~30m/s
Wind speed accuracy	±3%
Induction principle	Thermal film induction
Interface	RS485/4-20mA/DC0-5V/DC0-10V
Power	DC12~24V 1A
Running temperature	-40~80°C
Working humidity	5%RH~90%RH

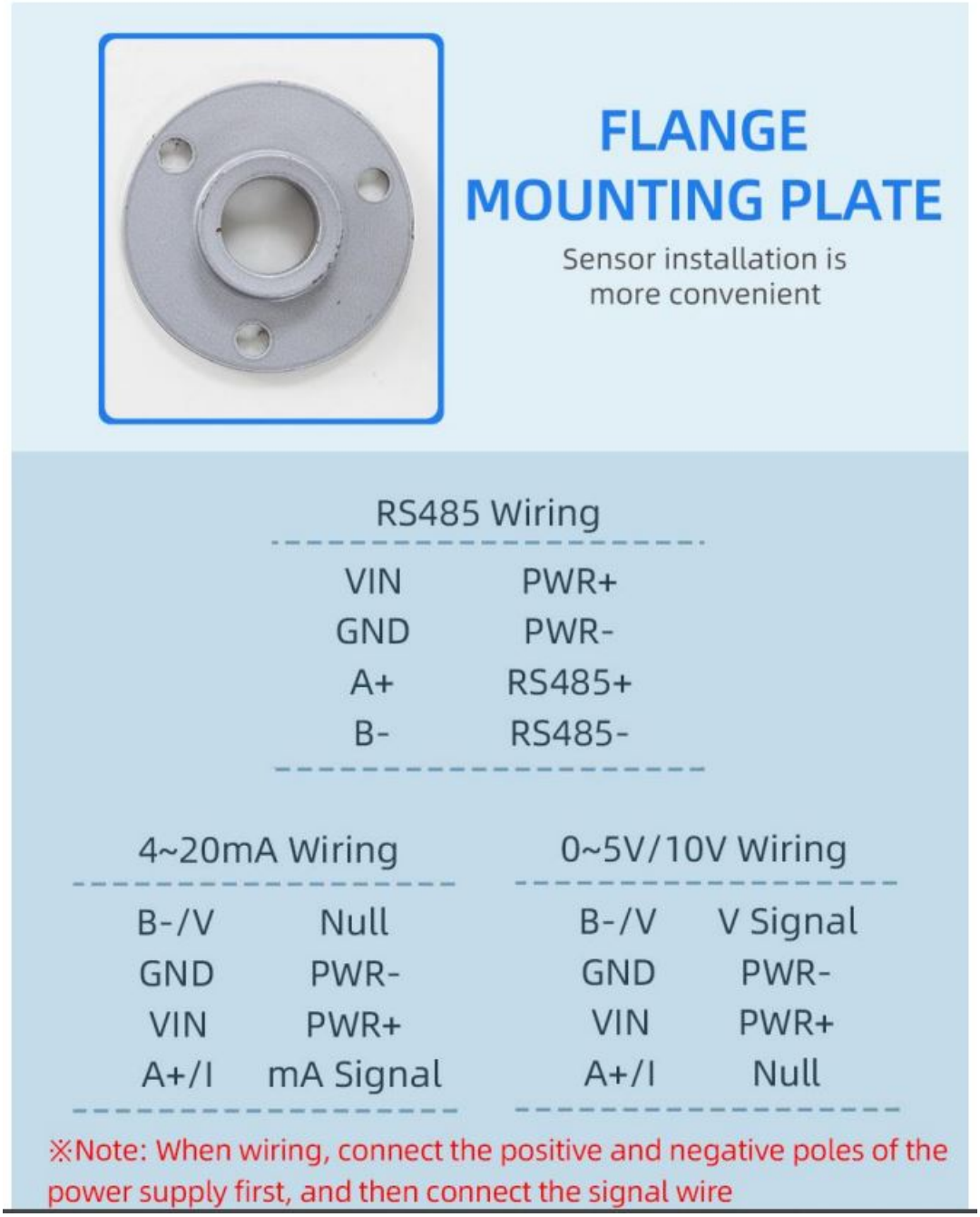
Product Selection
Product DesignRS485,4 20mA,DC0 5V,DC0 10VMultiple output methods, the products are divided into the following models depending on the output method.

Product model	output method
SD3790B	RS485
SD3790M	4-20mA
SD3790V5	DC0-5V
SD3790V10	DC0-10V

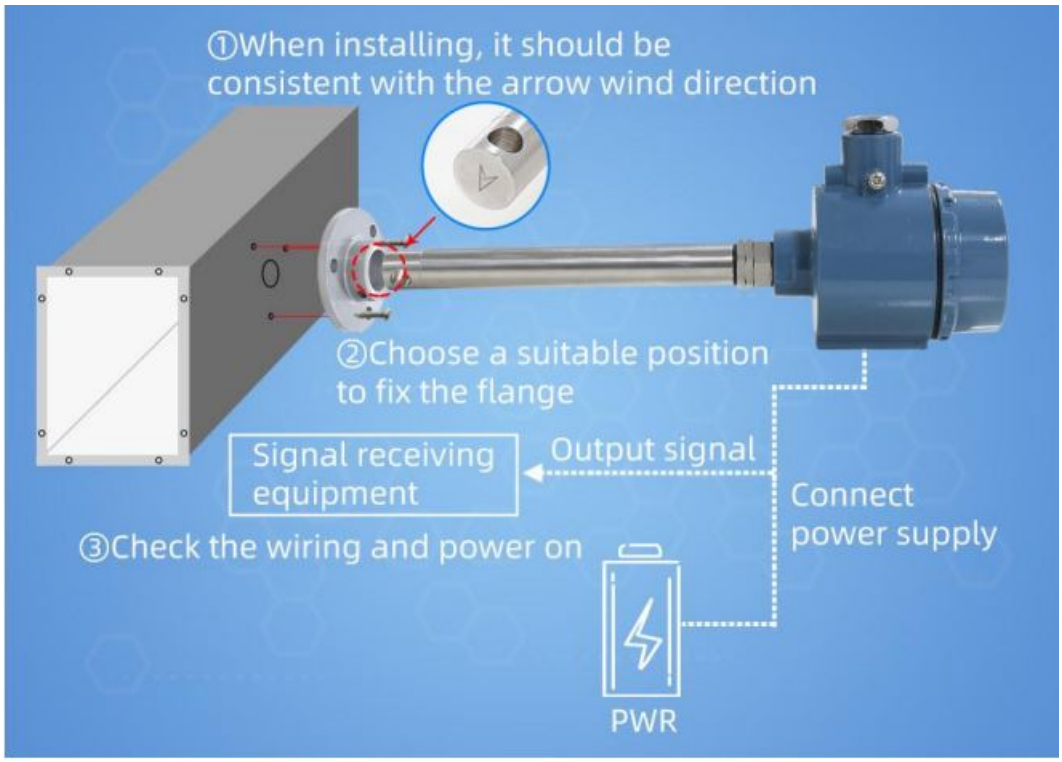
Product Size



How to wiring?



Application solution



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

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 01 84 0A .

Device ID	Function id	Start Address	Data Length	CRC16
01	03	00 00	00 01	84 0A

For the correct query frame, the de vice will respond with data:01 03 02 00 79 79 A6 , the response format is parsed as follows:

Device ID	Function id	Data Length	Data 1	Check Code
01	03	02	00 79	79 A6

Data Address Table

Address	Start Address	Description	Data type	Value range
40001	00 00	wind speed	Read Only	0~65535
40101	00 64	model code	read/write	0~65535
40102	00 65	total points	read/write	1~20
40103	00 66	Device ID	read/write	1~249
40104	00 67	baud rate	read/write	0~6
40105	00 68	mode	read/write	1~4
40106	00 69	protocol	read/write	1~10

read and modify device address

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 dev ice address.

Device ID	Function id	Start Address	Data Length	CRC16
FA	03	00 64	00 02	90 5F

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
01	03	02	55 3C 00 01	3A 79

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

Device ID	Function id	Start Address	Destination	CRC16
01	06	00 66	00 02	E8 14

After the cha nge 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
01	06	00 66	00 02	E8 27

Read and Modify Baud Rate

Read baud rate
The device 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 protoco l. For example, read the current 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
01	03	00 67	00 01	35 D5

Read the baud rate encoding of the current d evice. 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 foll owing table:

Device ID	Function id	Data Length	Rate ID	CRC16
01	03	02	00 03	F8 45

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
01	03	00 66	00 01	64 15

Read Correction Value

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, t hat 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 val ue, 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 valu e is read and modified in the same way for multiple parameters.

Device ID	Function id	Start Address	Data Length	CRC16
01	03	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, the format of which is as shown in the following table:

Device ID	Function id	Data Length	Data value	CRC16
01	03	02	00 64	B9 AF

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 operatio n command is:01 06 00 6B 00 64 F9 FD

Device ID	Function id	Start Address	Destination	CRC16
01	06	00 6B	00 64	F9 FD

For example, the range is 0~30m/s, the analog output is 4~20mA current signal, wind speed and current The calculation relationship is as shown in the formula: C = (A2 A1) * (X B1) / (B2 B1) + A1, where A2 is wind speed range upper limit, A1 is the lower limit of the range, B2 is current output range upper limit, B1 is the lower limit, X is the currently read wind speed value, and C is the calculated current value. The list of commonly used values is as follows:

current(mA)	wind speedValue (m/s)	Calculation Process
4	0.0	(30-0)*(4-4)÷(20-4)+0
5	1.9	(30-0)*(5-4)÷(20-4)+0
6	3.8	(30-0)*(6-4)÷(20-4)+0
7	5.6	(30-0)*(7-4)÷(20-4)+0
8	7.5	(30-0)*(8-4)÷(20-4)+0
9	9.4	(30-0)*(9-4)÷(20-4)+0
10	11.3	(30-0)*(10-4)÷(20-4)+0
11	13.1	(30-0)*(11-4)÷(20-4)+0
12	15.0	(30-0)*(12-4)÷(20-4)+0
13	16.9	(30-0)*(13-4)÷(20-4)+0
14	18.8	(30-0)*(14-4)÷(20-4)+0
15	20.6	(30-0)*(15-4)÷(20-4)+0
16	22.5	(30-0)*(16-4)÷(20-4)+0
17	24.4	(30-0)*(17-4)÷(20-4)+0
18	26.3	(30-0)*(18-4)÷(20-4)+0
19	28.1	(30-0)*(19-4)÷(20-4)+0
20	30.0	(30-0)*(20-4)÷(20-4)+0

For example, the range is 0~30m/s, the analog output is 0~5V DC0 5Vvoltage signal, wind speed andDC0 5Vvoltage The calculation relationship is as shown in the formula: C = (A2 A1) * (X B1) / (B2 B1) + A1, where A2

is wind speed range upper limit, A1 is the lower limit of the range, B2 is DC0 5Vvoltage output range upper limit, B1 is the lower limit, X is the currently read wind speed value, and C is the calculated DC0 5Vvoltage value. The list of commonly used values is as follows:

DC0-5Vvoltage(V)	wind speedValue (m/s)	Calculation Process

DC0-5Vvoltage(V)	wind speedValue (m/s)	Calculation Process
0	0.0	(30-0)*(0-0)÷(5-0)+0
1	6.0	(30-0)*(1-0)÷(5-0)+0
2	12.0	(30-0)*(2-0)÷(5-0)+0
3	18.0	(30-0)*(3-0)÷(5-0)+0
4	24.0	(30-0)*(4-0)÷(5-0)+0
5	30.0	(30-0)*(5-0)÷(5-0)+0

For example, the range is 0~30m/s, the analog output is 0~10V DC0 10Vvoltage signal, wind speed and DC0 10Vvoltage The calculation relationship is as shown in the formula: C = (A2 A1) * (X B1) / (B2 B1) + A1, where A2 is wind speed range upper limit, A 1 is the lower limit of the range, B2 is DC0 10Vvoltage output range upper limit, B1 is the lower limit, X is the currently read wind speed value, and C is the calculated DC0 10Vvoltage value. The list of commonly used values is as follows:

DC0-10Vvoltage(V)	wind speedValue (m/s)	Calculation Process
0	0.0	(30-0)*(0-0)÷(10-0)+0
1	3.0	(30-0)*(1-0)÷(10-0)+0
2	6.0	(30-0)*(2-0)÷(10-0)+0
3	9.0	(30-0)*(3-0)÷(10-0)+0
4	12.0	(30-0)*(4-0)÷(10-0)+0
5	15.0	(30-0)*(5-0)÷(10-0)+0
6	18.0	(30-0)*(6-0)÷(10-0)+0
7	21.0	(30-0)*(7-0)÷(10-0)+0
8	24.0	(30-0)*(8-0)÷(10-0)+0
9	27.0	(30-0)*(9-0)÷(10-0)+0
10	30.0	(30-0)*(10-0)÷(10-0)+0

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Documents / Resources

	**SONBEST SD3790B High Temperature Pipe LED Wind Speed Sensor** [pdf] User Manual SD3790B, High Temperature Pipe LED Wind Speed Sensor, Pipe LED Wind Speed Sensor, Speed 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**