Polycarbon wind speed transmitter (Model 485)

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Chapter 1 product introduction

1.1 product overview

The wind speed transmitter adopts the structure of a traditional three-wind cup wind speed sensor, the wind cup is made of carbon fiber material with high strength and good start, it can be widely used in the fields of meteorology, ocean, environment, airport, port, laboratory, industry, agriculture and transportation.

1.2 functional characteristics

Range: 0-70m/s, Resolution 0.1 m/s

Anti-electromagnetic interference treatment

Bottom outlet mode, completely eliminate the aging problem of aviation plug rubber pad, long-term use is still waterproof

High-performance imported bearings, low rotational resistance, accurate measurement

Polycarbonate shell, mechanical strength, high hardness, corrosion resistance, non-rust can be used outdoors for a long time

The structure and weight of the equipment are carefully designed and distributed, with small moment of inertia and sensitive response

Standard Modbus-rtu communication protocol, easy access

1.3 main parameters

|	
DC power supply (default)	10-30V DC
Power consumption	≤0.3 W
Working temperature of transmitter circuit	-40 ° C ~ + 60 ° C, 0% RH ~ 80% Rh
Communication interface	485 Modbus protocol Baud rate: 2400,4800(default) , 9600 Data bit length: 8 bits Parity check: none Stop bit length: 1 bit Default Modbus communication address: 1 Support: 03/04/06
Parameter settings	Configure with the supplied configuration software through the 485 interface
Resolution	0.1 m/s
Precision	± (0.2 + 0.03 V) m/S V indicates wind speed
Measuring range	Support Customization 0-70m/s
Dynamic response time	≤1 s
Start the wind speed	≤0.2 m/s

For long-term use, please keep the ambient wind speed below 30m/s

Shell dimensions
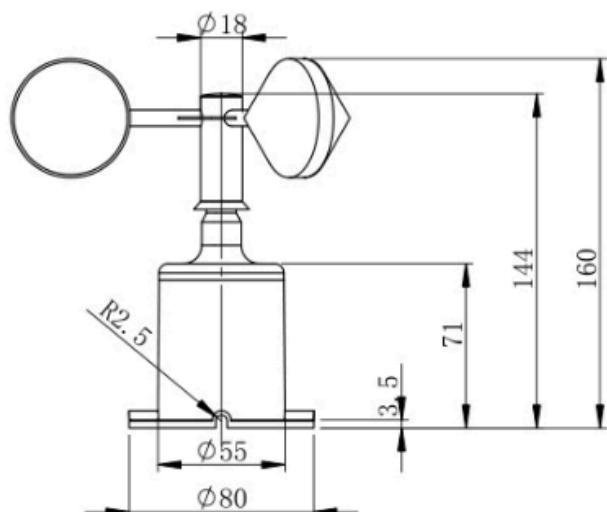
整体高度：160

主轴高度：144

底座高度：71

底座直径：φ80

单位(mm)

安装孔径：φ4.5
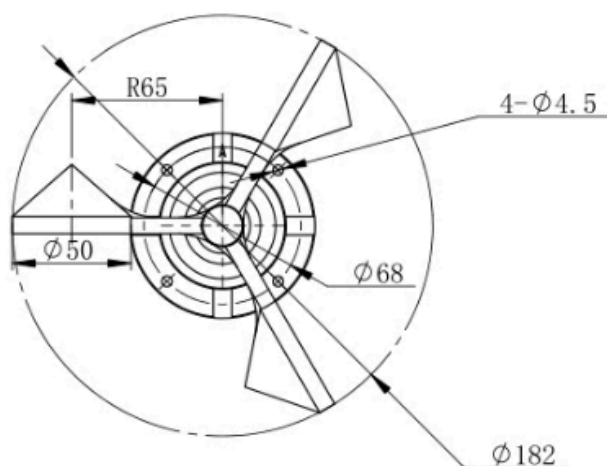
分布直径：φ68

单位(mm)

Chapter 2 hardware connectivity

2.1 equipment pre-installation inspection

Equipment list:

‖ transmitter equipment 1

‖ install 4 screws

‖ Certificate of Conformity and Warranty Card

2.2

10-30V for a wide-voltage power supply. 485 signal line wiring attention to A-B two lines can not be connected back, the bus address between multiple devices can not conflict.

2.2.1 sensor wiring

	Color	Description
电 源	Brown	Power supply positive (10 ~ 30V DC)
	Black	The power supply is negative
通 信	Yellow (green)	485-A
	Blue	485-B

2.3 installation

The lower pipe of the wind speed sensor is firmly fixed on the flange plate by means of flange installation and threaded flange connection. The chassis ø80mm is provided with four mounting holes in the circumference of the Ø68MM which are all ø4.5 mm, use Bolts to fasten it on the bracket to keep the whole set of instruments at the best level, ensure the accuracy of wind speed data, flange connection is convenient to use, can withstand greater pressure.

2.4 precautions

1. Users are not allowed to disassemble or touch the sensor core to prevent damage to the product.

2. As far as possible away from high-power interference equipment, so as not to cause inaccurate measurement, such as inverter, motor, etc. .

3. To prevent chemical reagents, oil, dust and other direct damage to the sensor, do not dew, limit temperature environment for long-term use, prevent cold and heat shock.

Chapter 3 configuration software installation and use

We provide the supporting"485 parameter configuration software", can easily use the computer to read the parameters of the sensor, while flexible modification of the sensor device ID and address.

Note that when using the software for automatic access, you need to ensure that there is only one sensor on the 485 bus.

3.1 the sensor is connected to the computer

After connecting the sensor to the 485 via USB and powering it properly, you

can see the correct COM port on your computer (see the COM port in my pc-properties-device manager-port) .
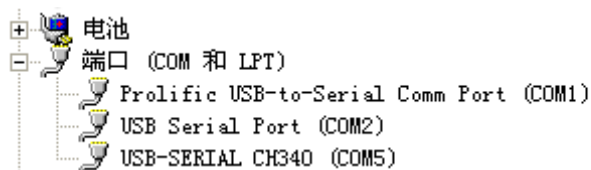
Open the package, select"Debugging software"-"485 parameter configuration software", find to open.

If you do not find a COM port in device manager, it means that you do not have a USB to 485 driver installed (in the package) or you do not have the driver installed correctly, please contact a technical person for help.

3.2 use of sensor monitoring software

Configuration interface as shown in the figure, first according to Section 3.1 method to get the serial port number and select the correct serial port.

Click on the test baud rate of the software, the software will test the current device baud rate and address, the default baud rate is 4800 bit/s, the default address is 0x01.

3. Change the address and baud rate as needed, and query the current function status of the device.

If the test is not successful, please re-check the equipment wiring and 485 driver installation.
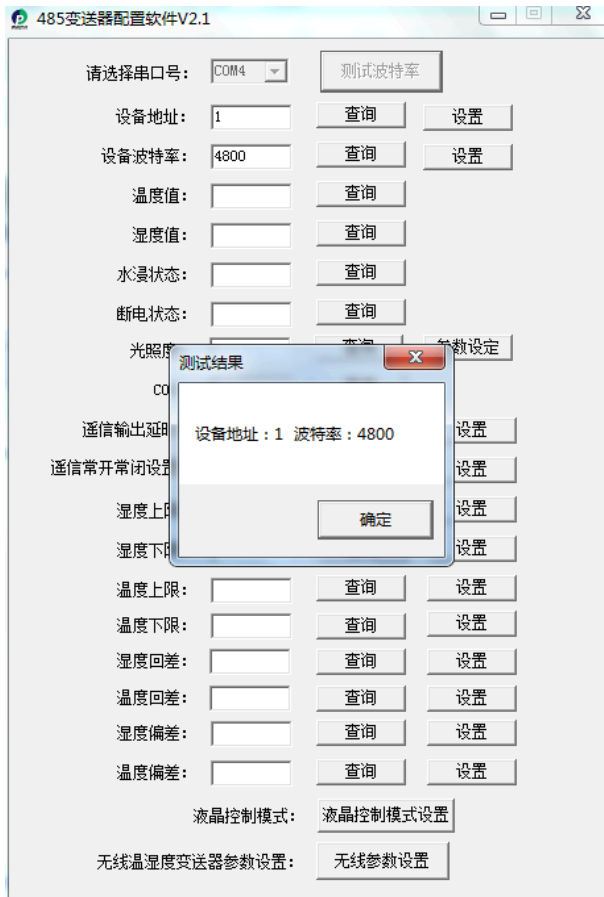
Chapter 4 communication protocols

4.1 basic communication parameters

Coding	8-bit binary
Data bits	Eight
Parity bit	无
Stop bit	1 bit
Error checking	CRC (redundant cyclic code)
Baud rate	1200bit/s, 2400bit/s, 4800bit/s, 9600bit/s, 19200bit/s, 38400bit/s, 57600bit/s, 115200bit/SBIT/s

4.2 data frame format definition

Using the ModBus-RTU protocol, the format is as follows:

Initial structure ≥4 bytes in time

Address code = 1 byte

Function code = 1 byte

Data area = N bytes

Error Check = 16-bit CRC code

Time to end structure ≥4 bytes

Address Code: the address of the transmitter, in the communication network is unique (factory default 0x01) .

Function code: this transmitter only uses the function code 0x03(reads register data) .

Data area: Data area is specific communication data, note that 16bits data high byte in front!

CRC code: two-byte checksum code.

Host query frame structure:

Address Code	Function codes	Register start address	Register length	Low checksum	Check code high bit
1 byte	1 byte	2 bytes	2 bytes	1 byte	1 byte

Slave response frame structure:

Address Code	Function codes	The number of valid bytes	Data Area 1	The second data area	N data area	Check Code
1 byte	1 byte	1 byte	2 bytes	2 bytes	2 bytes	2 bytes

4.3 register address

Register address	PLC or configuration address	Content	Support function codes
000h	40001	Instantaneous wind speed Uploading data is 10 times the true value	03/04
07D0H	42001	Device Address 1 ~ 254(factory default 1)	0x03/0x04/0x06/0x10
07D1H	42002	Device Baud rate 0 for 2,400 bit/s, and 1 for 4,800 bit/s	0x03/0x04/0x06/0x10

		2 is 9,600 bit/s, and 3 is 19,200 bit/s Four is 38,400 bit/s, and five is 57,600 bit/s 6 is 115,200 bit/s, 7 is 1200 bit/s	

4.4 communication protocol examples and explanations

Example: read the wind speed at the device address 0x01

Frame of inquiry:

Address Code	Function codes	Starting address	Data Length	Low checksum	Check code high bit
0x01	0x03	0x000x00	0x000x01	0x84	0x0A

Reply Frame: (for example, read the current wind speed is 8.6 m/s)

Address Code	Function codes	Returns the number of valid bytes	Current wind speed	Low checksum	Check code high bit
0x01	0x03	0x02	0x000x56	0x38	0x7A

Wind speed calculations:

Current wind speed: 0056H (hexadecimal) = 86 = > wind speed = 8.6 m/s

Chapter 5 common problems and solutions

No output or output errors

Possible causes:

1, the computer has com port, the port is not correct.

Wrong baud rate.

3. The 485 bus is disconnected, or the A and B wires are connected back.

4. If the number of equipment is too large or the wiring is too long, the local power supply should be added with 485 enhancer and 120Ω terminal resistance.

5. The USB 485 drive is not installed or damaged.

Your device is damaged.