Polycarbon wind speed transmitter (Model 485)

SN-3000-FSJT-N01

Ver 2.0

directory

Chapter 1 Product Introduction

1.1 Product Overview

The wind speed transmitter adopts the traditional three-cup wind speed sensor structure, and the wind cup is made of carbon fiber material, which has high strength and good start-up; The built-in signal processing unit of the cup can output the corresponding wind speed signal according to the user's needs, which can be widely used in meteorology, ocean, environment, airport, port, laboratory, industry and agriculture and transportation.

1.2 Functional features

- Range: 0-70m/s, resolution 0.1m/s
- Anti-electromagnetic interference treatment
- The bottom outlet method is adopted to completely eliminate the aging problem of aviation plug rubber pad, and it is still waterproof for long-term use
- The high-performance imported bearings are adopted, the rotational resistance is small, and the measurement is accurate
- Polycarbonate shell, high mechanical strength, high hardness, corrosion resistance, no 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	≤0.3W
The operating temperature of the transmitter circuit	-40℃~+60℃，0%RH~80%RH
Communication interfaces	485 communication (ModBus) protocol Baud rate: 2400, 4800 (default), 9600 Data bit length: 8 bits Parity mode: None Stop bit length: 1 bit Default ModBus communication address: 1

	Support function code: 03/04/06
Parameter settings	Configuration is performed via the 485 interface using the provided configuration software
resolution	0.1m/s
precision	$\pm(0.2+0.03V)$m/s,@$(0\sim30$m/s,$25°$C) V indicates the wind speed
Measuring range	0~70m/s
Dynamic response time	≤1s
Start the wind speed	≤0.2m/s

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

Housing dimensions
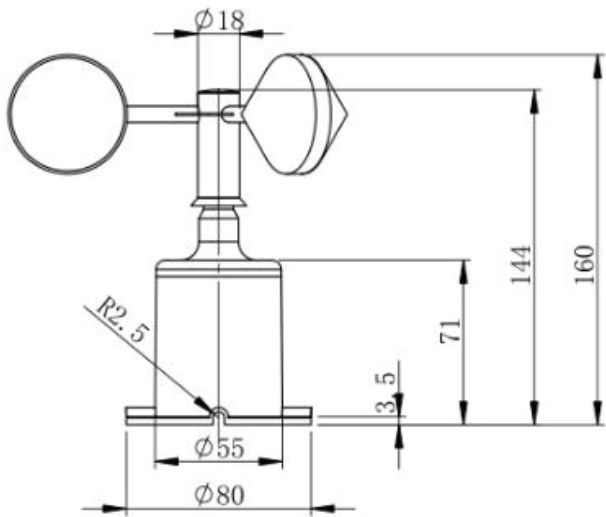
整体高度：160
主轴高度：144
底座高度：71
底座直径：φ80

单位(mm)
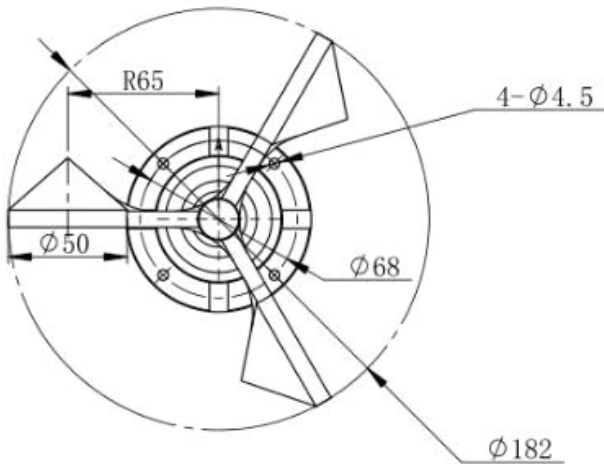
安装孔径：φ4.5
分布直径：φ68

单位(mm)

Chapter 2 Hardware Connections

2.1 Inspection before installation of the equipment

Equipment list:

■ 1 transmitter equipment

■ 4 mounting screws

■ Certificate of conformity, warranty card

2.2 Interface Description

The power interface is a wide voltage power supply input of 10-30V. When wiring the 485 signal line, pay attention to the two lines of A and B cannot be reversed, and the addresses of multiple devices on the bus cannot conflict.

2.2.1 Sensor wiring

	Line color	illustrate
electricity	brown	Power supply (10~30V DC)
source	black	Power supply negative
open	Yellow (green) color	485-A
letter	blue	485-B

2.3 Installation

Flange installation is adopted, the threaded flange connection makes the lower pipe fittings of the wind speed sensor firmly fixed on the flange, the chassis is

Ø80mm, and four mounting holes of Ø4.5mm are opened on the circumference of Ø68mm, and the bolts are used to tightly fix it on the bracket, so that the whole set of instruments is kept at the best level, to ensure the accuracy of wind speed data, and the flange connection is easy to use and can withstand greater pressure.

2.4 Precautions

1. The user shall not disassemble it by himself, let alone touch the sensor core, so as not to cause damage to the product.

2. Try to stay away from high-power interference equipment, so as not to cause inaccurate measurement, such as inverter, motor, etc., when installing and disassembling the transmitter, the power supply must be disconnected first, and water entering the transmitter can lead to irreversible changes.

3. Prevent chemical reagents, oil, dust, etc. from directly infringing on the sensor, do not use it for a long time in condensation and extreme temperature environment, and strictly prevent cold and heat shock.

Chapter 3 Configuring Software Installation and Use

Our company provides a supporting "485 parameter configuration software", which can easily use the computer to read the parameters of the sensor, and flexibly modify the device ID and address of the sensor.

Note that when using software auto-acquisition, you need to ensure that there is only one sensor on the 485 bus.

3.1 The sensor is connected to the computer

After the sensor is properly connected to the computer via USB to 485 and provided with power, you can see the correct COM port in the computer ("My Computer - Properties - Device Manager - Ports" to see the COM port).
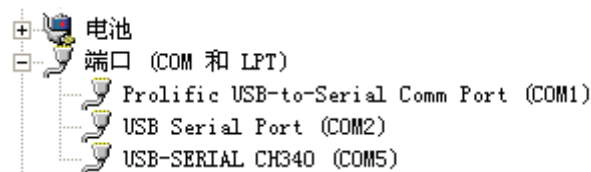
Open the package, select "Debugging Software" --- "485 Parameter Configuration
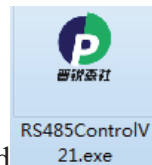
Software", and find and _____ open it.

If you don't see the COM port in Device Manager, it means that you don't have the USB to 485 driver installed (in the package) or you haven't installed the driver correctly, contact a technician for assistance.

3.2 Use of sensor monitoring software

(1) The configuration interface is as shown in the figure, first obtain the serial slogan according to the method in chapter 3.1 and select the correct serial port.

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

(3) Modify the address and baud rate according to the needs of use, and query the current functional status of the equipment at the same time.

(4) If the test is not successful, please re-check the wiring of the equipment and the installation of the 485 driver.
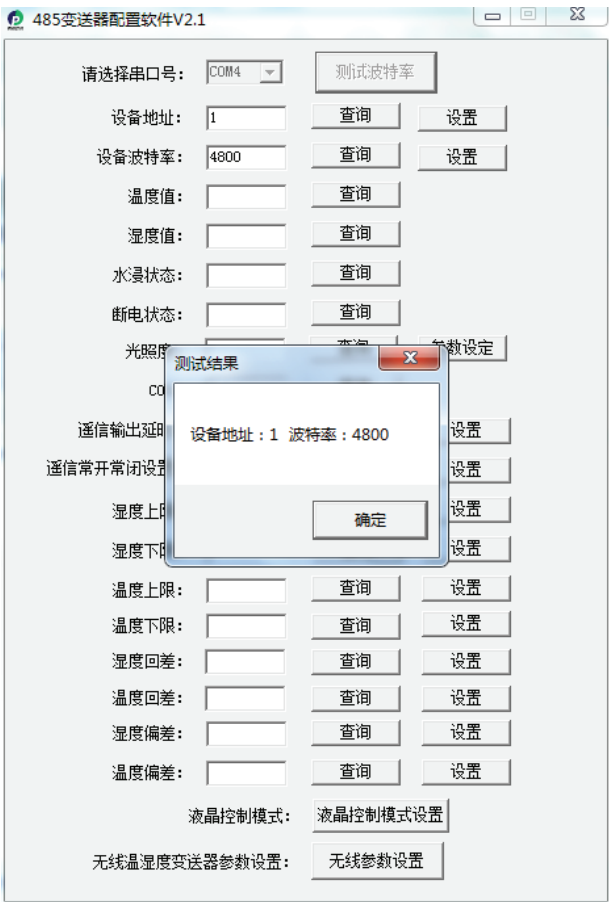
Chapter 4 Communication Protocols

4.1 Basic communication parameters

Encoding	8-bit binary
Data bits	8 bits
Parity bits	not
Stop bits	1 bit
Error checks	CRC (Redundant Cycle Code).
baud rate	1200bit/s, 2400bit/s, 4800bit/s, 9600bit/s, 19200bit/s, 38400bit/s, 57600bit/s, 115200bit/sbit/s can be set, and the factory default is 4800bit/s

4.2 Data Frame Format Definition

The ModBus-RTU communication protocol is used in the following format:

The initial structure ≥ 4 bytes of time

Address code = 1 byte

Feature code = 1 byte

Data area = N bytes

Error check = 16-digit CRC code

The time at which the end structure ≥4 bytes

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

Function code: The function indication of the instruction sent by the host computer, this transmitter only uses the function code 0x03 (read register data).

Data area: The data area is the specific communication data, pay attention to the 16bits data high byte first!

CRC code: a two-byte check code.

Host query frame structure:

Address code	Feature codes	Register start address	Register length	The check sum is low	The check digit is high
1 byte	1 byte	2 bytes	2 bytes	1 byte	1 byte

Slave Response Frame Structure:

Address code	Feature codes	Number of valid bytes	Data Zone 1	Second data area	N data area	Checksum
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	Feature codes are supported
0000 H	40001	Instantaneous wind speed The uploaded data is 10 times the true value	03/04
07D0 H	42001	Device address 1~254 (factory default 1)	0x03/0x04/0x06/0x10
07D1H	42002	Device baud rate 0 represents 2400 bit/s and 1 represents 4800 bit/s 2 for 9600bit/s 3 for 19200bit/s	0x03/0x04/0x06/0x10

		4 for 38400bit/s 5 for 57600bit/s 6 represents 115200bit/s and 7 represents 1200bit/s	

4.4 Examples and Explanations of Communication Protocols

For example, read the wind speed value of the device address 0x01

Query frame:

Address code	Feature codes	Start address	The length of the data	The check sum is low	The check digit is high
0x01	0x03	0x00 0x00	0x00 0x01	0x84	0x0A

Response frame: (e.g. read that the current wind speed is 8.6m/s)

Address code	Feature codes	Returns the number of valid bytes	The current wind speed value	The check sum is low	The check digit is high
0x01	0x03	0x02	0x00 0x56	0x38	0x7A

Wind speed calculation:

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

Chapter 5 Common Problems and Solutions

No output or output errors

Possible causes:

(1) The computer has a COM port, and the selected port is incorrect.

(2) The baud rate is wrong.

(3) The 485 bus is disconnected, or the A and B lines are reversed.

(4) If the number of devices is too large or the wiring is too long, the nearest power supply should be added, 485 booster should be added, and 120Ω terminal resistance should be increased at the same time.

(5) The USB to 485 driver is not installed or damaged.

(6) The equipment is damaged.