

Polycarbon Wind Direction Transmitter (485type)

SN-3000-FXJT-N01

Ver 2.0

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No. 1chapter Product Introduction

1.1Product Overview

The wind direction sensor is small and light, easy to carry and assemble. The three-cup design concept can effectively obtain external environmental information. Polycarbonate composites the external part is electroplated and sprayed with plastic, which has good anti-corrosion and anti-erosion characteristics, ensuring that the instrument will not rust for a long time. At the same time, the smooth internal bearing system ensures the accuracy of information collection. It is widely used in wind direction measurement in greenhouses, environmental protection, meteorological stations, ships, docks, aquaculture and other environments.

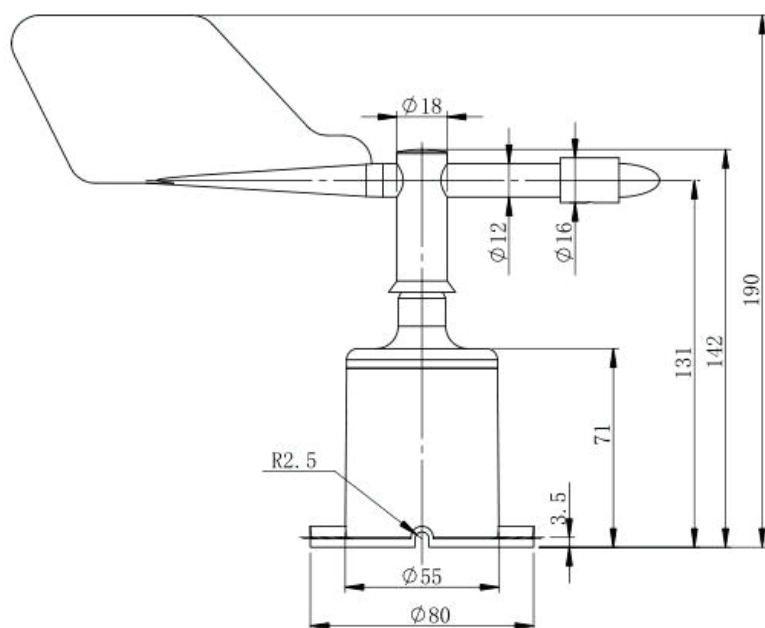
1.2Features

- Range:8Directions
- Anti-electromagnetic interference processing
- Adopt high-performance imported bearings, small rotation resistance and accurate measurement
- Polycarbonate shell, strong 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.
- standardModBus-RTUCommunication protocol, easy access

1.3Main parameters

DC power supply (default)	10~30V DC
Power consumption	≤0.15W
Transmitter circuit operating temperature	-40℃~+60℃,0%RH~80%RH
Communication interface	485Communication (Modbus)protocol Baud Rate:2400,4800(default),9600 Data bit length:8Bit Parity check mode: None Stop bit length:1Bit defaultModBusCorrespondence address:1 Supported function codes:03
Parameter settings	Use the provided configuration software to485Interface configuration
Measuring range	8Directions
Dynamic response speed	≤0.5s

Shell size



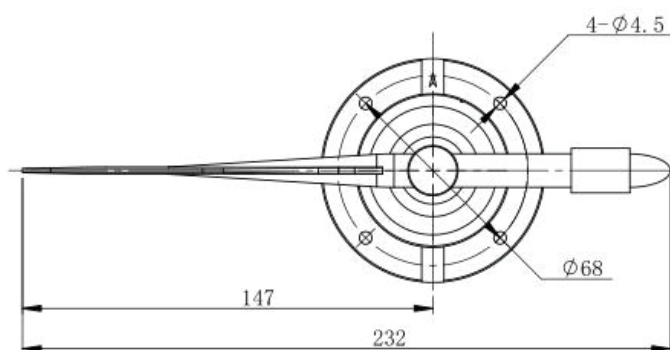
整体高度：190

主轴高度：142

底座高度：71

底座直径： $\phi 80$

单位 (mm)



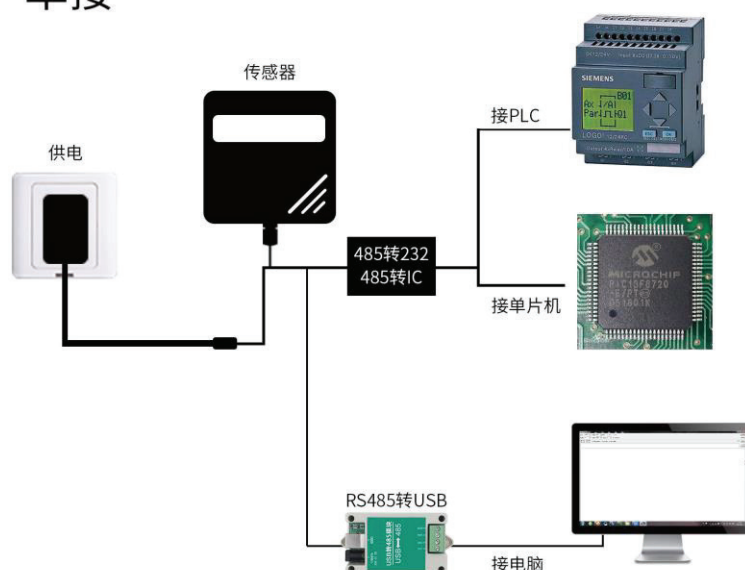
安装孔径： $\phi 4.5$

分布直径： $\phi 68$

单位 (mm)

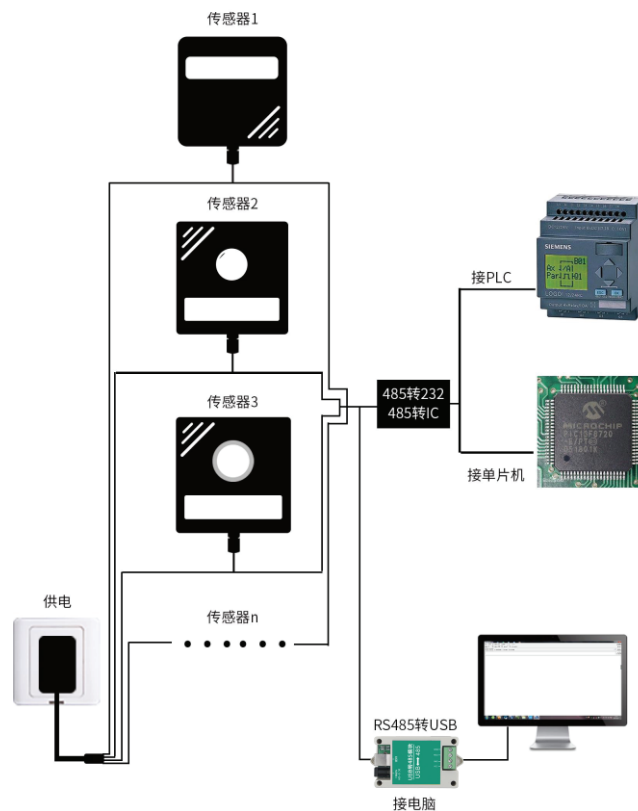
1.4 System framework diagram

单接



This product can also combine multiple sensors in one 485Bus usage, theoretically a bus can 254 individual 485. The other end of the sensor is connected to 485Interface PLC, pass 485Interface chip connected to the microcontroller, or use USB change 485. It can be connected to the computer and use the sensor configuration tool provided by our company to configure and test (only one device can be connected when using this configuration software).

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No. 2chapter Hardware Hookup

2.1Equipment pre-installation inspection

Equipment List:

- Transmitter equipment 1 tower
- Mounting Screws 4 individual
- Certificate of conformity, warranty card

2.2Interface Description

Wide voltage power input 10~30V Both are acceptable. 485 Pay attention when wiring the signal line A\B The two wires cannot be connected reversely, and the addresses of multiple devices on the bus cannot conflict.

2.2.1Sensor Wiring



	Line Color	illustrate
electricity source	brown	Power supply positive (10~30V DC)
	black	Negative power supply
Pass letter	Yellow (green)	485-A
	blue	485-B

2.3Installation

Flange installation and threaded flange connection make the lower pipe of the wind direction sensor firmly fixed on the flange plate and

chassis.Ø80mm,existØ68mmOpen four equalØ4.5mmThe mounting holes are used to fix it tightly on the bracket with bolts to keep the whole set of instruments at the best level and ensure the accuracy of wind direction data. The flange connection is easy to use and can withstand greater pressure.



2.4 Notes

- 1.Users are not allowed to disassemble or touch the sensor core to avoid damage to

the product.

2. Try to stay away from high-power interference equipment to avoid inaccurate measurements, such as frequency converters, motors, etc. When installing or removing the transmitter, the power supply must be disconnected first. Water entering the transmitter may cause irreversible changes.

3. Prevent chemical reagents, oil, dust, etc. from directly damaging the sensor. Do not use it for a long time in an environment with condensation or extreme temperature. Prevent cold and hot shocks.

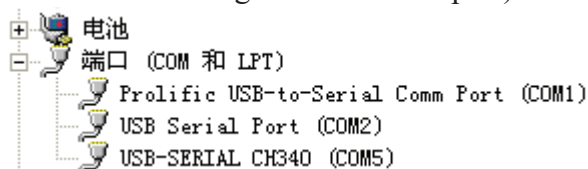
No. 3 chapter Configuration software installation and use

Our company provides supporting "485"Parameter Configuration Software" can easily use the computer to read the sensor parameters and flexibly modify the sensor equipment I Dand address.

Note that when using software to automatically obtain 485There is only one sensor on the bus.

3.1 Sensor connected to computer

Pass the sensor through USBchange 485After correctly connecting to the computer and providing power, You can see the correct COMmouth(" My Computer—Check in "Properties - Device Manager - Ports" Comport).



Open the data package and select "Debug Software"--- "485Parameter



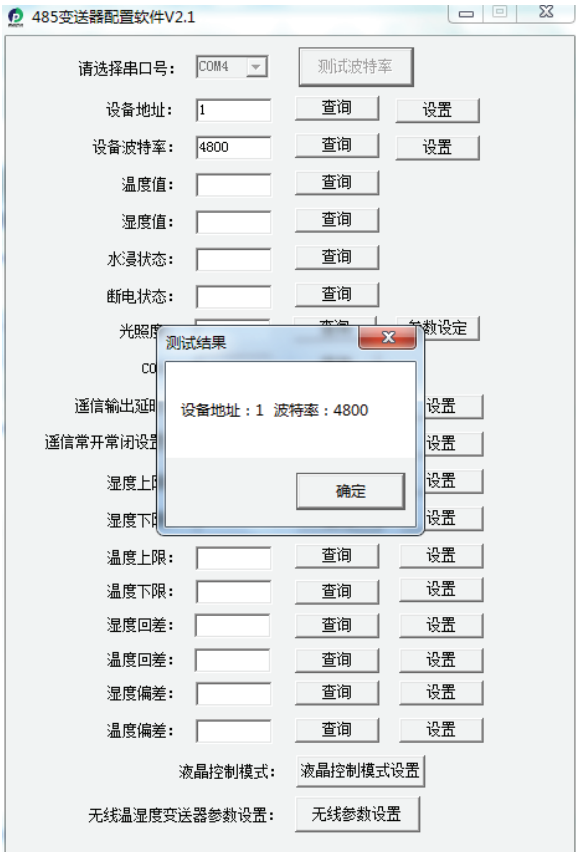
Configuration Software", find Just open it.

If you don't find it in the device manager COMport, it means you have not installed USBchange 485If the driver (included in the data package) is not installed correctly, please contact a technician for help.

3.2 Use of sensor monitoring software

①, the configuration interface is shown in the figure, first according to 3.1The method

- in the chapter obtains the serial port number and selects the correct serial port.
- ②, click the software's test baud rate, the software will test the baud rate and address of the current device. The default baud rate is4800bit/s,The default address is0x01.
- ③, modify the address and baud rate according to usage needs, and query the current functional status of the device.
- ④If the test is unsuccessful, please recheck the device wiring and485Driver installation status.



No. 4chapter Communication Protocol

4.1Basic communication parameters

Edit code	8bit binary
Data bits	8Bit
Parity bit	none
Stop bits	1Bit
Error checking	CRC(Redundant Cyclic Code)
Baud rate	2400bit/s,4800bit/s,9600 bit/sCan be set, factory default is4800bit/s

4.2Data frame format definition

useModBus-RTUCommunication protocol, the format is as follows:

Initial structure ≥ 4 Bytes of time

Address code = 1 byte

Function code = 1 byte

Data Area = N byte

Error checking = 16 Bit CRC code

End Structure ≥ 4 Bytes of time

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

Function code: The function indication of the command sent by the host. This transmitter only uses the function code 0x03 (Read register data).

Data area: The data area is the specific communication data. 16 bits The data high byte comes first!

CRC Code: Two-byte check code.

Host inquiry frame structure:

Address code	Function code	Register start address	Register length	Check code low	Check code high digit
1 byte	1 byte	2 byte	2 byte	1 byte	1 byte

Slave response frame structure:

Address code	Function code	Number of valid bytes	Data Zone 1	Second data area	Nondate Area	Check code
1 byte	1 byte	1 byte	2 byte	2 byte	2 byte	2 byte

4.3 Register Address

Register Address	PLC Or configure the address	content	operate
0000 H	40001	wind direction(0-7 files) The uploaded data is the real value	Read-only
0001 H	40002	wind direction(0-360°) The uploaded data is the real value	Read-only

4.4 Conversion relationship between numerical values

Collected value (0-7files)	Collected value (0-360°)	Corresponding direction
0	0°	North Wind
1	45°	Northeast Wind
2	90°	Dongfeng
3	135°	Southeast Wind
4	180°	south wind
5	225°	Southwest Wind
6	270°	West Wind
7	315°	Northwest Wind

4.5 Communication protocol examples and explanations

Example: Reading device address 0x01 Wind direction

Inquiry frame:

Address code	Function code	Starting address	Data length	Check code low	Check code high digit
0x01	0x03	0x00 0x00	0x00 0x02	0xC4	0x0B

Response frame: (For example, wind direction value is read (0-7File) is 2, (0-360°) for 90°)

Address code	Function code	Returns the number of valid bytes	wind direction (0-7files)	wind direction (0-360°)	Check code low	Check code high digit
0x01	0x03	0x04	0x00 0x02	0x00 0x5A	0xDB	0xC8

Wind direction calculation:

(0-7files): 0002H(hexadecimal) = 2 => wind direction = Dongfeng

(0-360°): 005AH (hexadecimal) = 90 => wind direction = Dongfeng

No. 5chapter Common Problems and Solutions

No output or output error

Possible causes:

- ①, Computer hasCOMThe selected port is incorrect.
- ②, baud rate error.
- ③,485The bus is disconnected, or A,BThe wires are connected reversely.
- ④, If there are too many devices or the wiring is too long, power supply should be provided nearby.485Enhancer, while increasing120 Ω Terminal resistance.
- ⑤,USBchange485The driver is not installed or is damaged.
- ⑥, equipment damage.