RS-FXJT-N01 Wind direction transmitter user's manual (Type 485)

Document version：V2.1
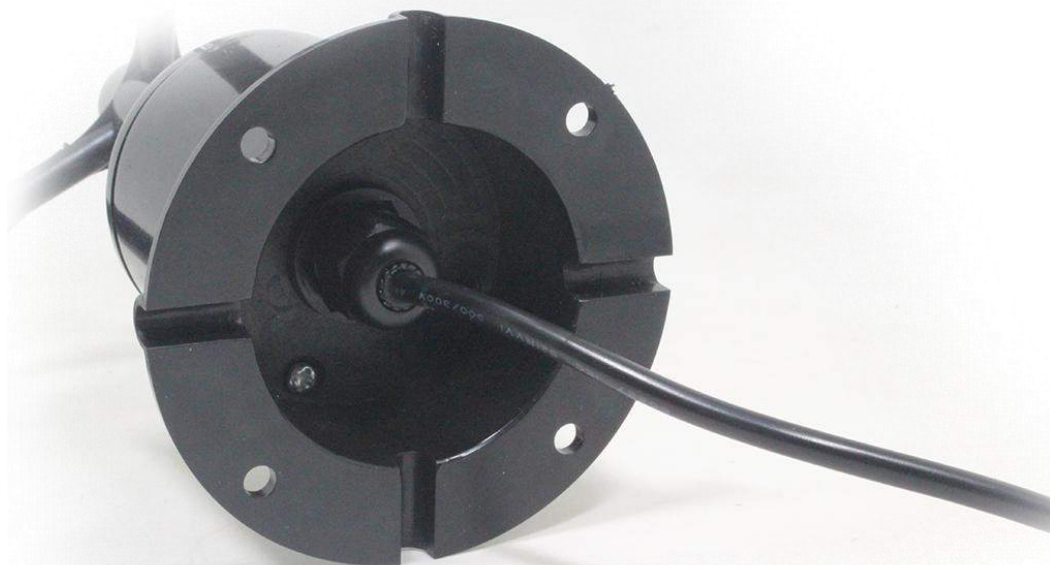
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1. product description
1.1product description

    RS-FXJT-N01 wind direction transmitter, compact and lightweight, easy to carry and assemble. The new design concept can effectively obtain the wind direction information. The shell is made of polycarbonate composite material, which has good characteristics such as corrosion resistance and erosion resistance, which can ensure The transmitter does not deform for a long time, and at the same time cooperates with a smooth internal bearing system to ensure the accuracy of information collection. It is widely used in wind direction measurement of greenhouses, environmental protection, weather stations, ships, terminals, breeding and other environments.

1.2Features

1.Range: 8 directions

2. Anti-electromagnetic interference treatment

3. Imported high-performance bearings, small rotation resistance and accurate measurement

4. Polycarbonate shell, high mechanical strength, high hardness, corrosion resistance, no rust, can be used outdoors for a long time

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

6. Standard ModBus-RTU communication protocol, easy access

1.3Main Specifications

DC powered (default)	10~30V DC
Power consumption	≤0.3W
Transmitter circuit operating temperature	-20℃~+60℃，0%RH~80%RH
Communication Interface	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
parameter settings	Use the provided configuration software to configure through the 485 interface
Measuring range	8 directions

Dynamic response speed	≤0.5s

2. Equipment installation instructions
2.1 Check before equipment installation

Equipment List:

1.Transmitter equipment

2.4 mounting screws

3. Qualification certificate, warranty card, wiring instructions, etc.

4.USB to 485 (optional)

5.485 terminal resistance (optional)

2.2 Interface Description

Wide voltage power input can be 10 ~ 30V. When wiring the 485 signal line, pay attention that the two wires A \ B cannot be reversed, and the addresses of multiple devices on the bus must not conflict.

2.3 Electrical wiring

	Thread color	Description
power supply	brown	Power supply (10 ~ 30V DC)
	black	Negative power
Communication	green	485-A
	blue	485-B

2.4 Field wiring instructions

When multiple 485 models are connected to the same bus, there are certain requirements for field wiring. For details, please refer to the "485 Equipment Field Wiring Manual" in the reference package.

2.5Installation method

It adopts flange installation and threaded flange connection to firmly fix the lower pipe of the wind direction sensor to the flange. The chassis is Ø80mm. Four Ø4.5mm mounting holes are opened on the Ø68mm circumference, and it is firmly fixed with bolts. The bracket keeps the entire set of instruments at the optimal level to ensure the accuracy of the wind direction data. The flange connection is easy to use and can withstand large pressures.

注意：
安装时，让传感器上的箭头
冲着正北方，以免造成测量
误差。

北

2.6Precautions

1. The user is not allowed to dismantle by himself, nor touch the sensor core, so as not to cause damage to the product.

2. Try to stay away from high-power interference equipment to avoid inaccurate measurements, such as inverters, motors, etc. When installing and removing the transmitter, you must first disconnect the power supply. Water entering the transmitter can cause irreversible changes.

3. To prevent chemical reagents, oil, dust and other direct damage to the sensor, do not use it for a long time in the environment of condensation, extreme temperature, and prevent cold and heat shock.

3. Configuration software installation and use
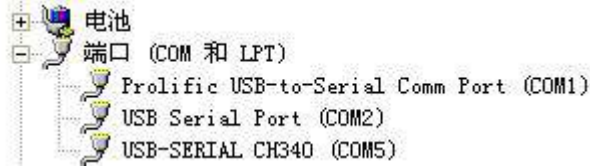
3.1 Software selection

Open the package and select "Debugging Software" --- "485 Parameter Configuration

Software" and find Just open it.

3.2 parameter settings

① Select the correct COM port (check the COM port in "My Computer-Properties-Device Manager-Port"). The following figure lists several different 485 converter driver names.

② Connect only one device and power on. Click the software to test the baud rate. 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 can query the current function status of the device.

④ If the test is unsuccessful, please recheck the equipment wiring and 485 driver installation.

4. letter of agreement

4.1 Basic communication parameters

Code	8-bit binary
Data bit	8-bit
Parity bit	no
Stop bit	1 person
Error checking	CRC (Redundant Cyclic Code)
Baud rate	2400bit／s, 4800bit／s, 9600 bit／s can be set, the factory default is 4800 bit／s

4.2 Data frame format definition

Modbus-RTU communication protocol is adopted, the format is as follows:

Initial structure ≥ 4 bytes of time

Address code = 1 byte

Function code = 1 byte

Data area = N bytes

Error check = 16-bit CRC

Ending structure ≥ 4 bytes of time

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

Function code: The function instruction of the command issued by the host, this transmitter only uses the function code 0x03 (reading register data).

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

CRC code: two-byte check code.

Host inquiry frame structure:

address code	function code	Register start address	Register length	Low check bit	Check code high
1byte	1byte	2byte	2byte	1byte	1byte

Slave response frame structure:

address code	function code	Number of valid bytes	Data area	Second data area	Nth data area	Check code
1byte	1byte	1byte	2byte	2byte	2byte	2byte

4.3 Register address

Register address	PLCOr configuration address	content	operating
0000 H	40001	Wind direction (0-7 gear) 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 Numerical correspondence conversion relationship

Collection value (0-7 files)	Acquisition 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°	Westerly
7	315°	Northwest wind

4.5 Communication protocol example and explanation

Example: Read wind direction at device address 0x01

Inquiry frame:

address code	function code	starting address	Data length	Low check bit	Check code high
0x01	0x03	0x00 0x00	0x00 0x02	0xC4	0x0B

Inquiry frame:： （For example, reading the wind direction value (0-7 gear) is 2, and (0-360 °) is 90 °）

address code	function code	Returns the number of valid bytes	wind direction（0-7 files）	wind direction（0-360°）	Low check bit	Check code high
0x01	0x03	0x04	0x00 0x02	0x00 0x5A	0xDB	0xC8

Wind direction calculation:

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

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

5. Common problems and solutions

5.1 Device cannot be connected to PLC or computer

possible reason:

1) The computer has multiple COM ports, and the selected port is incorrect.

2) The device address is wrong, or there are devices with duplicate addresses (the factory defaults are all 1).

3) Baud rate, check mode, data bit, stop bit error.

4) The host polling interval and waiting for response time are too short, both need to be set above 200ms.

5) The 485 bus is disconnected, or the A and B wires are reversed.

6) If there are too many devices or the wiring is too long, you should supply power nearby, add a 485 booster, and increase the 120Ω terminal resistance.

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

8) The equipment is damaged.

6. Contact

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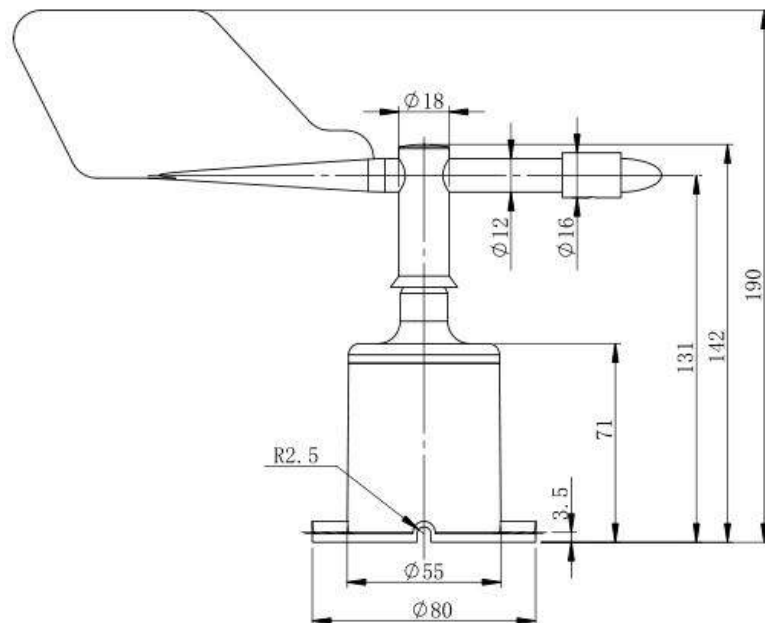**Cloud platform address: en.0531yun.cn   Or: eniot.0531yun.cn**

Web QR:

7. Document history

V1.0 document creation.
V2.0 documentation update.
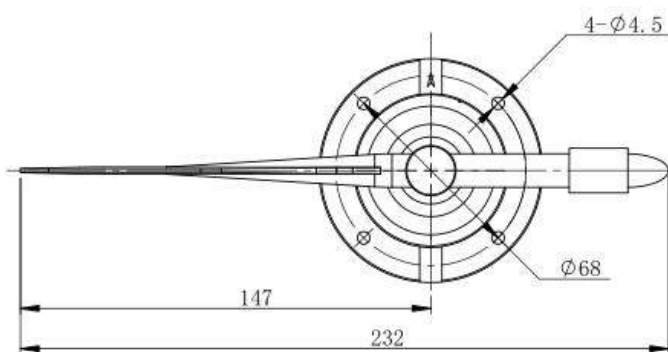V2.1 Product size change.

8. Dimensions

整体高度：190

主轴高度：142

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)