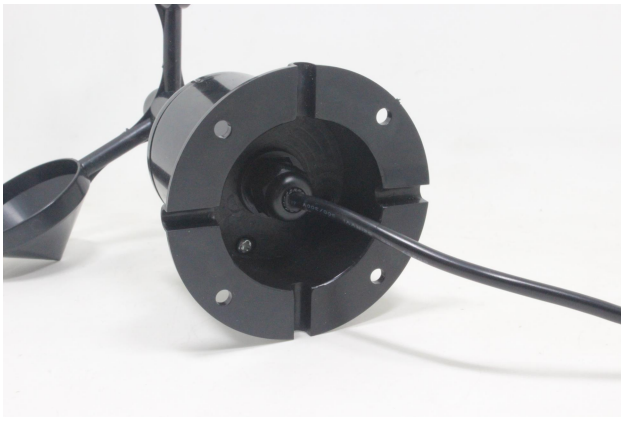
FS02
Wind speed transmitter user's Guide (Type 485)





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1. product description

1.1product description

FS02 wind speed transmitter, small and light shape, easy to carry and assemble, the three cup design concept can effectively obtain wind speed information, the shell is made of polycarbonate composite material, has good anti-corrosion, anti-erosion and other characteristics, can guarantee The transmitter has been used for a long time without rusting, and it cooperates with the internal smooth bearing system to ensure the accuracy of information collection. It is widely used in the measurement of wind speed in the environment of greenhouse, environmental protection, weather station, ship, wharf, breeding, etc.

1.2Features

1. Range: 0-70m/s, resolution 0.1m/s
2. Anti-electromagnetic interference treatment
3. The bottom outlet method is used to completely prevent the aging problem of the rubber plug of the aviation plug, and it is still waterproof for long-term use.
4. Using high-performance imported bearings, low rotation resistance, accurate measurement
5. Polycarbonate shell, high mechanical strength, high hardness, corrosion resistance, no rust can be used outdoors for a long time
6. The structure and weight of the equipment have been carefully designed and distributed, with small rotational inertia and sensitive response
7. Standard ModBus-RTU communication protocol, easy access

1.3Main Specifications

DC power supply (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, 19,200, 38,400, 57,600, 115,200 Default ModBus communication address: 1 Support function code: 03/04
parameter settings	Use the provided configuration software to configure through the 485 interface
Resolution	0.1m/s
Accuracy	± (0.2+0.03V) m/s V represents wind speed
Measuring range	0~70m/s
Dynamic response time	≤1s

2. Equipment installation instructions

2.1 Check before installation

Equipment List:

1. 1 transmitter device

2. 4 mounting screws

3. Qualification certificate, warranty card, calibration certificate, etc.

4.USB to 485 (optional)

5.485 terminal resistance (optional)

2.2 Interface Description

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

2.3Electrical wiring

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

2.4 Field wiring instructions

When multiple 485 model devices are connected to the same bus, there are certain requirements for field wiring. For details, please refer to the "485 Device Field Wiring Manual" in the data package.

2.5Installation method

Flange installation is adopted, and the threaded flange connection makes the lower pipe fitting of the wind speed sensor firmly fixed on the flange. The chassis is Ø65mm. Four mounting holes of Ø6mm are opened on the circumference of Ø47.1mm. On the bracket, the whole set of instruments is kept at the best level to ensure the accuracy of the wind speed data. The flange connection is easy to use and can withstand greater pressure.



2.6Precautions

1. The user should not disassemble it by himself or touch the sensor core to avoid damage to the product.

2. Try to stay away from high-power interference equipment, so as not to cause inaccurate measurement, such as frequency converters, 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, etc. from directly invading the sensor, do not use it for a long time in the environment of condensation and extreme temperature, and strictly prevent cold and hot shocks.

3. Configuration software installation and use

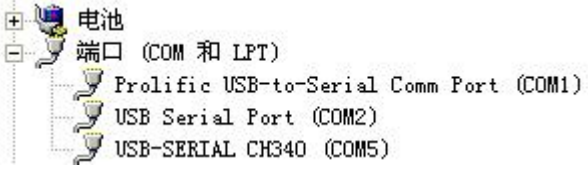
3.1 Software selection

Open the data package, select "Debug software" --- "485 parameter configuration software", find 

Just open。

3.2 parameter settings

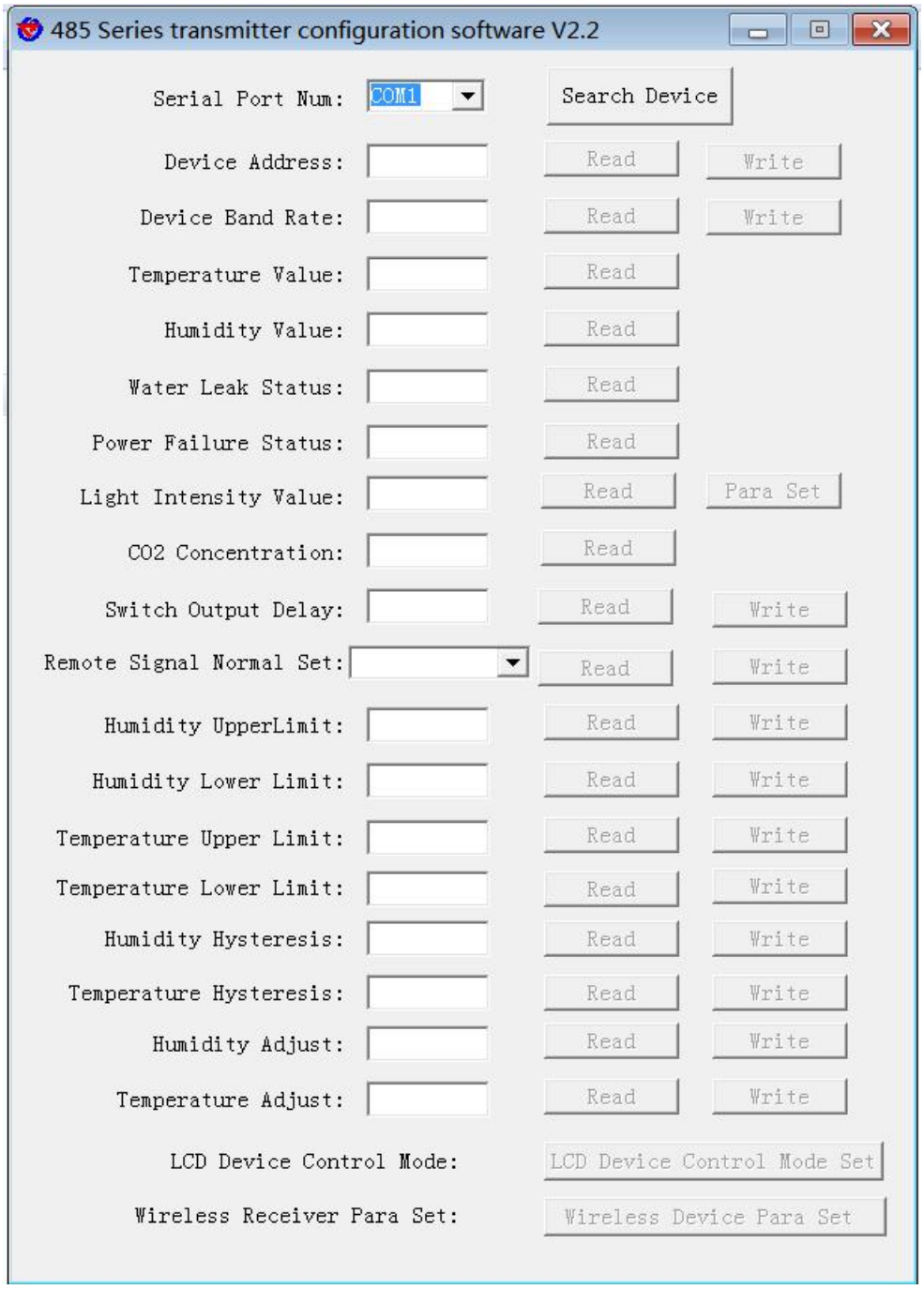
①, select the correct COM port ("COM" port in "My Computer-Properties-Device Manager-Port" to view the COM port), the following figure lists the driver names of several different 485 converters.



②, only connect one device and power on, click 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, the default address is 0x01.

③ Modify the address and baud rate according to the needs of use, and at the same time, you can query the current functional status of the device.

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



4. letter of agreement

4.1 Communication basic parameters

Coding	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 4800bit/s

4.2 Data frame format definition

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

Time for initial structure ≥ 4 bytes

Address code = 1 byte

Function code = 1 byte

Data area = N bytes

Error check = 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 instruction function instruction issued by the host, this transmitter only uses the function code 0x03 (read register data).

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

CRC code: two-byte check code.

Host inquiry frame structure:

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

Slave response frame structure:

address code	function code	Effective bytes	Data area	Second data area	Nth data area	Check code
1byte	1byte	1byte	2byte	2byte	2byte	2byte

4.3 Register address

Register address	PLC or configuration address	content	Support function code	Definition description

0000 H	40001	Instantaneous wind speed	0x03/0x04	The definition indicates that the uploaded data is 10 times of the real value
07D0 H	42001	Device address	0x03/0x04/0x06	1~254（Factory default 1）
07D1 H	42002	Device baud rate	0x03/0x04/0x06	0 stands for 2400 1 stands for 4800 2 for 9600 3 for 19200 4 stands for 38400 5 stands for 57600 6 represents 115200 7 for 1200

4.4 Communication protocol example and explanation

Example: Read the wind speed value of device address 0x01

Inquiry frame：

address code	function code	starting address	Data length	Check digit low	Check digit high
0x01	0x03	0x00 0x00	0x00 0x01	0x84	0x0A

Response frame: (for example, the current wind speed is 8.6m/s)

address code	function code	Returns the number of valid bytes	Current wind speed value	Check digit low	Check digit high
0x01	0x03	0x02	0x00 0x56	0x38	0x7A

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

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 default is all 1).

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

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

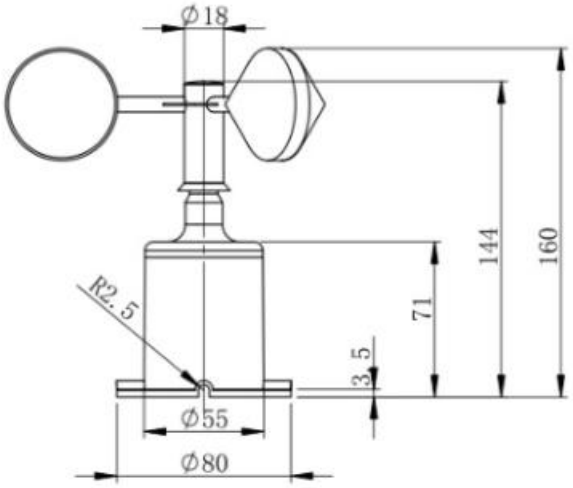
5) The 485 bus is disconnected, or the A and B lines are reversed.

6) If the number of devices is too large or the wiring is too long, power should be supplied nearby, and a 485 booster should be added, and a 120Ω terminal resistance should be added.

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

8) The equipment is damaged.

6. Dimensions



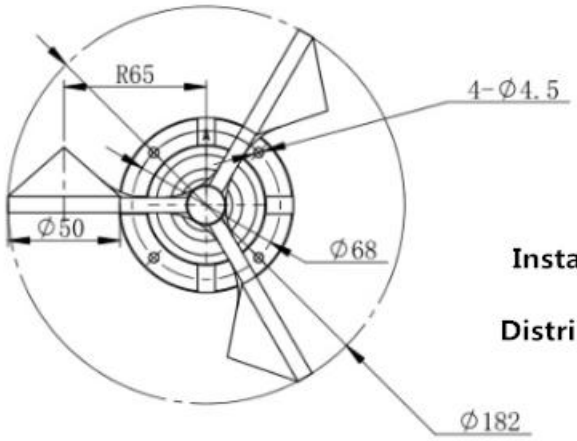
Overall height : 160

Spindle height : 144

Base height : 71

Base diameter : ϕ 80

unit (mm)



Installation aperture : ϕ 4.5

Distribution diameter : ϕ 68

unit (mm)