

# Wind Speed Sensor

FST200-1002

## Product Manual

(V1.3)



## ● Important statement

Thank you very much for choosing our products, we will serve you sincerely forever. The company pursues excellent quality and pays more attention to excellent after-sales service.

Operation errors will shorten the life of the product, reduce its performance, and may cause accidents in severe cases. Please hand over this manual to the end user and read it carefully before using the product. And please keep it in a safe place for reference when needed. The company reserves the right to modify this manual due to product technology and process updates. If there is any change, no further notice will be given, and the final interpretation of this manual is reserved.

## ● Product overview

The wind speed sensor produced by our company is a wind speed sensor with high reliability and high performance. This series of sensors can stably and accurately collect environmental wind speed signals, and is suitable for high-altitude operations, construction machinery, port machinery and other occasions.

The sensor has a built-in digital circuit with strong anti-radio frequency, anti-electromagnetic interference and anti-lightning surge. The circuit of the wind speed sensor collects the electrical signal that the rotational speed output of the wind cup is linearly related to the wind speed of the environment; the main structural parts of the product are made of PC+nylon mixed materials, and the surface is treated. The product has good waterproof and anti-aging capabilities, and the internal and rotating components are all sealed, which can effectively prevent the intrusion of water, salt spray and sand.

## ● Features

- ◇ Developed based on the principle of non-contact magnetic sensor measurement.
- ◇ Built-in high-performance sensor, the collected data has high precision and high reliability.
- ◇ Wide wind speed measurement range, low starting wind speed.
- ◇ The wind speed sensor adopts PC+nylon shell, which has good corrosion resistance and strong wind resistance.
- ◇ The circuit protection adopts a fault-tolerant design, and the sensor will not be damaged in the case of wrong wiring.
- ◇ Comply with CE EMC standard, multi-level lightning protection and anti-surge design.
- ◇ Can work in a wide voltage range of 12-30VDC.

## ● Scope of application

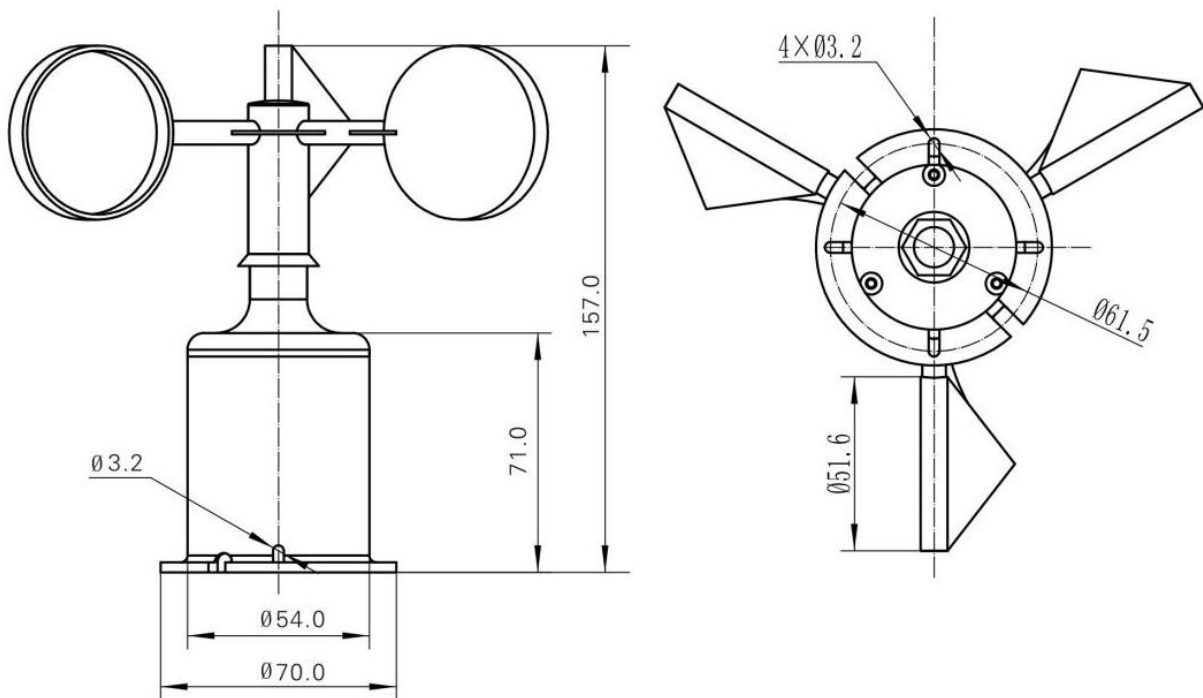
It is suitable for wind speed monitoring in factories, electric power, ports, factories and mines, wind turbines, large mechanical equipment, etc.

## ● Technical indicators

Operating Voltage	DC 12-30V
Start wind speed	$\geq 0.5\text{m/s}$
Precision	$\pm 0.5\text{m/s} (< 5\text{m/s})$ ; $\pm 3\%\text{FS} (\geq 5\text{m/s})$
Operating temperature	$-20^{\circ}\text{C} \sim +85^{\circ}\text{C}$
Working humidity	0%~95% (non-condensing)
Wind cup material	PC+Nylon
Measuring range	0~50m/s
Wind strength	$> 70\text{m/s}$
Degree of protection	IP65
Static protection	15KV
Output signal	4~20mA, RS485 (Modbus), 0-5V, 0-10V

Note: Specific electrical performance and wiring definitions are subject to the actual product.

## ● Installation Notes



## Wind Speed Sensor Installation Instructions

1. Please install the sensor vertically upwards and horizontally. As shown in the figure above, the angle between the installation base and the horizontal plane should not exceed 5 degrees to ensure that the sensor can accurately measure the wind speed at low wind speeds;

2. As shown in the figure above, the position and shape of the wind cup and windmill arm directly affect the accuracy of the sensor. Do not grasp the wind cup and windmill arm during installation, so as not to damage the sensor structure and affect the measurement accuracy.

### ● Electrical connection

Current type: Red:+Vcc

Black: GND

Green: +Iout

RS485 output: red:+Vcc

Black: GND

Green: RS485A

White: RS485B

Voltage type: Red: +Vcc

Black:GND

Green: +Vout

Note: Other outlet methods can be customized, and the specific wiring is subject to the product logo.

## MODBUS (RS485) communication protocol

### ● Basic settings of communication protocol

Transmission mode: MODBUS-RTU mode.

Communication parameters: default baud rate 9600bps (optional 2400bps, 4800bps, 9600bps, 19200bps, can be configured according to user requirements), 1 start bit, 8 data bits, no parity (optional odd parity, even parity ), 1 stop bit, after changing the communication parameters, the wind speed sensor needs to be powered on again.

Slave address: The factory default is 1, which can be configured according to user requirements.

## ● Holding register list

Parameters	MODBUS holding register address (16 bits)
Slave address	Address: 0000H Default: 0x0001
Baud rate	Address: 0001H The default baud rate is 9600, which is saved as 0x0096, and other analogies (all are divided by 100 and saved in hexadecimal), for example, the baud rate is 19200, which is saved as 0x0192
Check Digit	Address: 0002H 0x0000 means no parity, 0x0001 means odd parity, 0x0002 means even parity
Wind speed value	Address: 0004H divided by 100 to get the wind speed value, the unit is m/s, for example, the read value is 0x03E8, and the actual wind speed value is 10.00m/s

Note: Access to other addresses is prohibited.

## ● Modbus RTU command

Supported MODBUS function codes: 0x03, 0x06

03H function code example: read the wind speed data of the wind speed sensor whose slave address is No. 1

★Host query command:

Slave Address	01H	Slave address
Function	03H	Function code
Starting Address Hi	00H	The high 8 bits of the start register address
Starting Address Lo	04H	The lower 8 bits of the start register address
No. of Registers Hi	00H	The upper 8 bits of the number of registers
No. of Registers Lo	01H	The lower 8 bits of the number of registers
CRC Check Lo	C5H	CRC check code lower 8 bits
CRC Check Hi	CBH	CRC check code high 8 bits

★Slave response:

Slave Address	01H	Slave address
Function	03H	Function code
Byte Count	02H	Length is 2 bytes

Data Hi	03H	At this time the wind speed is: 10.00 m/s
Data Lo	E8H	At this time the wind speed is: 10.00 m/s
CRC Check Lo	B8H	CRC check code lower 8 bits
CRC Check Hi	FAH	CRC check code high 8 bits

06H function code example: modify the baud rate (this example is modified to 19200bps)

★Host query command:

Slave Address	01H	Slave address
Function	06H	Function code
Starting Address Hi	00H	The baud rate holding register address is 0001H
Starting Address Lo	01H	The baud rate holding register address is 0001H
Data Hi	01H	When the baud rate is 19200bps, the value of the register is 0x0192
Data Lo	92H	When the baud rate is 19200bps, the value of the register is 0x0192
CRC Check Lo	58H	CRC check code lower 8 bits
CRC Check Hi	37H	CRC check code high 8 bits

★Slave response:

Slave Address	01H	Slave address
Function	06H	Function code
Starting Address Hi	00H	The baud rate holding register address is 0001H
Starting Address Lo	01H	The baud rate holding register address is 0001H
Data Hi	01H	When the baud rate is 19200bps, the value of the register is 0x0192
Data Lo	92H	When the baud rate is 19200bps, the value of the register is 0x0192
CRC Check Lo	58H	CRC check code lower 8 bits
CRC Check Hi	37H	CRC check code high 8 bits



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