

Wind Speed Sensor

FST200-201

Product Manual

(V1.4)



● 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 ambient horizontal wind speed;

The main structural parts of the product are made of alloy materials, and the surface is treated. The product has good waterproof and corrosion resistance. The internal and rotating parts 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.
- ◇ The wind speed measurement range is wide, and the starting wind speed is low.
- ◇ The wind speed sensor adopts an all-metal shell, which has good corrosion resistance and strong wind resistance.
- ◇ The wind cup is made of stainless steel, which can be used under harsh conditions.
- ◇ 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.
- ◇ It can work in a wide voltage range of 15-30VDC.

● Scope of application

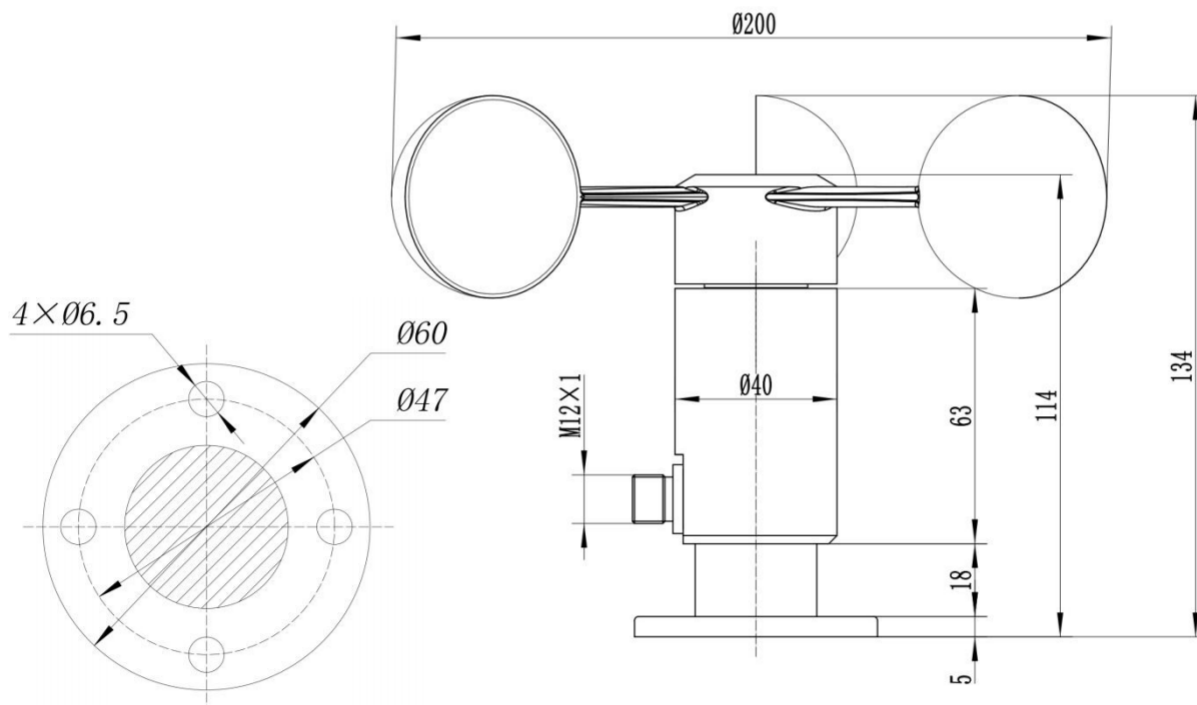
It is suitable for wind speed monitoring in factories, electric power, ports, factories and mines, wind turbines, large mechanical equipment, etc.

• Technical indicators

Operating Voltage	15-30VDC, 5V/12V/24V (pulse)	Measuring range	0~30m/s, 0~50m/s
Start wind speed	≥0.5m/s	Wind strength	> 70m/s 30min
Precision	±0.5m/s(< 5m/s); ±3%FS(≥5m/s)	Degree of protection	IP65
Operating temperature	-20°C~+85°C	The main material	Aluminum alloy/polyester coating
Working humidity	0%~95% (non-condensing)	Output signal	4~20mA, 0~5VDC, 0~10VDC, pulse(Note: 1m/s=6.667 pulses), RS485 (Modbus)
group pulse	Ordinary model: Class 3 (2kV, 100kHz) Class B Lightning-resistant model: Class 4 (4000V, 100kHz) Class B		
surge	Ordinary model: Class 1 (common mode 500V, differential mode 250V, class B) Lightning-resistant model: Class 4 (common mode 4000V, differential mode 2000V), class B		

Note: If there are any differences between the technical specifications and cable definitions in the manual and the actual product, please refer to the actual order.

• Installation Notes

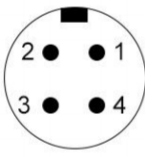


1. Please install the sensor horizontally, as shown in the left figure, the angle between the installation base and the horizontal plane should not exceed 5°, so as to ensure that the sensor can accurately measure the wind speed at low wind speed.

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

3. When installing the sensor, it should be installed with the wind cup facing up and perpendicular to the installation surface.

● Connection mode and signal selection table

M12 connector	Output	M12 pin	Wire color	Definition
	Analog signal output	1	Brown	+Vcc (power supply positive)
		2	White	Iout/Vout (output positive)
		3	Blue	GND (power negative)
		4	Black	PE (ground)
	RS485 digital signal output	1	Brown	+Vcc (power supply positive)
		2	White	RS485A
		3	Blue	GND (power negative)
		4	Black	RS485B
	Pulse output	1	Brown	+Vcc (positive power supply)
		2	White	PLS pulse output
		3	Blue	GND (negative power supply)
		4	Black	PE (ground)

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

● Precautions

This instrument is a precision electronic product. Proper maintenance and care will help protect the instrument's performance and extend its service life. Please pay attention to the following points:

1. Please refer to the requirements of the instruction manual to use the instruction manual correctly. Incorrect wiring may cause damage to the instrument;
2. Do not wipe the instrument with volatile liquids, otherwise it may cause the instrument to discolor and deform; wipe with a soft cloth to avoid scratching the external protective film of the instrument to extend the service life of the instrument;

3. The instrument should be handled with care and must not be dropped or pressed heavily, otherwise it will cause the instrument to deform and the internal circuit board to be damaged;
4. Do not touch the sensing part when the instrument is powered to affect the measurement results or cause damage to the internal circuit of the instrument;
5. Do not disassemble or modify this instrument privately to avoid damage to the instrument;
6. The instrument should be firmly fixed with screws when in use, otherwise it may damage the instrument;
7. Check the power supply voltage of the instrument regularly to ensure the normal operation of the instrument;
8. Please do not modify the internal parameters of the equipment privately to avoid abnormal operation of the instrument. If modification is required, please operate under the guidance of the manufacturer's technical personnel.

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, 38400bps, 57600bps, 115200bps, 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 (in this case, modify it to 57600bps)

★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	05H	When the baud rate is 57600bps, the value of the register is 0x0576
Data Lo	76H	When the baud rate is 57600bps, the value of the register is 0x0576
CRC Check Lo	5AH	CRC check code lower 8 bits
CRC Check Hi	BCH	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	05H	When the baud rate is 57600bps, the value of the register is 0x0576
Data Lo	76H	When the baud rate is 57600bps, the value of the register is 0x0576
CRC Check Lo	5AH	CRC check code lower 8 bits
CRC Check Hi	BCH	CRC check code high 8 bits

