

Wind Speed Sensor

FST200-1000

Product Manual

(V1.5)



● 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 description

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

The sensor has a built-in digital circuit that is highly resistant to radio frequency, electromagnetic interference and lightning surge protection. The circuit of the wind speed sensor collects electrical signals that are linearly related to the wind speed output of the wind cup and the ambient level wind speed; the main structural parts of the product are made of alloy materials and are surface treated. The product has good waterproof and anti-aging capabilities, and the internal and rotating parts are made of Sealing design can effectively prevent the intrusion of water, salt spray and sand dust.

● Main functions and features

- ◇ Developed based on the principle of non-contact magnetic sensing measurement;
- ◇ Built-in high-performance sensors, the collected data are highly accurate and reliable;
- ◇ The wind speed measurement range is wide and the starting wind speed is low;
- ◇ The wind speed sensor adopts an all-metal casing, which has good corrosion resistance and strong wind resistance;
- ◇ The circuit protection adopts a fault-tolerant design, so the sensor will not be damaged if the wrong wiring is connected;
- ◇ Comply with CE EMC standards, multi-level lightning protection and anti-surge design;
- ◇ Can work within a wide voltage range of 12-30VDC.

● Application areas

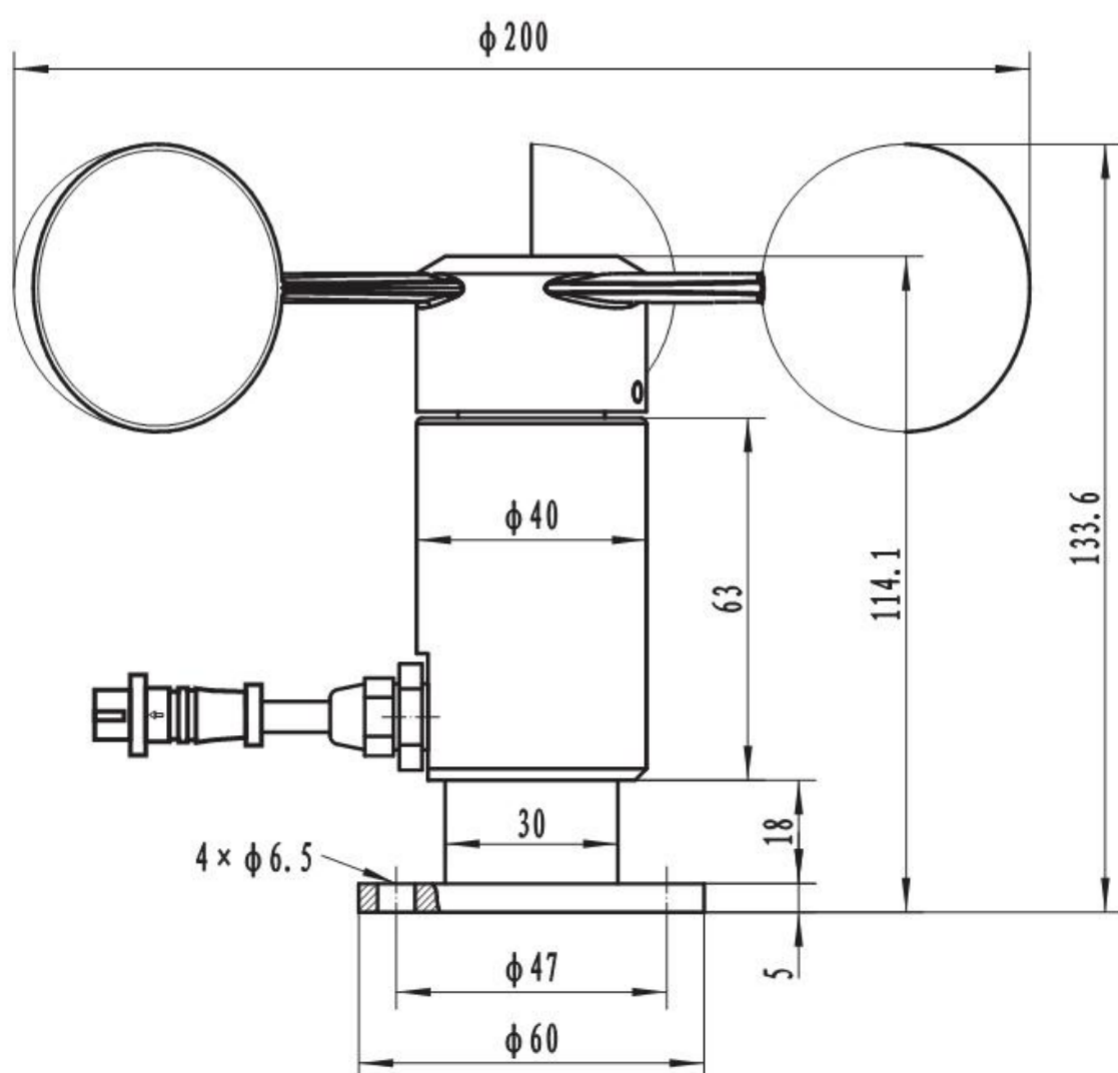
Suitable for wind speed monitoring in factories, electric power, ports, factories and mines, wind turbines, large mechanical equipment, etc.

• Technical indicators

Measuring range	0~30m/s,0~50m/s,0~60m/s	output signal	4~20mA,RS485
Accuracy	$\pm 0.5\text{m/s}$ ($< 5\text{m/s}$), $\pm 3\%\text{FS}$ ($\geq 5\text{m/s}$)	Operating Voltage	DC 12-30V
Start wind speed	$\leq 0.5\text{m/s}$	Wind resistance	$> 70\text{m/s}$
Operating temperature	$-20^{\circ}\text{C}\sim+85^{\circ}\text{C}$	Working humidity	0%~95% (no condensation)
Electrostatic protection	15KV	Protection level	IP65
Wind cup material	Aluminum alloy/polyester coating		

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

• Dimensional drawing

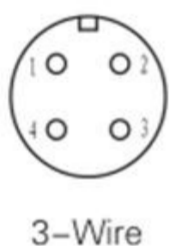


● Installation notes

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 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. Please do not hold the wind cup and windmill arm during the installation process to avoid damaging the sensor structure and affecting the measurement accuracy.

● Electrical wiring method



Example of female connector

Output signal	Serial number	Wiring rules	
Current type	1	+Vcc (power positive)	Red
	2	GND (power supply negative)	Black
	3	+Iout (positive output)	White
	4	PE (ground)	Yellow
Digital	1	+Vcc (power positive)	Red
	2	GND (power supply negative)	Black
	3	RS485A	White
	4	RS485B	Yellow

Note: Other outlet methods are customized, and the specific wiring is subject to the product identification.

(RS485) MODBUS communication protocol

● Basic settings of communication protocol

Transmission method: 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.

• Keep register list

Parameter	MODBUS holding register address (16 bits)
Slave address	Address: 0000H Default value: 0x0001
Baud rate	Address: 0001H. The default baud rate is 9600, which is saved as 0x0096. Others can be deduced by analogy (divided by 100 and then saved in hexadecimal). For example, the baud rate is 19200, which is saved as 0x0192.
Check digit	Address: 0002H 0x0000 represents no parity, 0x0001 represents odd parity, 0x0002 represents even parity
Wind speed value	Address: 0004H. Divide by 100 to get the wind speed value in m/s. For example, the read value is 0x03E8 and the actual wind speed value is 10.00m/s.

Note: Access from other addresses is prohibited.

• Modbus RTU commands

Supported MODBUS function codes: 0x03, 0x06

03H function code example: read the wind speed data of the wind speed sensor with slave address

No. 1

★Host query command:

Slave Address	01H	Slave address
Function	03H	Function code
Starting Address Hi	00H	The high 8 bits of the starting register address
Starting Address Lo	04H	The lower 8 bits of the starting register address
No. of Registers Hi	00H	The upper 8 bits of the register number
No. of Registers Lo	01H	The lower 8 bits of the register number
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	The wind speed at this time is: 10.00 m/s

Data Lo	E8H	The wind speed at this time 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 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 register value is 0x0576
Data Lo	76H	When the baud rate is 57600bps, the register value 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 register value is 0x0576
Data Lo	76H	When the baud rate is 57600bps, the register value is 0x0576
CRC Check Lo	5AH	CRC check code lower 8 bits
CRC Check Hi	BCH	CRC check code high 8 bits



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