

# Wind Speed Sensor Product Manual

## Description

The OSA-15 three-cups wind speed sensor is a wind speed measuring instrument which developed and produced by our group. The sensor housing is made of aluminum with small dimensional tolerances, high weather resistance, high strength, corrosion resistance and water resistance. Internal components include photoelectric conversion mechanism, industrial microcomputer processor, standard current generator, current driver, etc.

The circuit PCB is made of military-grade-A material, which ensures the stability of measurement parameters and electrical performance; the electronic components are all imported industrial grade chips, which can make the sensor has extremely reliable anti-electromagnetic interference capability.

Multipule output signals as below:

The wired output includes: analog signal (voltage, current), digital signal RS485,

The wireless output includes: LoRa, Bluetooth, WIFI, GPRS, 4G, NB-IOT, CAT-1.

## Applications

This product is widely used in greenhouses, environmental protection, weather stations, engineering machinery, ships, docks, farming and other environments for wind speed measurement.

## Product Features

- This sensor has compact size and high measurement accuracy.
- Quick response and good interchangeability.
- Low cost, low price and high performance.
- Simple and easy installation.
- High data transfer efficiency and reliable performance to ensure proper operation.
- Long signal transmission distance.
- Two parameters of both wind speed and wind level.



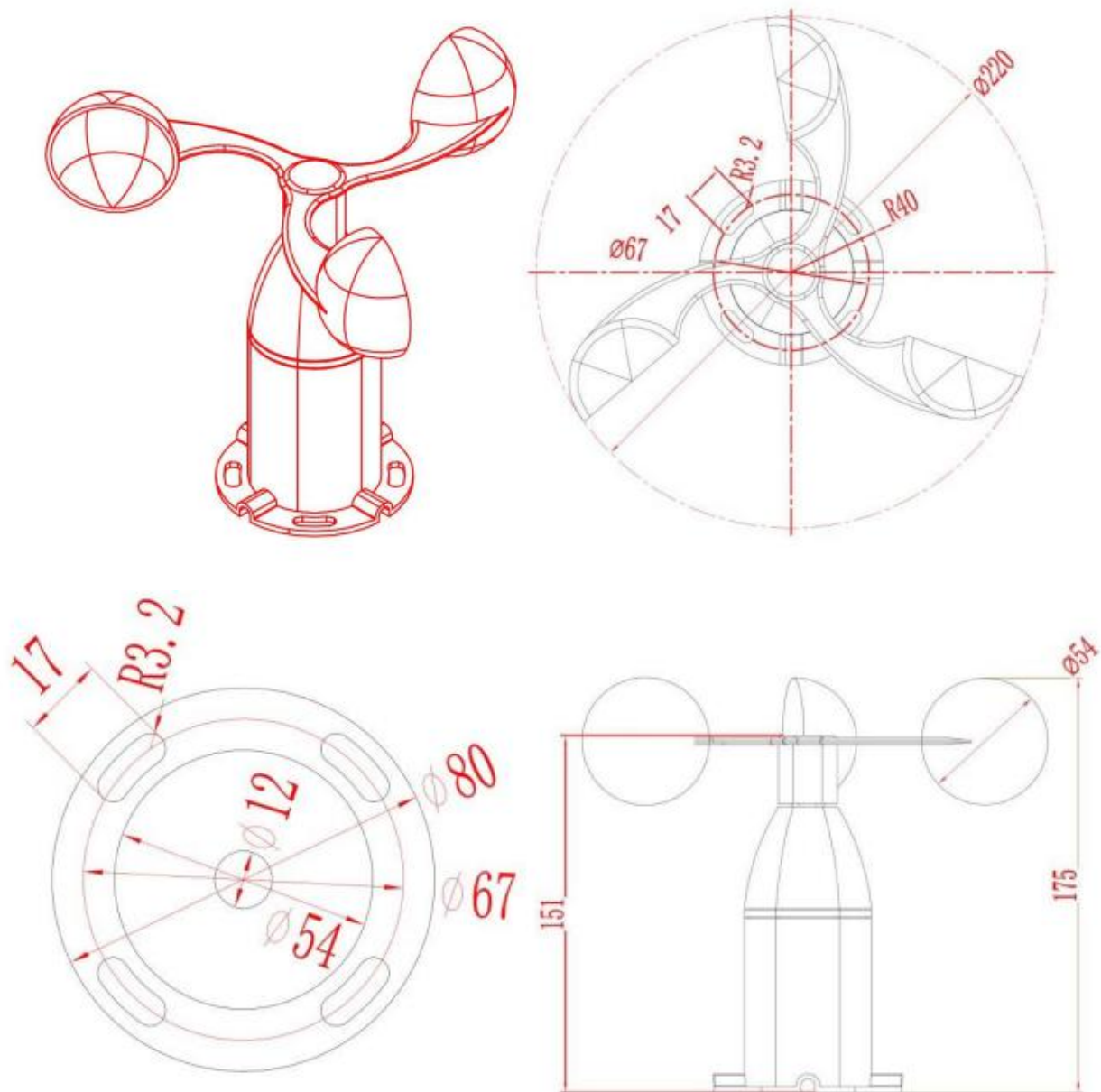
## Major technical parameter

Technical Parameter	
Measurement range	0~30m/s
Startup wind speed	≤0.3m/s
Accuracy	± (0.3+0.03v) m/s
Output signal	RS485 ( Modbus-RTU communication protocol, Device default address: 01 )
Power supply voltage	5~24V DC
Stabilization time	<1second
Response time	<1second
Working temperature	-30℃~70℃

Working humidity	15~85%RH (Non-condensation)
Cable length	3m

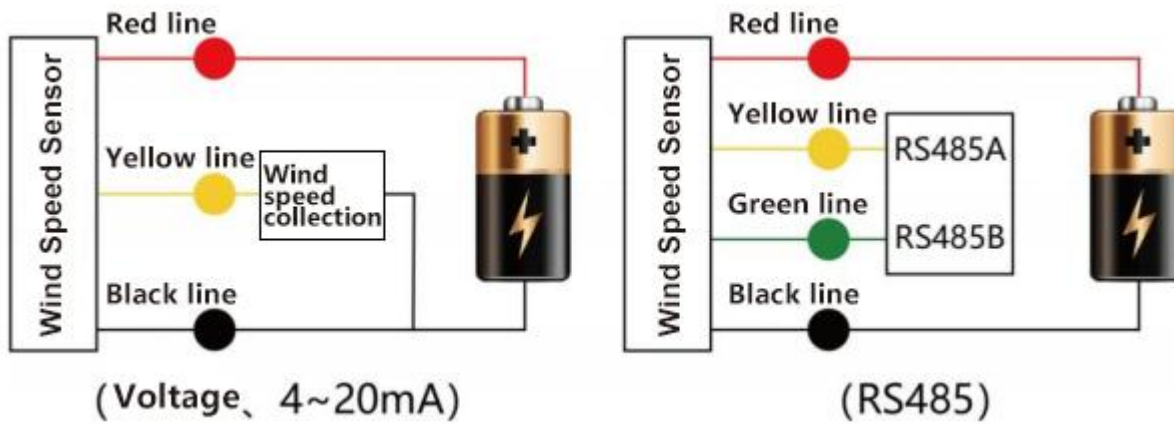
Impedance requirements				
Voltage	9V	12V	20V	24V
Maximum impedance	125Ω	250Ω	500Ω	>500Ω

### Outline Size



### Usage

The OSA-15 wind speed sensor can be connected to various data collectors containing differential inputs, data acquisition cards, remote data acquisition modules and other devices with the following wiring instructions.



### Data conversion method

V: Voltage values collected by the collector, Unit : V

A: Current value collected by the collector, Unit: mA

Output signal	Data conversion method for each range	
	0 ~ 30m/s	0 ~ 60m/s
0 ~ 2V DC	Wind Speed = 15*V	Wind Speed = 30*V
0 ~ 5V DC	Wind Speed = 6*V	Wind Speed = 12*V
0 ~ 10V DC	Wind Speed = 3*V	Wind Speed = 6*V
4 ~ 20mA	Wind Speed = 1.875*A - 7.5	Wind Speed = 3.75*A - 15
Pulse	1 pulse=1m/s	

RS485 signal (default address 01)

Standard Modbus-RTU protocol, baud rate: 9600; parity bits: none; data bits: 8; stop bits: 1

### Modify Address

For example: change the sensor with address 1 to address 2, host → slave

Address	Function Code	Starting Register Address MSB	Starting Register Address LSB	Register Length MSB	Register Length LSB	CRC16 LSB	CRC16 MSB
0X01	0X06	0X00	0X30	0X00	0X02	0X08	0X04

If the transmitter receives correctly, the following data is returned, Slave→Master

Address	Function Code	Data Length	Starting Address MSB	Starting Address LSB	CRC16 LSB	CRC16 MSB
0X01	0X06	0X02	0X00	0X02	0X39	0X49

## Query Data

Query the data of transmitter (address: 1) (Wind Speed, Wind Scale), Master → slave

Address	Function Code	Starting Register Address MSB	Starting Register Address LSB	Register Length MSB	Register Length LSB	CRC16 LSB	CRC16 MSB
0X01	0X03	0X00	0X00	0X00	0X02	0XC4	0X0B

If the transmitter receives correctly, the following data is returned, Slave→Master

Address	Function Code	Data Length	Register 0 Data MSB	Register 0 Data LSB	Register 1 Data MSB	Register 1 Data LSB	CRC16 LSB	CRC16 MSB
0X01	0X03	0X04	0X00	0X24	0X00	0X03	0XFA	0X39
			Wind Speed: 3.6 m/s		Wind Speed: 3 level			

## Wind Power Rating Table

[https://en.wikipedia.org/wiki/Beaufort\\_scale](https://en.wikipedia.org/wiki/Beaufort_scale)

## Cautions

- (1) Please check that the packaging is intact and that the sensor model and specifications match the product you have purchased.
- (2) Sensor can not be wired with electricity. The power can be turned on only after connecting line been checked with no issue.
- (3) Users should not alter the components and wires which have been soldered.
- (4) The sensor is a precision device, so please do not disassemble it by yourself when using it.
- (5) Avoid sticky particles go inside the sensor and prevent moisture to avoid affecting the measurement performance.