

# Anemometer/Wind Speed Sensor [Analog Quantity Output] User Manual

Ver1.1

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## Chapter 1: Device Introduction

### 1.1. Overview

*Analog Quantity Wind Speed Sensor* has a light and tiny shape, in addition that is easy to carry and install. Three cups of design concept can be effective for the external environment information, shell is made of high quality aluminum alloy profiles, outside is processed by plating pensu, has a good anticorrosive and prevent erosion etc, to ensure that device could use for a long time with no rust cut phenomenon, cooperate with internal smooth bearing system, to ensure the accuracy of the information collection. It's widely used in wind speed measurement of greenhouse, environmental protection, weather station, ship, dock and breeding environment.

### 1.2. Main Parameters

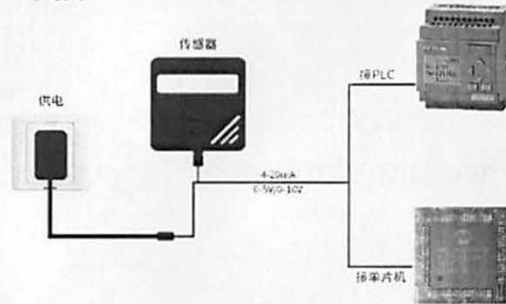
Parameters	Index
Measure Range	0-30m/s
Measure Accuracy	±1m/s
Response Time	Less than 5s
Baud Rate	9600dps
Output Port	Analog Quantity
Power Supply	12V-24V DC
Power Consumption	<1W
Working Temperature	-30-80°C
Working Humidity	0-100%RH (15-95%RH)
Current Output Type	0-10V
Current Output Load	≤600Ω
Voltage Output Type	0-5V/0-10V
Voltage Output Load	≤250Ω

### 1.3. System Frame Diagram

When the system needs to be connected to an analog version of the sensor,

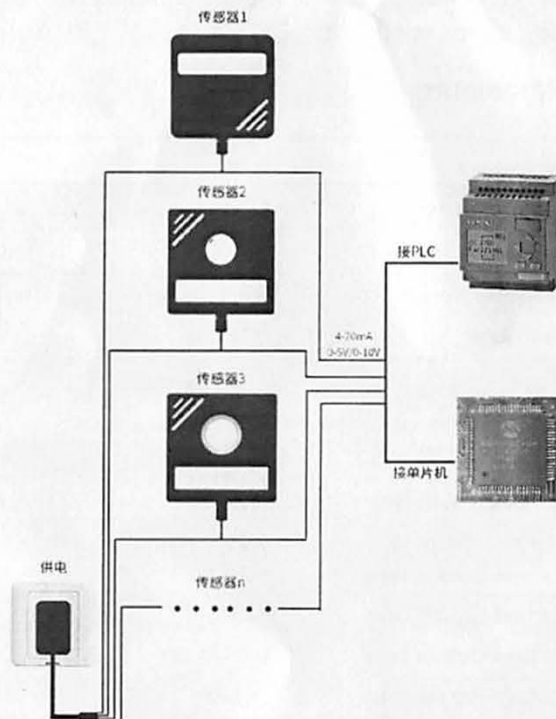
you only need to power the device, and connect the analog output line to the single chip microcomputer or the DI interface of PLC, and write the corresponding acquisition program according to the conversion relationship below.

### 单接



When the system needs to be connected to multiple analog sensors, each sensor needs to be connected to a different single chip analog data acquisition port or the DI interface of PLC, and the corresponding acquisition program can be written according to the conversion relation in the following text.

### 多接

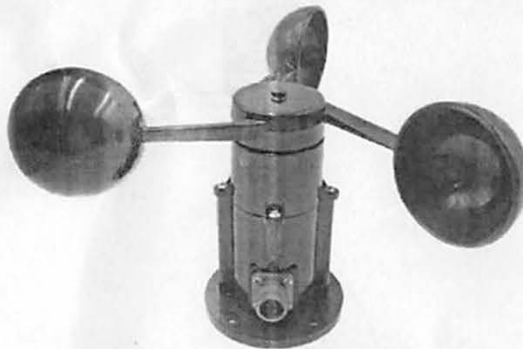


## Chapter 2: Installation Instructions

### 2.1. Packaging Contents

Contents	Quantity
SensorDevice	1 set
12VWaterproofPowerSource	1 set (optional)
WarrantyCard& QualificationCertificate	1 set

### 2.2. Ports Introduction



	CableNo	Color	Index
Power	1	Brown	Positive
	2	Black	Negative
Communication	3	Blue	Negative
	4	Yellow	Positive

**WARNING:**

Please be careful dont connect the wrong wiring sequence, the wrong wiring will lead to device burn out. At the same time, it must be noted that the positive voltage/current output is an

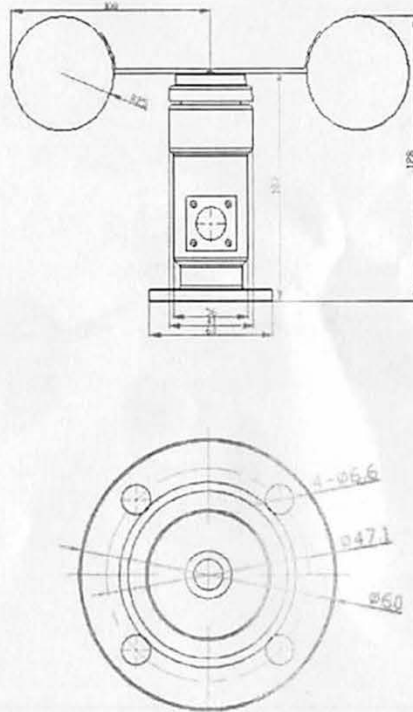
active output. It is absolutely prohibited to connect the positive voltage/current output to the positive position of the power supply, which will definitely lead to burn out.

The factory provides 0.6m long wire rod by default, and customers can extend the wire rod or connect the wire in sequence according to their needs.

Note that there is no yellow line in the line order that may be provided in some factory batches. The gray line is equivalent to replacing the yellow line.

### 2.3. Installation Instructions

Mounted with flange, threaded flange connection that the lower part of the wind sensor fitting firmly fixed in the flange plate, chassis on the circumference of the four  $\Phi$  6 mm mounting holes, using bolts should be firmly fixed to the bracket, to keep a complete set of equipment at the best level, ensure the accuracy of the wind data, flange connection is convenient to use, can withstand greater pressure.

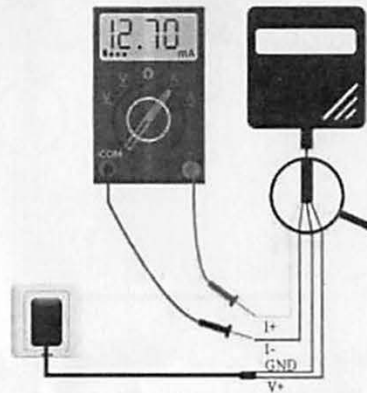


## Chapter 3: Wiring Instructions

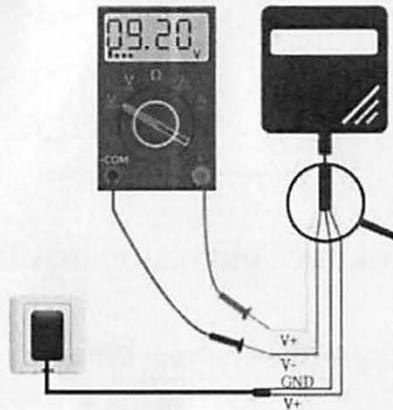
Analog sensor wiring is simple, you only need to connect the line to the specified port of the device. The equipment supports 3/4 wire system connection.

### 3.1. Typical four-wire system wiring mode

The following figure shows the connection mode of the current-type sensor. Connect the power line (brown line and black line) of the sensor to the power supply. The yellow (gray) color line of the sensor indicates that the signal is being connected to the acquisition device, and the current flow direction is from the sensor to the acquisition device. The blue line of the sensor indicates that the signal is positive and the signal of the current acquisition device is negative, and the current flow direction is from the acquisition device to the sensor.



The following figure shows the connection mode of the voltage sensor. Connect the power line (brown line and black line) of the sensor to the power supply. The yellow (gray) color line of the sensor is the signal that is being connected to the acquisition device, and the voltage of the yellow (gray) line is the output voltage. The blue line of the sensor is positive signal and negative signal of the voltage acquisition device. The voltage of the blue line is the reference voltage, which is consistent with the voltage of the black line and is 0V.

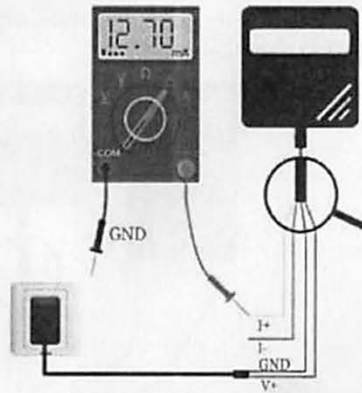


### 3.2 Typical three-wire system wiring mode

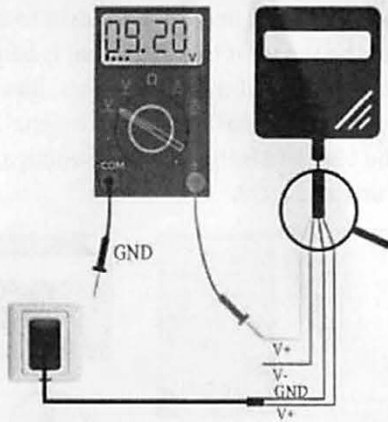
For the typical three-wire connection, compared with the four-wire connection,

it is ok to omit the blue wire. In the sensor, the blue wire and the black wire are short-circuited in the sensor, so the blue wire can be omitted.

For the three-wire system current connection mode, after connecting the power line (brown line and black line) of the sensor to the power supply, it is only necessary to connect the yellow (gray) color line of the sensor to the positive signal of the current acquisition device.



For the three-wire system voltage connection mode, after connecting the power line of the sensor (brown line and black line) to the power supply, it is only necessary to connect the yellow (gray) color line of the sensor to the positive signal of the voltage acquisition device.



## Chapter 4: Definition&Conversion of Analog Quantity

### 4.1 Analog Quantity 4-20mA Current Output

Current Value	Wind Speed
4mA	0m/s
20mA	30m/s

Formula is  $P_{(\text{wind Speed})} = (I_{(\text{Current})} - 4\text{mA}) * 1.875\text{m/s}$

The unit of P is m/s and the unit of I is mA.

For example, the data collected under the current situation is 8.125mA, and the calculated wind speed is 7.73m/s.

The above is the calculation method at 30m/s range. For other ranges, please use 4mA for 0m/s and 20mA for linear conversion of the maximum range.

#### 4.1 Analog Quantity 0-10V Voltage Output

Voltage Value	Wind Speed
0V	0m/s
10V	30m/s

Formula is  $P_{(\text{wind speed})} = V_{(\text{voltage})} * 0.003\text{m/s}$

The unit of P is m/s and the unit of V is mV.

For example, the data collected under the current situation is 4228mV, and the calculated wind speed is 25.37m/s.

## Chapter 5:Appendix

《 How to Use a Multimeter to Aid Debugging 》 : The multimeter is a very important auxiliary debugging tool. Once you find that there is an error between the reading and your own expectations, it is very necessary to use a multimeter to assist debugging.

《 Analysis of Quantization Accuracy and Resolution of Analog Products 》 : The concept of quantitative accuracy and resolution of analog products, how to calculate, and how to correctly select ranges.

《 Source and Deviation of Bias for Analog Products 》 : When analog readings have errors, the cause of the error, the type of error, and how the error is eliminated.