





WIND SPEED SENSOR

HUNAN MACSENSOR COMPANY LIMITED



W70S Wind Speed Sensor User Manual(Analog Type)





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1. Product Introduction

1.1 Product Overview

W70S wind speed sensor is compact and light, easy to carry and assemble. The three-cup design can effectively obtain wind speed information. Its shell is made of high-quality aluminum alloy profile, and the exterior is electroplated and sprayed, which contributes to features of good anti-corrosion and anti-erosion that ensure the sensor can be used for a long time without rusting. Meanwhile, it cooperates with the smooth internal bearing system to ensure the accuracy of information acquisition and uses traditional analog signal (4-20mA, 0-10V, 0- 5V) for data output. It is widely used in wind speed measurement in greenhouses, environmental protection, weather stations, ships, docks and breeding.

1.2 Features

- Range:0-60m/s (default 0-30m/s), resolution 0.1m/s
- Anti-electromagnetic interference treatment
- Using the bottom outlet method, completely avoiding aging problem of the aviation plug rubber pad, and keeping waterproof though for long-term use
- Using high-performance imported bearings, low rotation resistance, accurate measurement
- Of full aluminum shell, high mechanical strength, high hardness, corrosion resistance, no rust and can be long-term used outdoors
- Well-designed and distributed equipment structure and weight, with small moment of inertia and sensitive response
- Simultaneously applicable to both four-wire and three-wire connection

DC power supply (default)	10~30V DC		
Maximum power	Current output	1.2W	
consumption	Voltage output	1.2W	
Resolution	0.1m/s		
Working temperature of sensor circuit	-40℃~+60℃,0%RH~80%RH		
Measuring range	0~60m/s(0-30m/s by default)		

1.3 Main Technical Indicators

Dynamic response time	≤0.5s		
Precision	±0.3m/s		
Output signal	Current output	4~20mA	
	Voltage output	0~5V/0~10V	
Load capacity	Voltage output	Output resistance≤250Ω	
	Current output	≤600Ω	

2. Product Model Selection

W70S		Wind speed sensor
	120-	4 \sim 20 mA Current output
	V05-	0 \sim 5V Voltage output
	V10-	0 \sim 10V Voltage output

3. Equipment Installation Instruction

3.1 Pre-installation Check

- ■1 sensor
- ■4 screws
- Certificate of conformity, warranty card, calibration report and etc

3.2 Wiring

3.2.1 Power Wiring

Wide voltage 10^{30V} DC power input. For 0-10V output devices, only 24V power supply can be used.

3.2.2 Output Port Wiring

Both three-wire system and four-wire system are simultaneously applicable.

3.2.3 Electrical Wiring

	Wire Color	Description
Power supply	Brown	Positive
	Black	Negative
Output	Blue	Positive wind speed signal
	Yellow	Negative wind speed signal

3.3 Examples of Wiring



Diagram of Four-wire Connection



Diagram of Three-wire Connection

3.4 Installation Method

Flange installation is adopted. The threaded flange connection makes the lower pipe fitting of the wind speed sensor firmly fixed on the flange. The chassis is Ø65mm. Four mounting holes of Ø6mm are opened on the circumference of Ø47.1mm, and the bolts are used to fix it tightly on the bracket, which keeps the whole set of instruments at the best level and ensures the accuracy of wind speed data. The flange connection is easy to use and can withstand greater pressure.



Outlet mode depends on the actual application

3.5 Notes

1. Users are not allowed to disassemble by themselves and the sensor core must not be touched so as to avoid damage to the product.

2. Try to stay away from high-power interference equipment such as inverters, motors and etc. to avoid measurement inaccuracy. Before installing or dismantling sensor, the power must be disconnect. Water in the sensor may cause irreversible changes.

3. Prevent chemical reagents, oil, dust, etc. from directly invading the sensor. Do not use it for a long time under condensation and extreme temperature environment, and prevent cold and hot shocks.

4. Calculation Method

4.1 Current Type Output Signal Conversion Calculation

Range 0~30m/s, 4~20mA output, when the output signal is 12mA, calculate the current wind speed. The span of the wind speed range is 30m/s, expressed by a 16mA current signal, 30m/s/16mA=1.875m/s/mA, that is, with 1mA of current change, the wind speed change is 1.875m/s. Then the measured value can be calculated as 12mA-4mA =8mA.8mA*1.875m/s/mA =15m/s, and the current wind speed equals to 15m/s.

4.2 Voltage Type Output Signal Conversion Calculation

The range is $0^{30m/s}$. Take 0-10V output as an example, when the output signal is 5V, calculate the current wind speed. The span of the wind speed range is 30m/s, to express by a 10V voltage signal, 30m/s/10V=3m/s/V, that is, every 1V of change in voltage corresponds to a wind speed change of 3m/s. The measured value is 5V-0V=5V, 5V*3/m/s/V=15m/s. Then the current wind speed is 15m/s.

5. Common Problems and Solutions Fault: no output or output error

Possible reason:

- 1) The PLC calculation occurs error caused by the corresponding error of the range. Please refer to the technical indicators in Part 1 for the range.
- 2) The wiring method or the wiring sequence is wrong.
- 3) The power supply voltage is incorrect (24V power supply for 0-10V).
- 4) The distance between the sensor and the collector is too long, causing signal disturbance.
- 5) The PLC acquisition port is damaged.
- 6) The equipment is damaged.

6. Document History

- V1.0 Document Creation
- V2.0 Document Update
- V2.1 Correction of the dimensions of mounting holes

7. Dimensions



Appendix: Perforation Dimensions for On-site Installation



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