





# WIND DIRECTION SENSOR

HUNAN MACSENSOR COMPANY LIMITED



# W70D Wind Direction Sensor Instruction Manual (Analog Type)



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# **1. Product Introduction**

# **1.1 Product Overview**

Being compact and light, easy to carry and assemble, the new design concept of W70D wind direction sensor can effectively obtain wind direction information, the shell is made of high-quality aluminum alloy profiles, and the exterior is electroplated and sprayed, which has good anti-corrosion and anti-corrosion properties and ensures the long-term use of the sensor without rusting. Meanwhile, with the smooth internal bearing system, the accuracy of information collection is guaranteed, and traditional analog signals (4-20mA, 0-10V, 0- 5V) are output. It is widely used in wind direction measurement in greenhouses, environmental protection, weather stations, ships, docks, and breeding.

#### **1.2 Features**

- Range:8 directions
- Anti-electromagnetic interference treatment
- Using high-performance imported bearings, low rotation resistance, accurate measurement
- Full aluminum shell, high mechanical strength, high hardness, corrosion resistance, no rust, long-term use outdoors
- The structure and weight of the equipment are carefully designed and distributed, with small moment of inertia and sensitive response
- It can be applied to both four-wire and three-wire connection

DC power supply (default)	10~30V DC		
Maximum power	Current output	0.85W	
consumption	Voltage output	1.05W	
Working temperature of sensor circuit	-40°C~+60°C, 0%RH~80%RH		
Measuring range	8 directions		
Dynamic response time	≪0.5s		

#### **1.3. Main Technical Indicators**

Output signal	Current output	4~20mA
	Voltage output	0~5V/0~10V
Load capacity	Voltage output	Output resistance $\leq 250 \Omega$
	Current output	$\leq 600  \Omega$

# **2.** Product Selection

W70D			Wind direction sensor
	I20-		$4{\sim}20$ 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, wiring instruction and etc.

# 3.2 Wiring

# **3.2.1Wiring of Power Source**

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 applicable.

	Wire Color	Description	
Dowor cupply	Brown	Positive	
Power supply	Black	Negative	
Output	Blue	Positive wind direction signal	
	Green	Negative wind direction signal	

# **3.2.3: Electrical Wiring**

# 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 direction 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 instrument at the best level and ensures the accuracy of wind direction data. The flange connection is easy to use and can withstand greater pressure.



Pls choose the suitable outlet mode according to 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.

4-20mA output of	comparison table	0-10V output comparison table		0-5V output comparison table		
Output Value	Corresponding	Output Value	Corresponding	Output Value	Corresponding	
(mA)	wind direction	(V)	wind direction	(V)	wind direction	
≈4	North wind	$\approx 0$	North wind	$\approx 0$	North wind	
≈6.2857	Northeast	≈1.4286	Northeast	≈0.7143	Northeast	
	wind		wind		wind	
≈8.5714	East wind	≈2.8571	East wind	≈1.4286	East wind	
≈10.8571	Southeast	≈4.2857	Southeast	≈2.1429	Southeast	
	wind		wind		wind	
≈13.1429	South wind	≈5.7143	South wind	≈2.8571	South wind	
≈15.4286	Southwest	≈7.1429	o. 7.1420	Southwest	~~2.5714	Southwest
	wind		wind	≈3.5/14	wind	
≈17.7143	West wind	≈8.5714	West wind	≈4.2857	West wind	
$\approx 20$	Northwest	≈10	Northwest	Q. 5	Northwest	
	wind		wind	≈5	wind	

# 4. Calculation Method

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

Possible reasons:

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 (All 24V power supply for 0-10V).

4) The distance between the sensor and the collector is too far, causing signal disturbance.

5) The PLC acquisition port is damaged.

6) The equipment is damaged.

# 6. Dimensions



Attachment: On-site Punching Instructions





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