User Guide

Product Introduction

The wind direction sensor is compact and lightweight, easy to carry and assemble, and the three-cup design concept allows effective access to external environmental information. The body is made of polycarbonate composite material, providing excellent corrosion and erosion resistance and ensuring the instrument is rust-free for long periods of time. The smooth internal bearing system ensures accurate information collection. It can be used for wind direction measurement in greenhouses, environmental protection, weather stations, ships, docks, farming and other environments.

Use Case Scenarios

It is widely used in greenhouses, environmental protection, weather stations, ships, docks, plants breeding and other outdoor locations.

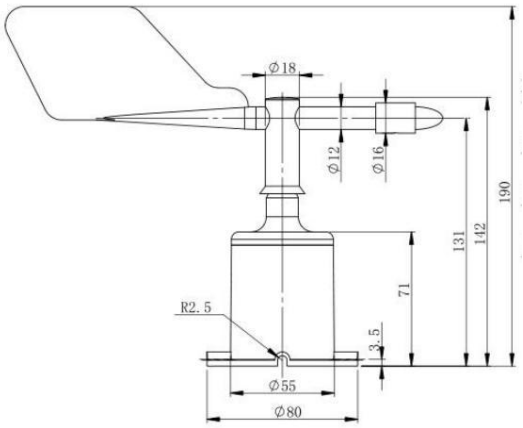
Features

1. High performance imported bearings, low rotation resistance, accurate measurement.
2. Polycarbonate shell, high mechanical strength, high hardness, corrosion resistance, can be used for a long time in outdoor.
3. Low rotation inertia, sensitive response.
4. Standard audio interface design, plug and play.
5. Anti-electromagnetic interference.
6. Wide voltage input, DC 5~30V.

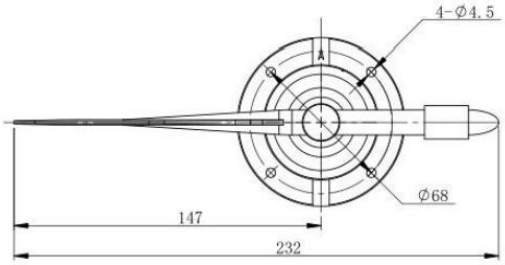
Product Specifications

Specifications	
Model	UB-WD-N1
Power Supply	DC 5~30V
Max Current	657mA（@12V）
Measuring Range	0~359.9°
Accuracy	±1°
Response Time	≤0.8s
Working Environment	-20~60℃, 0~80%RH
Connector	Audio
Dimensions	Base diameter: φ80mm, Height: 190mm
Cable Length	3m
Communication Protocol	RS485 Modbus RTU Protocol
RS485 Address	0xD2
Baud Rate	1200 bit/s,2400 bit/s, 4800 bit/s (default), 9600 bit/s, 19200 bit/s

Dimensions



Unit: mm



Unit: mm

Mounting Method

It use flange installation. The base plate is φ80mm; open four mounting holes with a diameter of φ 4.5mm on the circumference of φ68mm, fix the sensor on the bracket tightly with bolt, and keep the sensor at the best horizontal level, to ensure the accuracy of wind direction measurement. Make sure the arrow on the sensor points to due north to avoid measurement errors.

Wiring Instruction

Communication protocols

1. Communication basic parameters

Communication Basic Parameter	
Coding System	8–bit binary

Data Bit	8 bits
Parity Checking Bit	none
Stop Bit	1 bit
Error Checking	CRC Check
Baud Rate	1200 bit/s, 2400 bit/s, 4800 bit/s (default), 9600 bit/s, 19200 bit/s

2. Data Frame Format

The Modbus-RTU communication protocol is used in the following format:

- Initial structure ≥ 4 bytes in time.
- Address code: 1 byte, default 0xD2.
- Function code: 1 byte, support function code 0x03 (read only) and 0x06 (read/write).
- Data area: N bytes, 16-bit data, high byte comes first.
- Error check: 16-bit CRC code.
- End structure ≥ 4 bytes of time.

Request					
Slave Address	Function Code	Register Address	No. of Registers	CRC LSB	CRC MSB
1 byte	1 byte	2 bytes	2 bytes	1 byte	1 byte

Response							
Slave Address	Function Code	No. of Bytes	Content 1	Content 1	...	Content n	CRC
1 byte	1 byte	1 byte	2 bytes	2 bytes	...	2 bytes	2 bytes

3. Register Address

Register Address				
Address (hex)	Content	Register Length	Function Code	Description of definitions
0x0000	Angle value with one decimal place (0~3599)	1	03	Unsigned integer data, divided by 10
0x0001	Angle value in integer bits (0~359)	1	03	Integer
0x07D0	Address	1	03/06	1～255

NOTE

1. Users are not allowed to disassemble the sensor, especially the sensor core, so as to avoid damage to the product.
2. Try to stay away from high-power devices' interfering, to avoid inaccurate measurements, such as frequency converters, motors, etc.
3. Prevent from water, chemical reagents, oil, dust, etc. Do not use the sensor for a long time in dew condensation and extreme temperature environment.
4. GS1 that supporting the sensor must be powered by DC12V power supply.