User Guide

Product Introduction

The 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.

Use Case Scenarios

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

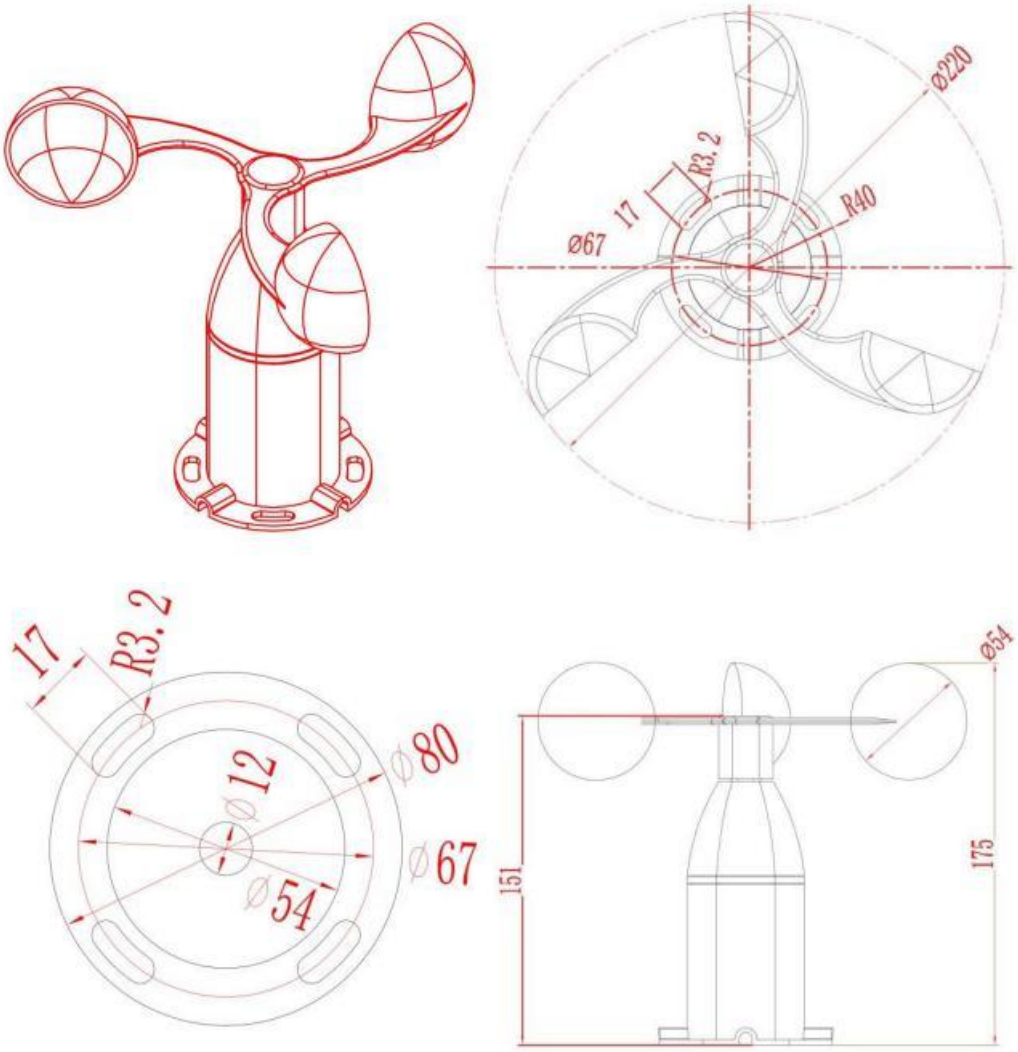
Features

1. Quick response and good interchangeability.
2. Low cost, low price and high performance .
3. Simple and easy installation .
4. High data transfer efficiency and reliable performance to ensure proper operation.
5. Long signal transmission distance.

Product Specification

Specification	
Model	UB-WS-N1
Measurement range	0~30m/s
Startup wind speed	≤0.3m/s
Accuracy	± (0.3+0.03v) m/s
Power Supply	DC 5~24V
Max Current	412mA (@5V)
Stabilization Time	< 1second
Response Time	< 1second
Working Environment	-30~70℃, 15~85%RH (Non-condensation)
Cable length	3m
Connector	Micro USB/Audio
Communication Protocol	RS485 Modbus RTU Protocol
RS485 Address	0x20
Baud Rate	1200 bit/s,2400 bit/s, 4800 bit/s, 9600 bit/s (default), 19200 bit/s

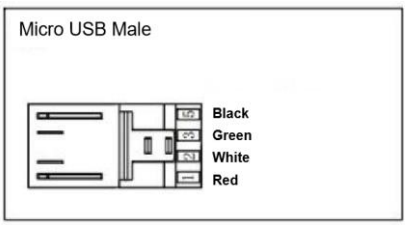
Outline Size



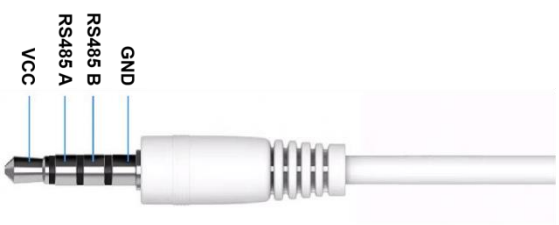
Wiring Instruction

Wiring Instruction				
RS485	VCC	B	A	GND
Micro USB	Red	White	Green	Black
Audio	Red	Green	White	Black

Micro USB



Audio



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, 9600 bit/s (default), 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 0x20.
- Function code: 1 byte, support function code 0x04 (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	Content	Register Length	Function Code	Description of definitions
0x0006	Temperature	1	04	Unsigned integer data, divided by 10
0x0030/07D0	Address	1	04/06	1 ~ 255
0x07D1	Baud Rate	1	04/06	0:2400, 1:4800, 2:9600, 3:19200, 4:38400, 5:57600, 6:115200, 7:1200

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.