Wind direction sensor introduction

RD-WDM-ASA

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1.Product overview

The wind direction sensor is small and light in appearance, easy to carry and assemble. The large wind indicator design concept can effectively obtain external environmental information. The shell is made of ASA material, which has good anti-corrosion and anti-corrosion characteristics, which can ensure that the instrument is free from rusting in long-term use. At the same time, with the internal smooth bearing system, the accuracy of information collection is ensured. It is widely used for wind direction measurement in environmental protection, weather stations, ships, docks, and breeding.

2. Features

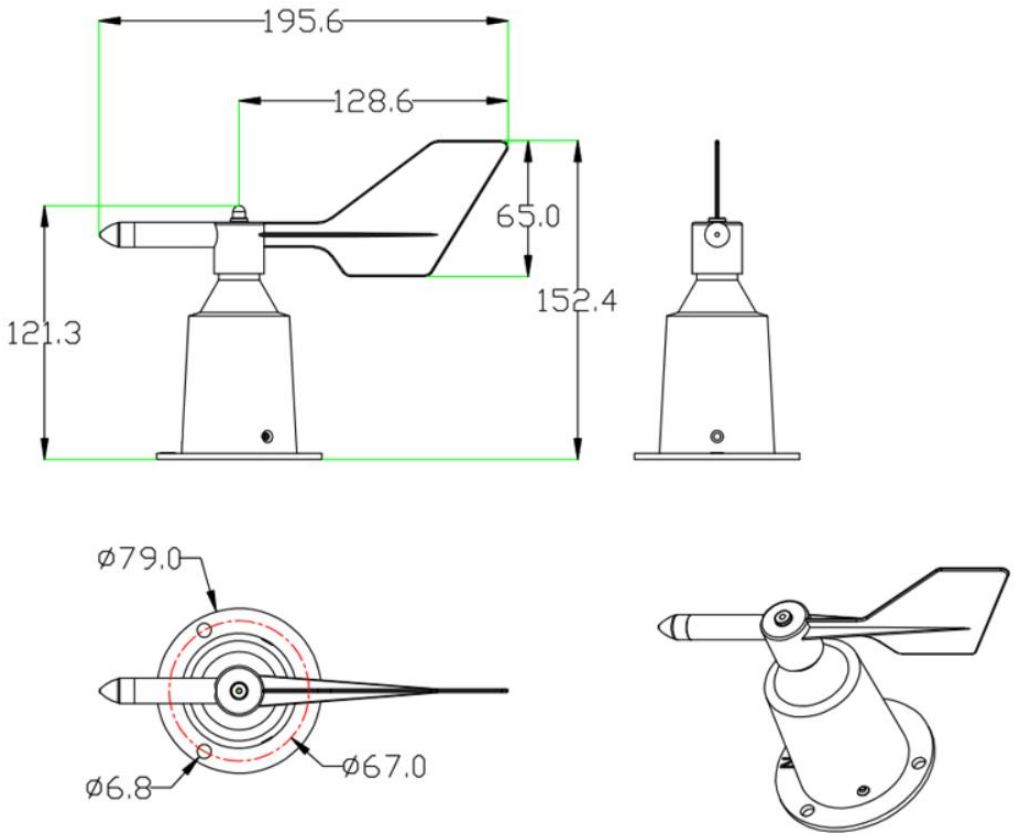
1. Range: 0~359.9°
2. Anti-electromagnetic interference treatment
3. Using high-performance imported bearings, low rotation resistance, accurate measurement
4. ASA shell, high mechanical strength, high hardness, corrosion resistance, long-term discoloration can be used outdoors for a long time
5. The structure and weight of the equipment have been carefully designed and distributed, and the moment of inertia is small, and the response is sensitive
6. Optional output mode 4-20MA, 0-5V, 0-10V, RS485 (ModBus-RTU communication protocol), easy to access

3. The main parameters

DC power supply (default)	12~24V DC
Power consumption	≤300mW
Transmitter circuit operating temperature	-20℃~+80℃，0%RH~100%RH
Output optional	0-5V，0-10V，4-20MA，pulse，RS485(ModBus-RTU)
485 Communication Interface	485 communication (modbus-RTU) protocol Baud rate: 9600 Data bit length: 8 bits Parity check method: none Stop bit length: 1 bit Default ModBus communication address: 255

Resolution	0.1°
Precision	±4°
Measuring range	0~359.9 °
Dynamic response time	≤1s
Starting wind speed	≤0.5m/s
load capacity	< 500Ω

4. Product size



Please note that the arrow of the wind direction sensor points to true north during installation.

5. Communication protocol

1. Basic agreement

RS485 signal, standard Modbus-RTU protocol

Baud rate: 9600bps can be set, factory default is 9600bps; Check digit: none; Data bit: 8; Stop bit: 1

2. Communication protocol examples and explanations

（1）Modify the address, for example: change the address of the transmitter with address to 01, host → slave

Reserved address	Function code	Register address	New address	CRC16 low	CRC16 high
00	06	00 00	00 01	49	DB

If success, the feedback as following:

Reserved address	Function code	Register address	New address	CRC16 low	CRC16 high
00	06	00 00	00 01	49	DB

(2) Read the sensor address, for example the sensor address is 01

Reserved address	Function code	Register address	Number of registers	CRC16 low	CRC16 high
00	03	00 00	00 01	85	DB

If success, the feedback as following:

Reserved address	Function code	Data length	Address	CRC16 low	CRC16 high
00	03	02	00 01	44	44

(3) Query the data (wind direction) of the sensor (address 01, the default address is 01), host →slave, Inquiry frame

Address code	Function code	Register start address	Register length	CRC16 low	CRC 16 high
0X01	0X03	0X00 0X01	0X00 0X01	0XD5	0XCA

Response frame

Address code	Function code	Data length	Wind direction	CRC16 low	CRC 16 high
0X01	0X03	0X02	0x00 0x9E	0X39	0XEC

Data representation method:

A. Wind direction: after converting the data into decimal data ÷10

The above data shows that wind speed: 009E(HEX)=158(Decimal), wind direction =158/10=15.8°