RK100-07 Wind Speed Sensor

User Manual

Revision Time	Reviser	Current Version	Remarks
20250826	SUN	V5.0	

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User Notice

Please read this manual carefully before use to ensure safe and optimal operation. Retain this manual for future reference.

Pre-Use Instructions

- Carefully review this manual and follow all operational and safety guidelines to prevent malfunctions and hazards.

Unpacking Inspection

- Upon receipt, carefully inspect the sensor device and accessories for any shipping damage.
- If damage is detected:
- Immediately notify the manufacturer and distributor.
- Retain all packaging materials for return or replacement processing.

Parts List

Item	Quantity	Remarks
Wind speed sensor	1	
Cable	1	The length depends on the order

1. Product Introduction

The RK100-07 Wind Speed Sensor is specifically designed to accurately and reliably measure wind velocity under the adverse environmental conditions. it outputs voltage and current signals by electromagnetic induction, the value and horizontal wind speed are linear relation. Shell is made of 304 stainless steel, the PCB board is painted with anti-corrosion coating, featured with water proof, corrosion resisting. Inside and turning position have sealing rings with nice sealing function, stop water, salt fog and dust getting in. The RK100-07 Wind speed sensor has good performance in harsh environment.

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2. Product Features

- Low starting threshold
- Massive all-metal construction
- Strong corrosion resistant ability
- Heating optional
- Double bearing design
- Easy installation

3. Applications

- Weather monitoring stations
- Safety monitoring of high altitude equipment
- Ports
- Solar and wind power generation
- Mobile weather monitoring vehicles
- Marine vessels
- Remote airports & helipads
- Road & rail tunnels

4. Specifications

Item	Technical Specification
Supply voltage	12VDC,24VDC
Output	Pulses(NPN),4-20mA,RS485,0-5V,0-10V,1-5V
Range	0-30m/s,0-60m/s
Ingress protection	IP65
Operating environment	-50℃-+90℃@0-95%(No condensation)
Consumption	Pulse:≤200mW@12V Current: ≤300mW@12V Voltage: ≤500mW@12V Heating:30W
Main material	304stainless steel
Storage condition	10℃-60℃@20%-90%RH

5. Electrical Connections

Connector(Cable)	Pulses /Current/Voltage	RS485
Red	V+	V+
Black	V-	V-
Yellow	Signal+	RS485A
Green		RS485B

6. Output Types & Formulas

Current Type	Range:0-30m/s	V=(I-4)/(20-4)*30
	Range:0-60m/s	V=(I-4)/(20-4)*60
Voltage Type	Range:0-30m/s	V=U/(full scale voltage-zero point voltage)*30
	Range:0-60m/s	V=U/(full scale voltage-zero point voltage)*60

F: Output frequency in Hz;

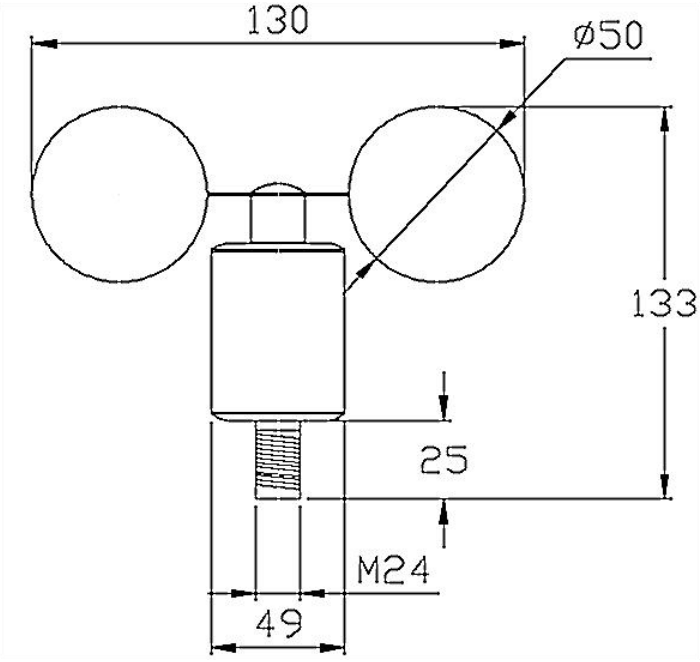
V: Wind speed data in m/s;

U: Transmitter output voltage in V;

I: Transmitter output current in mA.

7. Product Dimensions

Unit:mm



8. Communication Protocol（MODBUS-RTU）

Parameter	Value
Data Bits	8 bits
Check Bit	None
Stop Bit	1 bit
Baud Rate	9600 bps
Slave Address	0x02 (Factory Default)

8.1 Read Real-Time Data

Client sends:

02 03 00 2A 00 02 E5F0

Return:

02 03 04 02 84 01 34 88E5

8.1.1 Description of Return Data Format

No.	Conception	Byte Number	Description	Remarks
1	Address block	1	Address(0x02)	0x02
2	Function code	1	Only read(0x03)	0x03
3	Number of bytes	1	0X04	2bytes
4	Data block	2	Wind speed data	0x0284(6.44m/s)
	Data block	2	Temp	00x0134(30.8℃)
5	Check block	2	CRC	0x88 0xE5

8.2 Modify Slave Address(Address setting range: 01H to7FH)

Client sends:（Change slave address from 01H to 02H.）

Slave id	Function code	Address_H	Address_L	New id_H	New id_L	CRC_L	CRC_H
0x02	0x06	0x20	0x00	0x00	0x01	0x43	0xF9

Response:

Slave id	Function code	Address_H	Address_L	New id_H	New id_L	CRC_L	CRC_H
0x02	0x06	0x20	0x00	0x00	0x01	0x43	0xF9

8.3 Set the heating temperature range（When modifying, the temperature value must be multiplied by 10）

8.3.1Set the heating lower limit temperature to 0℃

Client sends:

Slave id	Function code	Address_H	Address_L	Temp_H	Temp_L	CRC_L	CRC_H
0x02	0x06	0xA0	0x0A	0x00	0x00	0x8B	0xFB

Response:

Slave id	Function code	Address_H	Address_L	Temp_H	Temp_L	CRC_L	CRC_H
0x02	0x06	0xA0	0x0A	0x00	0x00	0x8B	0xFB

8.3.2 Set the heating upper limit temperature to 10℃

Client sends:

Slave id	Function code	Address_H	Address_L	Temp_H	Temp_L	CRC_L	CRC_H
0x02	0x06	0xA0	0x0B	0x00	0x64	0xDB	0xD0

Response:

Slave id	Function code	Address_H	Address_L	Temp_H	Temp_L	CRC_L	CRC_H
0x02	0x06	0xA0	0x0B	0x00	0x00	0xDB	0xD0

Note：

When the collected temperature is lower than the set lower limit temperature, the sensor starts heating.

When the collected temperature is higher than the set upper limit temperature, the sensor stops heating.

9. Installation Precautions

- Ensure no obstacles (e.g., buildings, trees, billboards) exist around the anemometer cups to prevent local airflow interference.
- Avoid areas with strong electromagnetic interference (e.g., high-voltage power lines, motors) and corrosive environments.

10. Precautions

Package and Model Verification

- Ensure the packaging is intact and verify the sensor model and specifications match your purchased product.

Powered Wiring Prohibition

- Do not connect wires while powered. Only energize the sensor after confirming correct wiring.

Component Modification Restriction

- Do not alter factory-soldered components or pre-connected wires.

Precision Handling Requirement

The sensor is a precision device. Avoid:

- Unauthorized disassembly
- Structural components are strictly prohibited from being compressed under stress

Note: Unauthorized modifications void the warranty.

11. Troubleshooting

Incorrect Output Signals (Analog/RS232/RS485):

- Verify wiring correctness and secure connections.
- Check if the serial port is occupied or malfunctioning.
- Confirm serial port settings (baud rate, data/stop bits) match device requirements.

Persistent Issues:

- Contact the manufacturer if the above steps fail to resolve the problem.

12. Product Maintenance

Maintenance and Safety

- Regularly clean and inspect the sensor to maintain performance.
- Do not expose the sensor to extreme temperatures, moisture, or corrosive substances unless explicitly specified.
- Unauthorized disassembly, modification,or repairs may void the warranty and lead to malfunctions.

Troubleshooting Protocol

- In case of malfunction, refer to the troubleshooting section of this manual.
- Do not attempt unauthorized disassembly or repairs.
- Contact the manufacturer's after-sales department directly for technical support.

13.Warranty Terms

This product comes with a one-year warranty, starting from the date of delivery. Within twelve months, the Company shall be responsible for free repair or replacement of any failure caused by sensor quality issues (non-human damage). Fees will be charged for repairs or replacements after the warranty period expires.

CE Complies with applicable CE directives.

Manual subject to change without notice.

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