RK110-01G Wind Direction Sensor

User Manual

Revision Time	Reviser	Current Version	Remarks
20250821	LI	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 direction sensor	1	
Cable	1	The length depends on the order
Mounting screw	1	Set

1. Product Introduction

The RK110-01G Wind Direction Sensor is a sensitive wind direction indicator that provides both visual and digital output. It features built-in digital circuits with strong RFI & EMI resistance and automatic temperature compensation.The sensor's construction meets rigorous requirements for reliability and durability, utilizing only the highest-quality, corrosion-resistant materials including high-strength aluminum and stainless steel. The unit offers excellent resistance to sand, dust, salt spray, and fungal growth.Ideal for wind resource assessment studies, this sensor delivers the accuracy, reliability, and low maintenance required for demanding applications.

2. Product Features

- Low startup threshold
- Massive all-metal construction
- Strong corrosion resistant ability
- Various optional output signals
- Surge protection design
- Double bearing design
- Easy Installation

3. Specifications

Item	Technical Specification
Supply Voltage	12-24VDC
Output	RS485,4-20mA
Range	0-360°
Starting Threshold	0.5m/s
Limit Wind Speed	70m/s
Accuracy	±3°
Resolution	1°
Response Time	<1s
Power Consumption	20mA@12V
Ingress Protection	IP65
Operating	-30℃-+70℃
Main Material	Vane:304stainless steel, Main Body: Aluminum alloy
Connector	M12 waterproof connector
Finish	Polyester powder electrostatic spraying(Black)
Weight(Unpacked)	440g (Excluding wires)
Storage Condition	10℃-60℃@20%-90%RH

4. Electrical Connections

Connector(Cable)	Current	RS485
Red	V+	V+
Black	V-	V-
Green	Signal+	RS485A
White		RS485B

5. Output Types & Formulas

Resolution=1°	Current Type	A(°)=(I-4)/(20-4)*360

A: Wind direction in degree;

I: Wind direction current in mA;

6. Product Dimensions

Unit:mm

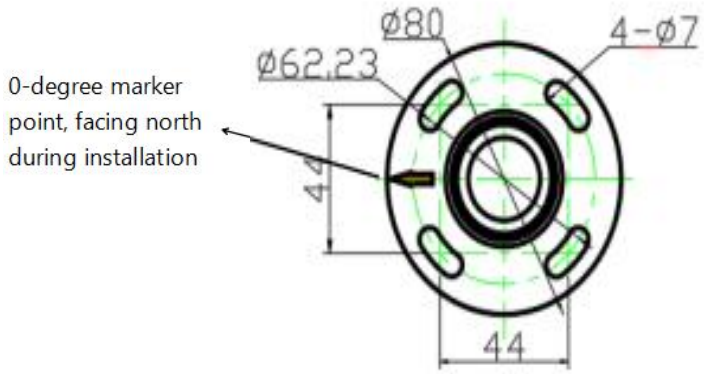

Figure 6.1
Bottom View with Dimensional Details

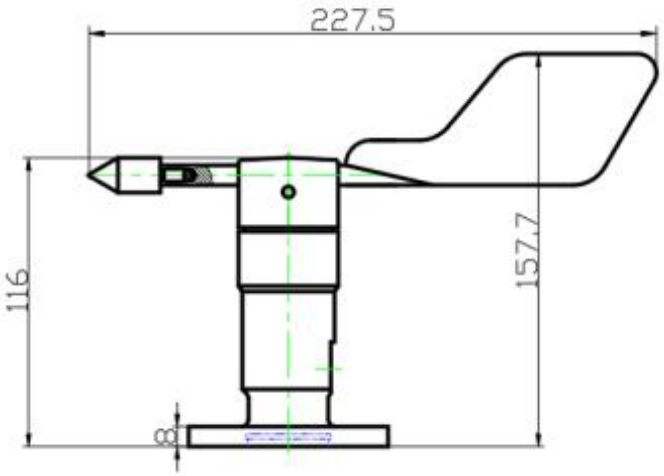

Figure 6.2
Side View with Height and Width Dimensions

7. Communication Protocol(MODBUS-RTU)

Parameter	Value
Data Bits	8 bits
Check Bit	None
Stop Bit	1 bit
Baud Rate	9600 bps
Slave Address	0x01 (Factory Default)

7.1 Read Real-time Data

Client sends:

01 03 00 00 00 01 840A

Return:

01 03 02 00 64 B9AF

7.1.1 Description of Return Data Format

No.	Conception	Byte Number	Description	Remarks
1	Address block	1	Address(0x01)	0x01
2	Function code	1	Only read(0x03)	0x03
3	Number of bytes	1	0X02	2bytes
4	Data block	2	Wind Direction	0x0064(100°)
5	Check block	2		0xB9 0xAF

7.2 Modify Slave Address

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
0x01	0x06	0x00	0x02	0x00	0x02	0xA9	0xCB

Response:

Slave id	Function code	Address_H	Address_L	New id_H	New id_L	CRC_L	CRC_H
0x01	0x06	0x00	0x02	0x00	0x02	0xA9	0xCB

Note: If you forget the original address, you should use the broadcast address(FEH) (ensure that no other devices on the bus at this time).

8. Precautions

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
- Do not touch internal components to prevent product damage

  Note: Unauthorized modifications void the warranty.

9. 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.

10. 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.

11. 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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