MESS BLITZ

Wind Direction Sensor

KRT200-202

Product Manual

(V1.4)



● Important statement

Thank you very much for choosing our products, we will serve you sincerely forever. The company pursues excellent quality and pays more attention to excellent after-sales service.

Operation errors will shorten the life of the product, reduce its performance, and may cause accidents in severe cases. Please hand over this manual to the end user and read it carefully before using the product. And please keep it in a safe place for reference when needed. The company reserves the right to modify this manual due to product technology and process updates. If there is any change, no further notice will be given, and the final interpretation of this manual is reserved.

● Product overview

The wind direction sensor is a highly reliable and high-performance wind direction sensor. This series of sensors can stably and accurately collect environmental wind direction signals and are suitable for high-altitude operations, construction machinery, port machinery and other occasions.

The wind direction sensor has a built-in digital circuit with strong resistance to radio frequency, electromagnetic interference and lightning surge protection. The circuit of the wind direction sensor collects the azimuth signal of the wind direction pole and outputs an electrical signal that is linearly related to the ambient wind direction.

The main structural parts of the wind direction sensor are made of alloy materials and are surface treated. The product has good waterproof and corrosion resistance. The internal and rotating parts are sealed and designed to effectively prevent water, salt spray, sand and dust. Intrusion.

● Features

◇ Developed based on the principle of non-contact magnetic sensing measurement.

◇Built-in high-performance sensor, the collected data has high precision and high reliability.

◇ The wind direction sensor adopts an all-metal shell, which has good corrosion resistance and strong wind resistance.

◇ The wind direction rod is made of aluminum alloy, which can be used under harsh conditions.

◇ The circuit protection adopts fault-tolerant design, and the sensor will not be damaged in the case of wrong connection.

◇ Comply with CE EMC standard, multi-level lightning protection and anti-surge design.

◇ It can work in a wide voltage range of 15-30VDC.

● Scope of application

Suitable for wind direction monitoring in factories, electric power, ports, factories and mines, wind turbines, large mechanical equipment, etc.

● Technical indicators

Measuring range	0~360°
Operating voltage	15-30VDC
Start wind speed	≥0.5m/s
Precision	16 directions ±3°,±2.5°
Operating temperature	-20℃~+85℃
Working humidity	0%~95% (non-condensing)
Wind strength	＞70m/s 30min
Degree of protection	IP65
The main material	Aluminum alloy/polyester coating
Output signal	4~20mA, 0~5VDC, 0~10VDC, RS485 (Modbus)
group pulse	Ordinary model: Class 3 (2000V, 100kHz) class B Lightning-resistant model: Class 4 (4000V, 100kHz) class B
surge	Ordinary model: Class 1 (common mode 500V, differential mode 250V) class B Lightning-resistant model: Class 4 (common mode 4000V, differential mode 2000V) class B

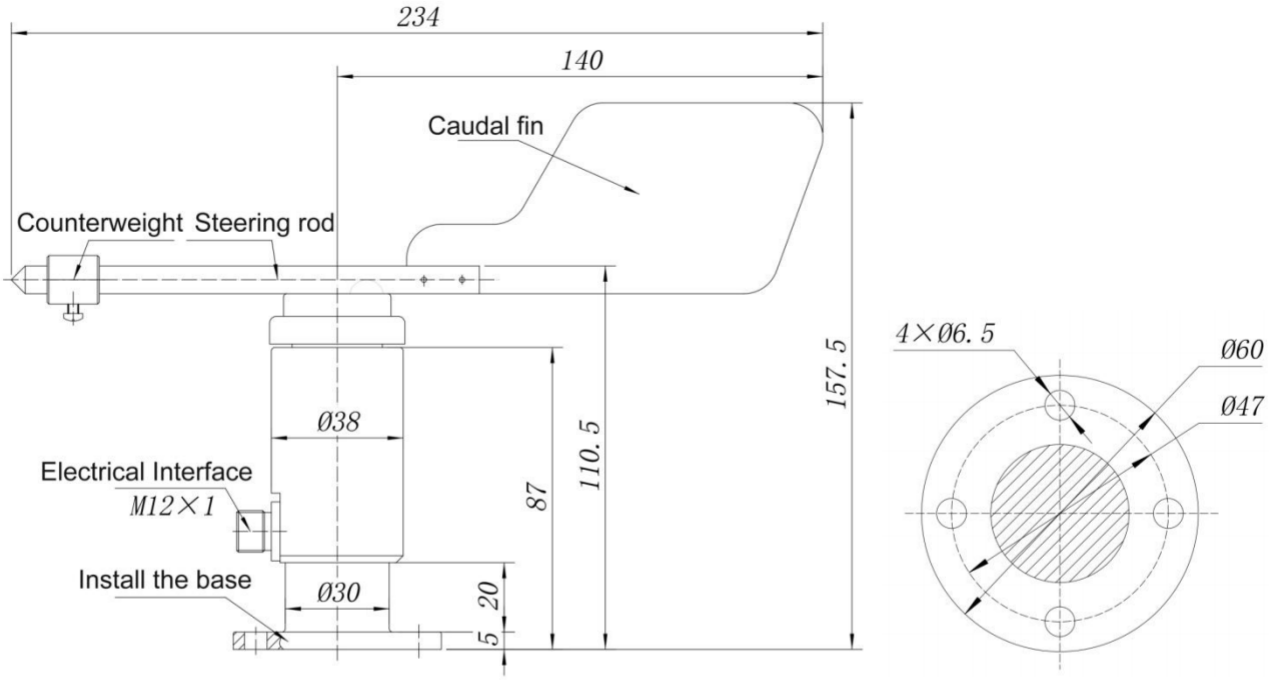
Note: If there are any differences between the technical specifications and cable definitions in the manual and the actual product, please refer to the actual order.

● Connection mode and signal selection table

Output	Thread color	Definition
Analog signal output	Brown	+Vcc
	Blue	GND
	White	Iout/Vout
RS485 digital signal output	Brown	+Vcc
	Blue	GND
	White	RS485A
	Black	RS485B

Note:Other outlet methods can be customized, and the specific wiring is subject to the product logo.

● Installation notes



Wind direction sensor installation dimension drawing (unit: mm)

1. When installing, please align the electrical interface with the north direction;
2. Please install the sensor horizontally. As shown in the figure above, the angle between the installation base and the horizontal plane should not exceed 5° to ensure that the sensor can accurately measure the wind direction at low wind speeds;
3. As shown in the figure above, the position and shape of the wind direction rod and the tail fin directly affect the accuracy of the sensor. Please do not grasp the wind direction rod and tail fin during installation to avoid damage to the sensor;
4. The position of the counterweight has been adjusted before leaving the factory. If you need to readjust, please ensure that both ends of the wind direction rod are balanced, otherwise it will affect the accuracy of the product under low wind speed.

MODBUS communication protocol

● Basic settings of communication protocol

Transmission mode: MODBUS-RTU mode.

Communication parameters: default baud rate 9600bps (optional 2400bps, 4800bps, 9600bps, 19200bps can be configured according to user requirements), 1 start bit, 8 data bits, no parity (optional

odd parity, even parity) , 1 stop bit, after changing the communication parameters, the wind direction sensor needs to be powered on again.

Slave address: factory default is 1, can be configured according to user requirements.

● Holding register list

Parameter	MODBUS holding register address (16 bits)
Slave address	Address: 0000H Default: 0x0001
Baud rate	Address: 0001H The default baud rate is 9600, which is saved as 0x0096, and other analogies (all are divided by 100 and saved in hexadecimal), for example, the baud rate is 19200, which is saved as 0x0192
Check digit	Address: 0002H 0x0000 means no parity, 0x0001 means odd parity, 0x0002 means even parity
Wind direction value	Address: 0004H The corresponding relationship between wind direction value and wind direction is shown in the table below

Note: Access to other addresses is prohibited.

Corresponding conversion relationship of wind direction value:

Wind direction value (0-15)	Wind direction
0	North wind
2	Northeast wind
4	Dongfeng
6	Southeast wind
8	South wind
10	Southwest wind
12	West wind
14	Northwest wind
Note: The wind directions corresponding to the wind direction values 1, 3, 5, 7, 9, 11, 13, and 15 are the angles between the wind directions corresponding to the adjacent wind direction values of the wind direction value. For example: The wind direction corresponding to the wind direction value 1 is the angle between the north wind and the northeast wind, and the other wind direction values can be deduced by analogy.	

● Modbus RTU command

Supported MODBUS function codes: 0x03, 0x06

03H function code example: read the wind direction data of the wind direction sensor whose slave address is No. 1

★Host query command:

Slave Address	01H	Slave address
Function	03H	Function code
Starting Address Hi	00H	The high 8 bits of the start register address
Starting Address Lo	04H	The lower 8 bits of the start register address
No. of Registers Hi	00H	The upper 8 bits of the number of registers
No. of Registers Lo	01H	The lower 8 bits of the number of registers
CRC Check Lo	C5H	CRC check code lower 8 bits
CRC Check Hi	CBH	CRC check code high 8 bits

★slave response：

Slave Address	01H	Slave address
Function	03H	Function code
Byte Count	02H	Length is 2 bytes
Data Hi	00H	The wind direction at this time is: southeast
Data Lo	06H	The wind direction at this time is: southeast
CRC Check Lo	38H	CRC check code lower 8 bits
CRC Check Hi	46H	CRC check code high 8 bits

06H function code example: modify the baud rate (in this case, modify it to 57600bps)

★Host query command:

Slave Address	01H	Slave address
Function	06H	Function code
Starting Address Hi	00H	The baud rate holding register address is 0001H
Starting Address Lo	01H	The baud rate holding register address is 0001H
Data Hi	05H	When the baud rate is 57600bps, the value of the register is 0x0576

Data Lo	76H	When the baud rate is 57600bps, the value of the register is 0x0576
CRC Check Lo	5AH	CRC check code lower 8 bits
CRC Check Hi	BCH	CRC check code high 8 bits

★Slave response:

Slave Address	01H	Slave address
Function	06H	Function code
Starting Address Hi	00H	The baud rate holding register address is 0001H
Starting Address Lo	01H	The baud rate holding register address is 0001H
Data Hi	05H	When the baud rate is 57600bps, the value of the register is 0x0576
Data Lo	76H	When the baud rate is 57600bps, the value of the register is 0x0576
CRC Check Lo	5AH	CRC check code lower 8 bits
CRC Check Hi	BCH	CRC check code high 8 bits

● Precautions

1. After opening the product package, please check whether the appearance of the product is intact, check whether the relevant content of the product instruction manual and the product certificate are consistent with the product, and keep the product certificate properly for more than one year;

2. Strictly follow the wiring method of the product, do not wire with power on, and power on after checking the wiring is correct, and never use it with overvoltage;

3. Do not pull hard when connecting the product cable output line, so as not to damage the internal structure of the product:

4. When transporting, installing, and handling the wind direction transmitter, please do not twist, pull, or press the wind direction rod and tail fin of the sensor, so as not to damage the transmitter;

5. The company's products are used under normal conditions, and the warranty period is 18 months from the date of delivery; for man-made damage and maintenance beyond the time limit, the company charges the cost of production, and the products produced by the company provide life-long maintenance.

● Appendix 1: Comparison table of wind direction, direction and angle

Position	Record symbol	Center angle°	Angle range°
North	N	0.0	348.76-11.25
North by northeast	NNE	22.5	11.26-33.75
Northeast	NE	45.0	33.76-56.25
East by northeast	ENE	67.5	56.26-78.75
East	E	90.0	78.76-101.25
East by southeast	ESE	112.5	101.26-123.75
Southeast	SE	135.0	123.76-146.25
South by southeast	SSE	157.5	146.26-168.75
South	S	180.0	168.76-191.25
South by Southwest	SSW	202.5	191.26-213.75
Southwest	SW	225.0	213.76-236.25
West by southwest	WSW	247.5	236.26-258.75
West	W	270.0	258.76-281.25
West by northwest	WNW	292.5	281.26-303.75
Northwest	NW	315.0	303.76-326.25
North by Northwest	NNW	337.5	326.26-348.75
Calm wind	C	The angle is indeterminate, and its wind speed is less than or equal to 0.5m/s	

