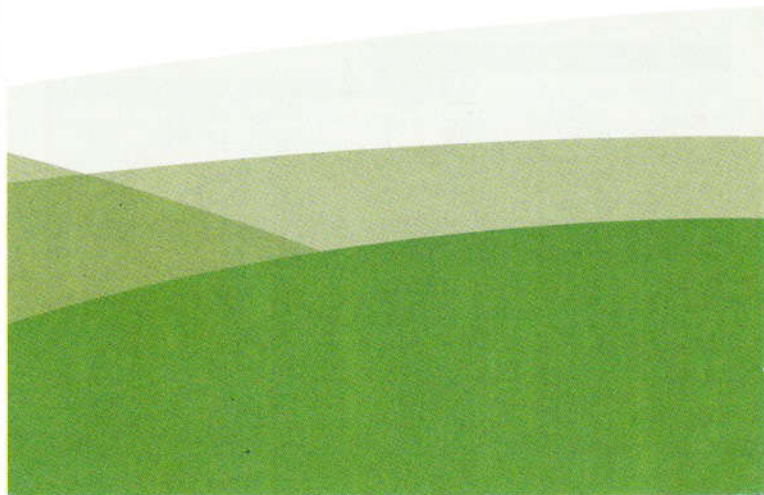


通用使用说明书  
*General instruction manual*

## 高精度风速风向传感器

*High precision wind speed and direction sensor*



### Heating system(either-or)

Smart version: When the temperature is less than 0 °C, the heating will be automatically turned on.  
 Regular edition: Lead out the positive pole of heating power supply, and connect the positive power supply when heating is needed.

#### Warning

If the wiring is not in line sequence, the equipment and the instruments connected to the equipment may be damaged

### Technical parameter(Wind speed sensor)

| Sensor type               | Voltage type             | Current type             | Type RS485               | Impulse type             |
|---------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Supply voltage (default)  | DC7-24V                  | DC9-24V                  | DC7-24V                  | DC3.3-24V                |
| Maximum power consumption | 15mA(DC24V power supply) | 35mA(DC24V power supply) | 15mA(DC24V power supply) | 30mA(DC24V power supply) |
| resolving power           | 0.1m/s                   | 0.1m/s                   | 0.1m/s                   | \                        |
| working temperature       | -40-80°C                 |                          |                          |                          |
| measuring range           | 0~32.4m/s                | 0~45m/s                  | 0~70m/s                  |                          |
| measurement error         | ±0.3m/s                  |                          |                          |                          |
| Starting wind speed       | 0.3m/s                   |                          |                          |                          |

### Technical parameter(Wind direction sensor)

| parameter                 | Voltage type       | Current type | Type RS485  |
|---------------------------|--------------------|--------------|-------------|
| power supply              | 7-24V              | 9-24V        | 7-24V       |
| Maximum power consumption | 10mA(DC24V)        | 35mA(DC24V)  | 15mA(DC24V) |
| resolving power           | 0.1°               |              |             |
| measuring range           | 0~360° /Azimuth 16 |              |             |
| measurement error         | ±1°                |              |             |
| working temperature       | -40°C-80°C         |              |             |
| Starting wind speed       | 0.3m/s             |              |             |

### computing method

|                          |                                |                           |
|--------------------------|--------------------------------|---------------------------|
| Impulse                  | Polycarbonate wind speed value | Metal wind speed value    |
|                          | Pulse number * 0.083m/s        | Pulse number * 0.83m/s    |
| Wind speed and direction | Voltage (0.4-2V)               | electric current (4-20mA) |
|                          | (voltage - 0.4) / 1.6x range   | (current - 4) / 16x range |

### Aerial plug in and line color description(Wind direction without pulse output)

| Wind speed<br>Wind direction | Voltage output type   | Current output type   | RS485 output type   | Pulse output type   |
|------------------------------|---|---|---|---|
| Aviation insert description  | 1: power positive<br>2: power ground<br>3: output voltage signal      | 1: power positive<br>2: power ground<br>3: current signal             | 1: power positive<br>2: power ground<br>3: RS485+/A/T+4(T): RS485-/B/T-                           | 1: power positive<br>2: power ground<br>3: pulse signal             |
| Line color description       | Brown: power positive<br>Yellow: power ground<br>Blue: voltage signal | Brown: power positive<br>Yellow: power ground<br>Blue: current signal | Red: power positive<br>Black: power ground<br>Yellow: RS485 + / A / T+<br>Green: RS485 - / B / T- | Brown: power positive<br>Yellow: power ground<br>Blue: pulse signal |

## Modbus Protocol

### Technical parameter(Wind direction sensor)

Baud rate: factory default is 9600bit/s ; data bit: 8 bits ; parity bit: none ; stop bit: 1 bit ; error check : CRC (redundant cyclic code)  
 (1) Read the 360 degree wind direction value of equipment (Station No. 0x02)

Host inquiry frame (hexadecimal): 02 03 00 00 01 54 39

| Station number | Function code | Register address | Register length | High bit of check code | Check code low bit |
|----------------|---------------|------------------|-----------------|------------------------|--------------------|
| 1 byte         | 1 byte        | 2 byte           | 2 byte          | 1 byte                 | 1 byte             |
| 0x02           | 0x03          | 0x00 0x00        | 0x00 0x01       | 0x84                   | 0x39               |

Slave response frame (hexadecimal): 02 03 02 02 5F BC 80

| Station number | Function code | Register address | Register length | High bit of check code | Check code low bit |
|----------------|---------------|------------------|-----------------|------------------------|--------------------|
| 1 byte         | 1 byte        | 1 byte           | 2 byte          | 1 byte                 | 1 byte             |
| 0x02           | 0x03          | 0x02             | 0x00 0x25       | 0x3D                   | 0x9F               |

Calculation of wind direction angle = 02 0F (hexadecimal) = 655 (expanded by ten times) × 10

= 65.5 degrees The angle is the angle with due north direction (i.e. 0°)

(2) Reading device (Station No. 0x02) 16 azimuth wind direction

Host inquiry frame (hexadecimal): 02 03 00 01 00 01 D5 F9

| Station number | Function code | Register address | Register length | High bit of check code | Check code low bit |
|----------------|---------------|------------------|-----------------|------------------------|--------------------|
| 1 byte         | 1 byte        | 2 byte           | 2 byte          | 1 byte                 | 1 byte             |
| 0x02           | 0x03          | 0x00 0x01        | 0x00 0x01       | 0xD5                   | 0xF9               |

Slave response frame (hexadecimal): 02 03 02 00 03 BC 45

16 azimuth = 00 03 = 3

3. Modify station number.

Example: change the equipment station number to 03 Host query frame (hexadecimal): 00 10 10 00 00 01 02 00 03 FA 00 (11 bytes)

| Station number | Function code | Register address | Number of registers | Number of valid bytes | Write device station number | Check code high byte | Check code low byte |
|----------------|---------------|------------------|---------------------|-----------------------|-----------------------------|----------------------|---------------------|
| 1 byte         | 1 byte        | 2 byte           | 2 byte              | 1 byte                | 2 byte                      | 1 byte               | 1 byte              |
| 0x00           | 0x10          | 0x10 0x00        | 0x00 0x01           | 0x02                  | 0x00 0x03                   | 0xFA                 | 0x00                |

### Technical parameter(Wind speed sensor)

Baud rate: factory default is 9600bit/s ; data bit: 8 bits ; parity bit: none ; stop bit: 1 bit ; error check : CRC (redundant cyclic code)

Installation instructions: the white dot is 0, and the installation direction is due north

(1) Read the wind speed value of equipment (Station No. 0x02)

Host inquiry frame (hexadecimal): 02 03 00 00 01 54 39

| Station number | Function code | Register address | Register length | High bit of check code | Check code low bit |
|----------------|---------------|------------------|-----------------|------------------------|--------------------|
| 1 byte         | 1 byte        | 2 byte           | 2 byte          | 1 byte                 | 1 byte             |
| 0x02           | 0x03          | 0x00 0x00        | 0x00 0x01       | 0x84                   | 0x39               |

Slave response frame (hexadecimal): 02 03 02 00 25 3D 9F

| Station number | Function code | Register address | Register length | High bit of check code | Check code low bit |
|----------------|---------------|------------------|-----------------|------------------------|--------------------|
| 1 byte         | 1 byte        | 1 byte           | 2 byte          | 1 byte                 | 1 byte             |
| 0x02           | 0x03          | 0x02             | 0x00 0x25       | 0x3D                   | 0x9F               |

Calculation of wind speed measurement value = 00 25 (hexadecimal) = 37 (10 times enlarged value)

Δ 10 = 3.7 m/s

(2) Read the air level of equipment (Station No. 0x02)

Host inquiry frame (hexadecimal): 02 03 00 01 00 01 D5 F9

| Station number | Function code | Register address | Register length | High bit of check code | Check code low bit |
|----------------|---------------|------------------|-----------------|------------------------|--------------------|
| 1 byte         | 1 byte        | 2 byte           | 2 byte          | 1 byte                 | 1 byte             |
| 0x02           | 0x03          | 0x00 0x01        | 0x00 0x01       | 0xD5                   | 0xF9               |

Slave response frame (hexadecimal): 02 03 02 00 03 BC 45

Wind level = 00 03 = 3

| 方位       | 0 | 1              | 2 | 3             | 4 | 5             | 6 | 7              | 8 | 9             | 10 | 11            | 12 | 13                | 14 | 15                 |
|----------|---|----------------|---|---------------|---|---------------|---|----------------|---|---------------|----|---------------|----|-------------------|----|--------------------|
| position | N | North by North | N | East by North | E | East by South | S | South by South | S | South by West | W  | South by West | W  | West by Northwest | N  | North by Northwest |

Be careful

Please read this manual completely before use

Connect the equipment line correctly

First confirm

\*Check that the device is the same as the one you purchased

\*Check whether the appearance of the equipment is damaged

\*Check whether the equipment accessories are complete