

# **INSTRUCTION MANUAL**

**TYPE RS485**

**VER1.0**

## **I BRIEF INTRODUCTION**



## 1.1 Product Overview

THE wind speed sensors are compact and lightweight, easy to carry and assemble. The three cup design concept can effectively obtain external environmental information. The shell is made of high quality aluminum alloy profiles, and the exterior is subjected to electroplating spray treatment, which has good anti-corrosion, Anti-corrosion and other characteristics, can guarantee the long-term use of the instrument rust-free phenomenon, at the same time with the internal smooth bearing system to ensure the accuracy of information collection. It is widely used in the measurement of wind speeds in environments such as greenhouses, environmental protection, weather stations, ships, docks, and breeding.

## 1.2 System Frame Diagram

| PARAMETERS            | TECHNICAL SPECIFICATIONS |
|-----------------------|--------------------------|
| MEASURING RANGE       | 0-30m/s                  |
| MEASURING ACCURACY    | ±1m/s                    |
| RESPONSE TIME         | Less than 5 seconds      |
| BAUD RATE             | 9600                     |
| COMMUNICATION PORT    | RS485                    |
| POWER SUPPLY          | 12V-24V DC               |
| POWER CONSUMPTION     | <1W                      |
| OPERATING TEMPERATURE | -30-80°C                 |

WORKING HUMIDITY ENVIRONMENT

0-100%RH (15-95%RH)

## 1.3 System Framework

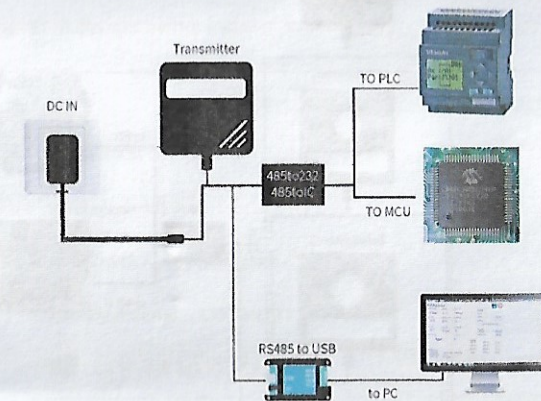


FIGURE 1 SINGLE-ENDED



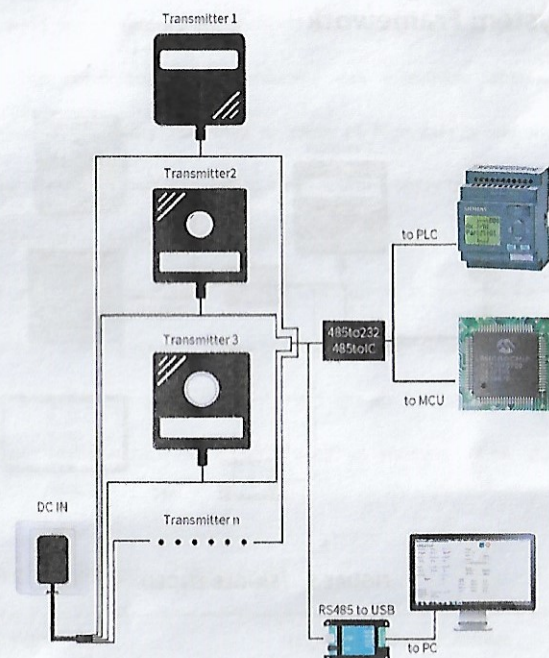


FIGURE 2 MUTIPLE-ENDED

## II HARDWARE CONNECTIONS

### 2.1 CHECKING BEFORE INSTALLATION

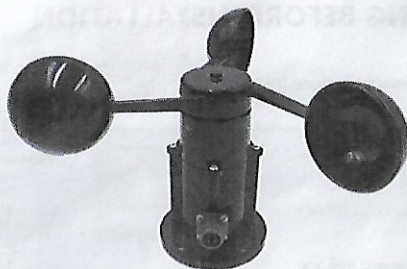
Check the list of devices before installation:

| Name                             | Number |
|----------------------------------|--------|
| THE SENSOR DEVICE                | 1      |
| Wind speed 485 line              | 1      |
| 12V POWER ADAPTER (Optional)     | 1      |
| WARRANTY CARD / CERTIFICATE      | 1      |
| THE USB TO 485 DEVICE (Optional) | 1      |

TABLE 1 List of Devices

#### 2.1.1 Wiring method





|               | Line Color | Description           |
|---------------|------------|-----------------------|
| Power         | Brown      | Power supply Positive |
|               | Black      | Power supply Negative |
| Communication | Blue       | 485-A                 |
|               | White      | 485-B                 |

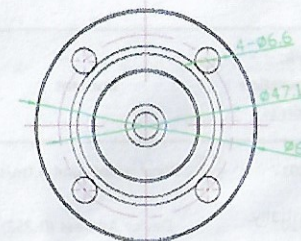
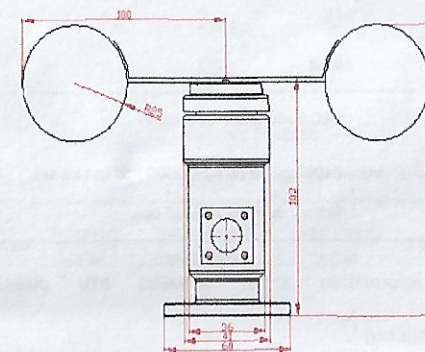
The factory default is to provide 0.6 meters long wire, customers can extend the wire as needed or sequentially.

## 2.2 Installation Description

Flange mounting, threaded flange connection makes the lower part of the wind direction sensor firmly fixed on the flange plate, and four mounting holes with a diameter of 6mm are opened on the circumference of the chassis. Use bolts to

tightly fix it on the bracket to make the whole set. The instrument is kept at the best level, which ensures the accuracy of the wind direction data. The flange connection is easy to use and can withstand greater pressure.

### 2.3.1 Fixing method



## III COMMUNICATION PROTOCOL

### 3.1 Communication Basic Parameters



TABLE 2 Communication Basic Parameters

| PARAMETERS     | CONTENT   |
|----------------|---|
| Code           | 8-bit binary  |
| Data bits      | 8 bit   |
| Parity bit     | No  |
| Stop bit       | 1 bit   |
| Error checking | CRC (redundant loop code)   |
| Baud rate      | 2400 bps/ 4800 bps/ 9600 bps can be set<br>factory defaults to 9600 bps |

For more information about MODBUS RTU please visit the website "www.modbus.org".

### 3.2 Register Address

| Register Address | Plc Configuration Address | Content                    | Operation |
|------------------|---------------------------|----------------------------|-----------|
| 0016H            | 40017                     | Wind speed (unit 0.1m/s)   | Read-Only |
| 0100H            | 40101                     | Device Address (0-252)     | R/W       |
| 0101H            | 40102                     | Baud rate (2400/4800/9600) | R/W       |

TABLE 3 Register Address

### 3.4 Communication Protocol Examples and Explanations

#### 3.4.1 Reading Wind Speed Value at Device Address 0x01

##### Inquiry Frame

| Address Code | Function Code | Start Address | Data Length  | CRC_L | CRC_H |
|--------------|---------------|---------------|--------------|-------|-------|
| 0x01         | 0x03          | 0x00<br>0x16  | 0x00<br>0x01 | 0x65  | 0xCE  |

##### Answer Frames

( For example, reading a wind speed of 2.3m/s)

| Address Code | Function Code | The Number Of Valid Bytes | Wind Speed Value | CRC_L | CRC_H |
|--------------|---------------|---------------------------|------------------|-------|-------|
| 0x01         | 0x03          | 0x02                      | 0x00<br>0x17     | 0xF8  | 0x4A  |

Wind speed:

0017 H (hexadecimal) = 23 => Wind Speed = 2.3m/s