

## WIND SENSOR / DATA SHEET

# SS103U-03

## 3D Ultrasonic Wind Speed & Direction Sensor

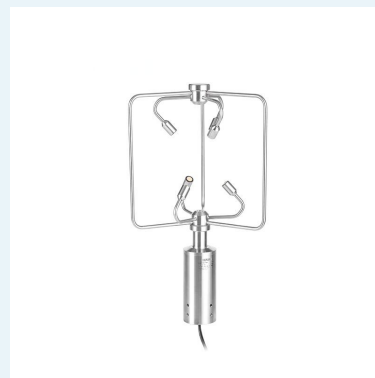
Three-dimensional ultrasonic wind sensor for simultaneous wind speed and wind direction measurement, designed for stable long-term monitoring without moving mechanical components.

### Overview

SS103U-03 uses the ultrasonic time-difference method to measure wind speed and wind direction in three dimensions.

The instrument offers high measurement accuracy, reliable performance, portability and no moving parts, routine maintenance or on-site calibration.

Its stainless-steel structure improves bearing capacity and interference resistance, while the compact design supports easy carrying and convenient installation.



|                                     |                                       |                                              |                                |
|-------------------------------------|---------------------------------------|----------------------------------------------|--------------------------------|
| <b>0–60 m/s</b><br>WIND SPEED RANGE | <b>0–360°</b><br>WIND DIRECTION RANGE | <b>±0.5 m/s / ±5%</b><br>WIND SPEED ACCURACY | <b>RS485</b><br>DIGITAL OUTPUT |
|-------------------------------------|---------------------------------------|----------------------------------------------|--------------------------------|

## CAPABILITY

## Key Advantages & Applications

### Key Advantages

- Beautiful, compact structure with moderate size; easy to carry and install.
- Stainless-steel construction enhances bearing capacity and anti-interference capability.
- Good stability, small size and refined appearance.
- High measurement accuracy, wide measuring range and good long-term stability.
- Strong corrosion resistance, weather resistance and low power consumption.
- Wide power adaptability and long signal transmission distance.

### Application Scenarios

- Urban environmental monitoring
- Meteorological monitoring
- Bridge and tunnel monitoring
- Subways and mining
- Ventilation and exhaust systems
- General industrial applications

## MEASUREMENT PRINCIPLE

## Technical Principle

The sensor calculates wind speed and direction using the time difference of ultrasonic propagation along multiple measurement paths. The ultrasonic method eliminates mechanical inertia and wear from rotating components, enabling all-day measurement with high reliability and stable long-term operation.

## PERFORMANCE

## Technical Specifications

| Item                        | Specification                                    |
|-----------------------------|--------------------------------------------------|
| Wind Speed Measurement Axes | X-axis / Y-axis / Z-axis / horizontal wind speed |

| Item                           | Specification                                   |
|--------------------------------|-------------------------------------------------|
| Wind Speed Measuring Range     | 0–60 m/s (other ranges need customization)      |
| Starting Wind Speed            | 0.1 m/s                                         |
| Response Time                  | ≤20 s                                           |
| Wind Speed Resolution          | 0.1 m/s                                         |
| Wind Speed Accuracy            | ≤10 m/s: ±0.5 m/s; >10 m/s: ±5%                 |
| Wind Direction Mode            | Horizontal / vertical wind direction parameters |
| Wind Direction Measuring Range | 0–360°                                          |
| Wind Direction Accuracy        | ±2°                                             |
| Wind Direction Resolution      | 0.1°                                            |
| Digital Signal                 | RS485                                           |
| Baud Rate                      | 2400–115200                                     |
| Power Supply Voltage           | 9–24 V DC                                       |
| Operating Current              | Ordinary type: <35 mA (12 VDC)                  |
| Operating Temperature          | –20°C to +70°C                                  |
| Operating Humidity             | 0%–99.9% RH                                     |

## OUTPUT CONFIGURATIONS

# Signal & Communication Options

| Option         | Description          |
|----------------|----------------------|
| Digital Signal | RS485 digital output |
| Baud Rate      | 2400–115200 bps      |

## ELECTRICAL CONNECTION

# Interface Definitions

| Needle No. | Line Color | Definition              |
|------------|------------|-------------------------|
| Pin 1      | Red        | Positive supply voltage |
| Pin 2      | Black      | GND                     |
| Pin 3      | Yellow     | 485A                    |
| Pin 4      | Blue       | 485B                    |

*If the technical indicators and cable definitions differ from the actual product, please refer to the actual order.*

## ORDERING INFORMATION

# Configuration Codes

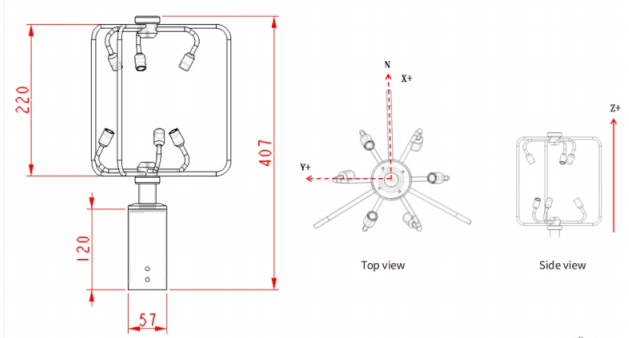
| Code      | Description                                 | Meaning                                              |
|-----------|---------------------------------------------|------------------------------------------------------|
| SS103U-03 | 3D Ultrasonic Wind Speed & Direction Sensor | SpeSense 3D ultrasonic wind speed & direction sensor |

| Code   | Description | Meaning                                   |
|--------|-------------|-------------------------------------------|
| Output | RS485       | RS485 digital output                      |
| Supply | 9–24 V DC   | Power supply voltage                      |
| Range  | 0–60 m/s    | Standard range; other ranges customizable |

## MECHANICAL DATA

# Mechanical Dimensions & Connections

**Source Dimension Drawing**



unit: mm

**Mechanical Data**

- Overall height: 407 mm
- Sensing frame height: 220 mm
- Main body: 57 mm wide × 120 mm high
- Reference unit: mm

## INSTALLATION & USE

# Installation & Application Notes

| Item                    | Source Guidance                                                                                                                                     |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Installation & Geometry | The 3D ultrasonic structure measures along X, Y and Z axes as well as horizontal wind speed; top and side views are shown in the dimension drawing. |
| Customization           | The standard wind speed measuring range is 0–60 m/s. Other ranges need customization.                                                               |

*Note: If technical indicators or cable definitions differ from the actual product, please refer to the actual order.*

## CONTACT / SUPPORT

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