



Wind Sensor WSD-1™

Wind Speed, Wind Direction

Modbus RS-485

DATA SHEET

FEATURE SUMMARY

- Wind speed
- Wind direction
- Anodized aluminum construction
- Ceramic hybrid bearings
- Low power: 1.59 mA
- Non-contact direction sensor
- Modbus output
- Extended data output includes averages and gust
- Made in USA

DESCRIPTION

Wind Sensor WSD-1™ is a high-quality meteorological instrument designed for industrial, agricultural, public service, and educational applications.

WSD-1™ is a low-power, digital output anemometer with combined wind vane. The Modbus slave output can be used with the Control Module or other Modbus host devices, such as programmable logic controllers (PLCs) or data loggers.

WSD-1 provides extended data output. 2 minute and 10 minute wind averages are calculated by the sensor. Gust speed and direction are also in the digital data. By calculating these values on the sensor, data acquisition device programming can be simplified.

The following are measurements provided directly by **WSD-1**:

- Wind Speed (m/s)
- Wind Direction (degrees)
- 2 Minute Average Wind Speed
- 2 Minute Average Wind Direction
- 10 Minute Average Wind Speed
- 10 Minute Average Wind Direction
- Wind Gust Speed
- Wind Gust Direction



KEY FEATURES

Construction: **WSD-1** is made of 6061 machined aluminum. The standard product is gold anodized (MIL-8625 Class 2 Type 1). Sun-fast colors, including clear, electroless black, blue, and red, are available to VARs.

All movement uses ceramic hybrid bearings with synthetic lubricant for long-life operation.

A fiberglass vane stem withstands harsh treatment. Vane and anemometer cups are user-replaceable without disassembly.

Mechanical construction minimizes snow accumulation.

Wind Direction: The wind direction sensor utilizes a contactless sensor for high reliability, high accuracy, and, unlike potentiometer sensors, has NO dead spots.

Wind Speed: The anemometer is a 3-cup mechanism utilizing ceramic hybrid bearings.

Data Connection: Power and data is provided through a 4-wire connection. **WSD-1** uses a Modbus slave interface. Drawing 1.59 mA_{avg}, the sensor is suitable for solar powered instrumentation systems.

Mounting: The unique mounting tube can be fitted over standard 3/4" conduit, such as that used for antenna towers, or it can be used with standard 1" structural pipe fittings.

WIND SPEED

Operational Range	0 m/s to 50 m/s (0 mph to 112 mph)*
Test Range	0 m/s to 60 m/s (0 mph to 134 mph)
Starting Threshold	<1 m/s (2.2 mph)
Resolution	0.1 m/s (0.2 mph)
Operational Range Accuracy	Better than +/- 3% or +/- 0.3 m/s
Distance Constant	2.1 m (6.7 ft)

WIND DIRECTION

Range	0° to 360°
Threshold	1 m/s (2.2 mph)
Accuracy	+/- 1°
Resolution	0.5°

* Modbus output units are m/s. Miles per hour units are for reference only.

ELECTRICAL

Power Input	5 VDC to 24 VDC
Current	<2 mA _{avg} at 12 VDC†

MECHANICAL

Materials	Anodized 6061 aluminum 306 Stainless steel PC, UV-stabilized – cups only Filament-wound fiberglass
Bearings	Hybrid ceramic/stainless steel
Overall (WxDxH)	15.2 cm x 32 cm x 25.5 cm (6" x 12.5" x 10")
Cable	4 conductor, 24 AWG, stranded Foil shield w/ drain wire Outdoor rated cable
Weight w/ Cable	675 g (23.8 oz)
Weight w/o Cable	500 g (17.6 oz)
OEM Options	Custom anodizing color (red, black, blue, or clear)

DATA

Protocols	Modbus
Min. Request Period	20 ms (Modbus at 19200 bps)
OEM Options	Custom Packet structure and competing device emulation

ENVIRONMENTAL

Operating Temperature	-40°C to 60°C
Storage Temperature	-40°C to 80°C
Operating Humidity	0 to 100%

ACCESSORIES **

Tripod	Tripod-1
Structural Fittings	1" coupler 1" crossover
Mast	Tripod mast segment for attachment to user's mounting structure

† Continuous full run mode, reading data once per second.

** Accessories sold separately.



Image 1: As shipped.