200-81000 Ultrasonic Anemometer

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The **Model 200-8100 Ultrasonic Anemometer** is a three-dimensional no-moving-parts wind sensor. Two-dimensional anemometers meet the need for economy, but they ignore the important vertical wind component. The 200-81000 measure three dimensional wind velocity based on the transit time of ultrasonic acoustic signals. From speed of sound, sonic temperature is derived. Speed of sound and sonic temperature are corrected for crosswind effects.

Measurement data are available as voltage output signals or serial output using RS232 or RS485 connections. Both voltage and serial output may be configured for various output formats. Operating parameters may be edited using ordinary terminal software on a PC. Simple menus make it easy. All parameters are stored in nonvolatile memory.

The sensor features robust construction with three opposing pairs of ultrasonic transducers supported by stainless steel members. This arrangement provides rigidity to the anemometer while offering a measure of protection to the transducers. The transducers are arranged so that measurement are made through a common volume, thereby improving the validity of the measurement. A fast 160 Hz sampling rate ensures superior measurement resolution.

Superior environmental resistance is achieved by using UV stabilized thermoplastic, stainless steel, and anodized aluminum components. Electrical connections are made via an easily accessible junction box. The unit mounts on standard 1" pipe.

Specifications

Operating Temperature
-50 to +50 °C

Range
Wind speed: 0 to 40 m/s (0 to 90 mph)
Resolution: 0.01 m/s
Threshold: 0.01 m/s
Accuracy: ± 1% rms ± 0.05 m/s (0 to 30 m/s) ± 3% rms (30 to 40 m/s)
Wind direction: 0 to 360 degrees
Elevation range: ± 60 degrees
Resolution: 0.1 degree
Accuracy: ± 2 degrees (1 to 30 m/s) ± 5 degrees (30 to 40 m/s)
Speed of sound: 300 to 360 m/s
Resolution: 0.01 m/s
Accuracy: ± 0.1% rms ± 0.05 m/s (0 to 30 m/s)
Sonic temperature: -50 to +50 ºC
Resolution: 0.01 ºC
Accuracy: ± 2 ºC (0 to 30 m/s)

Serial Output
RS232 or RS485
1200 to 38400 baud
4 to 32 Hz (user-selected)
User programmable ASCII output configuration (select from U, V, W, Speed of sound, Sonic temperature, 2D speed, 3D speed, Azimuth, Elevation)
Preset outputs:
NMEA- Marine Standard
RMYT- Wind Tracker
Units: m/s, cm/s, MPH, Knots, Km/hr

Analog Voltage Outputs
4 voltage outputs, 0 to 5000 mV (select from U, V, W, Sonic temperature or Speed, Azimuth, Elevation, Sonic temperature)

Power Requirement
12 to 30 Vdc , 4 watts

Dimensions
56 cm high x 17 cm radius (3 support arms)
Weight/Shipping: 1.7 kg (3.8 lb)/4.5 kg (10 lb)

Ordering Information

200-81000	Ultrasonic Anemometer
330-0524	Cable, per foot