3-Axis Wind Sensor

wind

YOUNG

Model 81000

Ultrasonic Anemometer

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The YOUNG Model 81000 Ultrasonic Anemometer is a 3-axis, no-moving-parts wind sensor. It is perfectly suited for applications requiring fast response, high resolution and three-dimensional wind measurement.

The sensor features durable corrosion-resistant construction with 3 opposing pairs of ultrasonic transducers supported by stainless steel members. The transducers are arranged so that measurements are made through a common volume. A fast, 160 Hz internal sampling rate ensures superior measurement resolution. Output rates from 4 to 32 Hz may be selected. Each 81000 is individually wind-tunnel tested and calibrated to compensate for wind shadow effects of the support structure.

Model 81000 features four voltage output channels. Serial RS-232 and RS-485 outputs are available as well. For applications requiring synchronized analog measurements, **Model 81000V** includes four voltage input channels instead of voltage outputs. Wind, sonic temperature and voltage input data are transmitted serially. For each model, a variety of preset or custom output format options may be selected by the user.

Both models install on standard 1 inch pipe. Wiring connections are housed in a convenient weatherproof junction box.

Ordering Information — MODEL

ULTRASONIC ANEMOMETER – *VOLTAGE & SERIAL OUTPUTS*..... **81000**

ULTRASONIC ANEMOMETER – *VOLTAGE INPUTS, SERIAL OUTPUTS ONLY*..... **81000V**

Specifications

Wind Speed: 0 to 40 m/s (0 to 90 mph)
Resolution: 0.01 m/s
Threshold: 0.01 m/s
Accuracy: ± 1% ± 0.05m/s (0 to 30 m/s)
± 3% (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% ± 0.05 m/s (0 to 30 m/s)

Sonic Temperature: -50 to +50
Resolution: 0.01 m/s
Accuracy: ± 2 °C (0 to 30 m/s)

Serial Output: RS-232 or RS-485
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)
Units: m/s, cm/s, mph, knots, km/h

Analog Voltage Outputs (81000):
4 voltage outputs, 0 to 5000 mV
(select from U, V, W, Sonic temperature or Speed, Azimuth, Elevation, Sonic temperature)

Voltage Inputs (81000V):
Range: 0 to 5000 mV, V1 & V2
0 to 1000 mV, V3 & V4
Resolution: 1 part in 4000
Accuracy: ± 0.1% of full scale

Power Requirement:
12 to 24 VDC, 110 mA

Operating Temperature:
-50 to +50 °C

Dimensions:
56cm high x 17cm radius (3 support arms)
Weight: 1.2 kg (2.6 lb)
Shipping Weight: 4.5 kg (10 lb)

CE *Complies with applicable CE Directives*

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