



## *3-Axis Wind Sensor*

wind



Model 81000

**Ultrasonic Anemometer**



# YOUNG

## Model 81000 Ultrasonic Anemometer

*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.



### Specifications

**Wind Speed:** 0 to 40 m/s (0 to 90 mph)  
**Resolution:** 0.01 m/s  
**Threshold:** 0.01 m/s  
**Accuracy:**  $\pm 1\% \pm 0.05 \text{ m/s}$  (0 to 30 m/s)  
 $\pm 3\%$  (30 to 40 m/s)

**Wind Direction:** 0 to 360 degrees  
**Elevation Range:**  $\pm 60$  degrees  
**Resolution:** 0.1 degree  
**Accuracy:**  $\pm 2$  degrees (1 to 30 m/s)  
 $\pm 5$  degrees (30 to 40 m/s)

**Speed of Sound:** 300 to 360 m/s  
**Resolution:** 0.01 m/s  
**Accuracy:**  $\pm 0.1\% \pm 0.05 \text{ m/s}$  (0 to 30 m/s)

**Sonic Temperature:** -50 to +50  
**Resolution:** 0.01 m/s  
**Accuracy:**  $\pm 2^\circ \text{C}$  (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:  $\pm 0.1\%$  of full scale

**Power Requirement:**  
 12 to 24 VDC, 110 mA

**Operating Temperature:**  
 -50 to +50  $^\circ \text{C}$

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



Complies with applicable CE Directives

### Ordering Information

### MODEL

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

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



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