



# MODEL 81000 ULTRASONIC ANEMOMETER



The **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 mis (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:  $\pm 0.1\%$   $\pm 0.05$  m/s (0 to 30 m/s)

### Sonic Temperature: -50 to +50

Resolution: 0.01 m/s  
Accuracy:  $\pm 2$  °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)

### 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 °C

### Dimensions

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

## Ordering information

ULTRASONIC ANEMOMETER  
VOLTAGE & SERIAL OUTPUTS

Model

81000

ULTRASONIC ANEMOMETER  
VOLTAGE INPUTS. SERIAL OUTPUTS ONLY

81000V