

*High Performance
Wind Sensor*



Model 05103
Wind Monitor

The Wind Monitor is a high performance, rugged wind sensor. Its simplicity and corrosion-resistant construction make it ideal for a wide range of wind measuring applications.

The wind speed sensor is a four blade helicoid propeller. Propeller rotation produces an AC sine wave voltage signal with frequency directly proportional to wind speed. Slip rings and brushes are eliminated for increased reliability.

The wind direction sensor is a rugged yet lightweight vane with a sufficiently low aspect ratio to assure good fidelity in fluctuating wind conditions. Vane angle is sensed by a precision potentiometer housed in a sealed chamber. With a known excitation voltage applied to the potentiometer, the output voltage is directly proportional to vane angle. A mounting orientation ring assures correct realignment of the wind direction reference when the instrument is removed for maintenance.

The instrument is made of UV stabilized plastic with stainless steel and anodized aluminum fittings. Precision grade, stainless steel ball bearings are used. Transient protection and cable terminations are in a convenient junction box. The instrument mounts on standard 1 inch pipe.



For offshore and marine use, **Model 05106, Wind Monitor-MA** features special waterproof bearing lubricant and a sealed, heavy duty cable pigtail in place of the standard junction box. Separate signal conditioning for voltage or current outputs is available.

The Wind Monitor is available with two additional output signal options. **Model 05103V** offers calibrated 0-1 VDC outputs (0-5 VDC optional), convenient for use with many datajoggers.

Model 05103L provides a calibrated 4-20 mA current signal for each channel, useful in high noise areas or for long cables (up to several kilometers). Signal conditioning electronics are integrated into the sensor junction box.



Specifications

Range:

Wind speed: 0-60 m/s (134 mph)
Gust survival: 100 rn/s (220 mph)
Azimuth: 360° mechanical, 355° electrical (5° open)

Accuracy:

Wind speed: ±0.3 rn/s (0.6 mph)
Wind direction: ±3 degrees

Threshold:*

Propeller: 1.0 m/s (2.2 mph) 05103, 1.1 m/s (2.4 mph) 05106
Vane: 1.1 m/s (2.4 mph) 05103, 1.3 m/s (2.9 mph) 05106

Dynamic Response:*

Propeller distance constant (63% recovery) 2.7 m (8.9 ft)
Vane delay distance (50% recovery) 1.3 m (4.3 ft)
Damping ratio: 0.3
Damped natural wavelength: 7.4 m (24.3 ft)
Undamped natural wavelength: 7.2 m (23.6 ft)

Signal Output:

Wind speed: magnetically induced AC voltage, 3 pulses per revolution. 1800 rpm (90 Hz) = 8.8 m/s (19.7 mph)
Azimuth: analog DC voltage from conductive plastic potentiometer- resistance 10K Ω, linearity 0.25%, life expectancy- 50 million revolutions

Power Requirement:

Potentiometer excitation: 15 VDC maximum

Dimensions:

Overall height: 37 cm (14.6 in)
Overall length: 55 cm (21.7 in)
Propeller: 18 cm (7 in) diameter
Mounting: 34 mm (1.34 in) diameter (standard 1 inch pipe)

Weight:

Sensor weight: 1.0 kg (2.2 lbs)
Shipping weight: 2.3 kg (5 lbs)

*Nominal values, determined in accordance with ASTM standard procedures.

MODEL 05103V 0-1 VDC outputs

Power Requirement:

8-24 VDC (5 mA @ 12 VDC)

Operating Temperature:

-50 to 50° C

Output Signals:

0-1.00 VDC full scale
0-5.00 VDC optional

MODEL 05631 4-20 mA outputs

Power Requirement:

8-30 VDC (40 mA max.)

Operating Temperature:

-50 to 50° C

Output Signals:

4-20 mA full scale

Ordering Information

MODEL

WIND MONITOR	05103
WIND MONITOR 0-1 VDC OUTPUTS	05103V*
WIND MONITOR 4-20 mA OUTPUTS	05103L*
WIND MONITOR-MA (MARINE MODEL)	05106
WIND SENSOR INTERFACE (FOR USE WITH 05106) 0-1 VDC	05603B*
WIND LINE DRIVER (FOR USE WITH 05106) 4-20 mA	05631B*

*SPECIFY SUFFIX FOR DESIRED WIND SPEED SCALE:

0-50 M/S	M
0-100 MPH	P
0-100 KNOTS	N
0-200 KM/HR	K



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