

# 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 0-5 VDC outputs, convenient for use with many dataloggers.

**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.

## REFERENCES

## MODEL

WIND MONITOR .....	05103
WIND MONITOR 0-5 VDC OUTPUTS.....	05103V
WIND MONITOR 4-20 mA OUTPUTS.....	05103L
WIND MONITOR-MA (MARINE MODEL).....	05106
WIND SENSOR INTERFACE(FOR USE WITH 05106) 0-5 VDC).....	05603C
WIND LINE DRIVER (FOR USE WITH 05106) 4-20 mA).....	05631C

 *Complies with applicable CE directives*

## SPECIFICATIONS

### Range

Wind speed: 0-100 m/s

Azimuth: 360° mechanical, 355° electrical (5° open)

### Accuracy

Wind speed:  $\pm 0.3$  m/s or 1% of reading

Wind direction:  $\pm 3$  degrees

### Threshold

Propeller: 1.0 m/s (05103), 1.1 m/s (05106)

Vane: 1.1 m/s

### Dynamic Response

Propeller distance constant (63% recovery) 2.7 m

Vane delay distance (50% recovery) 1.3 m

Damping ratio: 0.3

Damped natural wavelength: 7.4 m

Undamped natural wavelength: 7.2 m

### Signal Output

Wind Speed: magnetically induced AC voltage, 3 pulses per revolution. 1800 rpm (90 Hz) = 8.8 m/s

Azimuth: analog DC voltage from conductive plastic potentiometer – resistance 10K  $\Omega$ , linearity 0.25%, life expectancy –50 million revolutions

### Power Requirement

Potentiometer excitation 15 VDC maximum

Model 05103L: 8-30VDC (40mA max)

Model 05103V: 8-24VDC (5mA @ 12VDC)

### Operating Temperature

-50 to 50 °C (05103)

-50 to 60 °C (05106)

### Dimensions

Overall height: 37 cm

Overall length: 55 cm

Propeller: 18 cm diameter

Mounting: 34 mm diameter (standard 1 inch pipe)

### Weight

Sensor weight: 1.0 kg

Shipping weight: 2.3 kg