



Wind Monitor RE

S1102

- High performance
- Lightweight and rugged
- 80 mph survival

Designed specifically for high fidelity, detailed wind measurements, the Wind Monitor RE combines simplicity of operation and lightweight, corrosion-resistant construction, with excellent damping, low threshold, and fast response. The main housing and mounting assembly are rigid UV stabilized thermoplastic with stainless steel and anodized aluminum fittings. Propeller shaft and vertical shaft bearings are stainless steel precision grade ball bearings.

The ultra-light polystyrene tail assembly provides a damping ratio of 0.65. Vane threshold is 0.4 m/s at 10° displacement. Vane position is measured by a precision conductive plastic potentiometer. With a constant voltage applied to the potentiometer element, the output signal is an analog voltage directly proportional to azimuth angle.

The four-blade helicoid propeller is expanded polystyrene, 22 cm diameter x 30 cm pitch, with a distance constant of 1.0 m. Wind speed threshold is 0.2 m/s. Propeller rotation produces an AC sine wave voltage signal with frequency directly proportional to wind speed. The AC voltage signal is induced in a centrally mounted coil by a six-pole magnet mounted on the propeller shaft. The coil is located on the non-rotating central portion of the main mounting, eliminating the need for slip rings and brushes.

For convenience in making cable connections, transducer leads terminate in a junction box on the mounting post. Four-conductor cable is normally used. The mounting post fits standard 1 inch pipe.





Technical Specifications

S1102

Range

Wind Speed:	0 - 30 m/s (70 mph)
Gust Survival:	35 m/s (80 mph)
Azimuth:	360° mechanical, 355° electrical, (5° open)

Threshold

Propeller:	0.2 m/s (0.5 mph)
Vane:	0.4 m/s (0.9 mph) @ 10° displacement 0.6 m/s (1.4 mph) @ 5° displacement

Dynamic Response

Propeller Distance Constant (63% recovery):	1.0 m (3.2 ft)
Vane Delay Distance (50% recovery):	0.8 m (2.6 ft)
Damping Ratio:	0.65
Damped Natural Wavelength:	4.7 m (15.4 ft)
Un-damped Natural Wavelength:	3.6 m (11.8 ft)

Signal Output

Wind Speed:	Magnetically induced AC sine wave 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 10 k Linearity 0.25% Life expectancy 50 million revolutions

Power Requirement

Potentiometer excitation:	Regulated voltage recommended, 15 VDC maximum
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PHYSICAL

Dimensions

Height Overall:	38 cm (15.0 in)
Length Overall:	65 cm (25.6 in)
Main Housing:	5 cm (2.0 in) diameter
Propeller:	22 cm (8.7 in) diameter
Mounting:	34 mm (1.34 in) diameter (standard 1 inch pipe)

Weight

Sensor Weight:	0.7 kg (1.5 lbs)
Shipping Weight:	2.7 kg (6 lbs) approx.