



## Wind Monitor

### S1100W / S1100Z

- High resolution
- 0.45 damping ratio
- Corrosion resistant construction
- Low threshold, fast response

Simplicity and lightweight corrosion resistant construction were principal design considerations for this wind monitor. Slip rings and brushes have been eliminated, resulting in improved reliability with lower cost. Extensive use of modern thermoplastic materials improves resistance to corrosion from sea air environments and from atmospheric pollutants. The wind monitors longer and larger tail assembly of lightweight, molded polystyrene foam provides a damping ratio of 0.45. Vane threshold is 0.5 m/s (1.1 mph) at 10° displacement.

The wind speed sensor is an injection molded helicoid shape propeller. The propeller is four blade, 20 cm diameter x 30 cm pitch, with a distance constant of 2.7 m (8.9 ft). Wind speed threshold is 0.4 m/s (0.9 mph). 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 assembly, eliminating the need for slip rings and brushes.

Vane position is transmitted to a precision conductive plastic potentiometer, which is located in a sealed chamber just below the wind speed transducer coil. The potentiometer requires a regulated excitation voltage. With a constant voltage applied to the potentiometer element, the output signal is an analog voltage directly proportional to azimuth angle. All transducer leads terminate in a junction box on the mounting post for convenience in making sensor cable connections. Four conductors are required.

Construction is principally of rigid UV stabilized thermoplastic with stainless steel and anodized aluminum fittings. Propeller shaft bearings and vertical shaft bearings are stainless steel precision grade ball bearings.





## Technical Specifications

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### Wind Speed

Operating Temperature:	-50°C - +50°C (-58°F - +122°F)
Range:	0 - 50 m/s (112 mph)
Threshold:	0.4 m/s (0.9 mph)
Distance Constant:	2.1 m (6.9 ft) (63% recovery)
Signal Output:	Magnetically induced AC voltage, 3 pulses/revolution 1800 rpm (90 Hz) = 9.2 m/s (20.6 mph)

### Wind Direction

Operating Temperature:	-50°C - +50°C (-58°F - +122°F)
Range:	360° mechanical, 355° electrical
Threshold:	0.5 m/s (1.1 mph) at 10° displacement
Delay Distance:	1.2 m (3.9 ft) (50% recovery)
Signal Output	
Life Expectancy:	50 million revolutions

### PHYSICAL

Overall Height:	38 cm (15 in)
Overall Length:	65 cm (25.6 in) - includes vane and propeller
Propeller Diameter:	20 cm (7.9 in)
Weight:	0.7 kg (1.5 lb)