**Overview**

The 05103 Wind Monitor is a lightweight, sturdy instrument for measuring wind speed and direction in your harsh environments. Its simplicity and corrosion-resistant construction make it ideal for a wide range of wind measuring applications. Manufactured by R. M. Young, this wind monitor is cabled for use with your Campbell Scientific data logger.

**Benefits and Features**

- Rugged enough for harsh environments
- Compatible with the CWS900-series interfaces, allowing it to be used in a wireless sensor network
- Constructed with thermoplastic material that resists corrosion from sea-air environments and atmospheric pollutants
- Uses stainless-steel, precision-grade ball bearings for the propeller shaft and vertical shaft bearings
- Ideal for wind profile studies
- Compatible with the LLAC4 4-channel Low-Level AC-Conversion Module, which increases the number of anemometers one data logger can measure

**Detailed Description**

The 05103 Wind Monitor is made out of rigid UV-stabilized thermoplastic with stainless steel and anodized aluminum fittings. The thermoplastic material resists corrosion from sea air environments and atmospheric pollutants. It uses stainless-steel precision-grade ball bearings for the propeller shaft and vertical shaft bearings.

The 05103 measures wind speed with a helicoid-shaped, four-blade propeller. Rotation of the propeller produces an ac sine wave that has a frequency directly proportional to wind speed.

The ac signal is induced in a transducer coil by a six-pole magnet mounted on the propeller shaft. The coil resides on the non-rotating central portion of the main mounting assembly, eliminating the need for slip rings and brushes.

Wind direction is sensed by the orientation of the fuselage-shaped sensor body, which is connected to an internal potentiometer. The data logger applies a known precision excitation voltage to the potentiometer element. The output is an analog voltage signal directly proportional to the azimuth angle.

For comprehensive details, visit: [www.campbellsci.com/05103-l](http://www.campbellsci.com/05103-l)
Specifications

Operating Temperature Range
-50° to +50°C (assuming non-riming conditions)

Mounting Pipe Description
- 34 mm (1.34 in.) OD
- Standard 1.0-in. IPS schedule 40

Housing Diameter 5 cm (2.0 in.)
Propeller Diameter 18 cm (7.1 in.)
Height 37 cm (14.6 in.)
Length 55 cm (21.7 in.)
Weight 1.5 kg (3.2 lb)

Wind Speed

Range 0 to 100 m/s (0 to 224 mph)
Accuracy ±0.3 m/s (±0.6 mph) or 1% of reading
Starting Threshold 1.0 m/s (2.2 mph)
Distance Constant 2.7 m (8.9 ft) 63% recovery
Output ac voltage (three pulses per revolution)
90 Hz (1800 rpm) = 8.8 m/s (19.7 mph)

Resolution (0.0980 m s⁻¹) / (scan rate in seconds) or (0.2192 mph) / (scan rate in seconds)

Wind Direction

Mechanical Range 0 to 360°
Electrical Range 355° (5° open)
Accuracy ±3°
Starting Threshold 1.1 m/s (2.4 mph) at 10° displacement
Distance Constant 1.3 m (4.3 ft) 50% recovery
Damping Ratio 0.3
Damped Natural Wavelength 7.4 m (24.3 ft)
Undamped Natural Wavelength 7.2 m (23.6 ft)
Output Linearity is 0.25%.
Life expectancy is 50 million revolutions.
Analog dc voltage from potentiometer (resistance 10 kohm)
Voltage Power switched excitation voltage supplied by data logger

For comprehensive details, visit: www.campbellsci.com/05103-1

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