



Reliable, Competitively priced

All purpose wind set

Overview

R.M. Young's 03002 Wind Sentry Set accurately measures wind speed and direction. The 03101 provides just the anemometer for customers who only want wind speed measurements.

These sensors interface directly with our dataloggers. No signal conditioning is required.

Benefits and Features

- › Compatible with all Campbell Scientific dataloggers
- › Designed for continuous, long term, unattended operation in adverse conditions
- › Small size, simplicity, and rugged construction provide a quality instrument for a modest price
- › Ideal for wind profile studies
- › Compatible with the LLAC4 4-channel Low Level AC Conversion Module, which increases the number of anemometers one datalogger can measure
- › Campbell Scientific's version uses shielded bearings, which lowers the anemometer's starting threshold
- › 03002 is compatible with the CWS900-series interfaces, allowing it to be used in a wireless sensor network

Wind Direction

Wind Direction is sensed by a potentiometer. With the precision excitation voltage from the datalogger applied to the potentiometer

element, the output signal is an analogue voltage that is directly proportional to the azimuth angle of the wind direction.

Wind Speed

The Wind Sentry uses a cup wheel assembly to measure wind speed. Rotation of the cup wheel produces an ac sine wave that is directly proportional to wind speed. The frequency of the ac signal

is measured by a datalogger pulse count channel, then converted to engineering units (mph, m/s, knots). Campbell Scientific's version uses shielded bearings, which lowers the anemometer's threshold.

Mounting

The 03002 is supplied with a 300 mm long x 33 mm OD anodized aluminium pipe, which mounts to a crossarm via a NU-RAIL fitting as

shown. Alternatively, the 03002 can mount to the top of a stainless-steel tripod via the CM216.

Specifications

Wind Sentry Assembly

- › Operating Temperature Range: -50° to +50°C; assuming non-riming conditions
- › Overall Height: 32 cm (12.6 in)
- › Crossarm Length: 40 cm (15.7 in) between instruments (centre-to-centre)
- › Mounting Diameter: 34 mm (1.34 in); mounts on standard 1 inch IPS pipe

Wind Speed

- › Range: 0 to 50 m s⁻¹ (0 to 112 mph)
- › Gust Survival: 60 m/s (134 mph)
- › Sensor: 12 cm diameter cup wheel assembly, 40 mm diameter hemispherical cups
- › Accuracy: ±0.5 m s⁻¹ (1.1 mph)
- › Turning Factor: 75 cm (2.5 ft)
- › Distance Constant (63% recovery): 2.3 m (7.5 ft)
- › Threshold: 0.5 m/s (1.1 mph)
- › Transducer: Stationary coil; 1300 ohm nominal resistance
- › Transducer Output: AC sine-wave signal induced by rotating magnet on cup wheel shaft 100 mV peak-to-peak at 60 rpm; 6 V peak-to-peak at 3600 rpm
- › Output Frequency: 1 cycle per cup wheel revolution; 0.75 m s⁻¹ per Hz
- › Cup Wheel Diameter: 12 cm (4.7 in)
- › Weight: 113 g (4 oz)

Wind Direction (Vane)

- › Range
 - Mechanical: 360°
 - Electrical: 352° (8° open)
- › Accuracy: ±5°
- › Sensor: Balanced vane; 16 cm turning radius
- › Damping Ratio: 0.2
- › Threshold
 - With 10° Displacement: 0.8 m s⁻¹ (1.8 mph)
 - With 5° Displacement: 1.8 m s⁻¹ (4 mph)
- › Transducer: Precision conductive plastic potentiometer; 10 kohm resistance; 1.0% linearity; life expectancy of 50 million revolutions. Rated 1 W at 40°C, 0 Watts at 125°C.
- › Transducer Excitation: Requires regulated dc voltage, 15 Vdc maximum
- › Transducer Output: Analogue dc voltage proportional to wind direction angle with regulated excitation voltage supplied by the datalogger
- › Vane Length: 22 cm (8.7 in)
- › Weight: 170 g (6 oz)

NB: Maximum cable length is 304 m (1000 feet)

Ordering Information

- 03002** Wind Sentry Set
- 03101** Wind Sentry Anemometer only

Mounts compatible with both the 03002 and 03101

- CM216** Sensor Mounting Kit for attaching the 03002 or 03101 to the top of a CM110, CM115 or CM120 stainless-steel tripod.

Mount for only the 03002 Wind Sentry Set

- 008285** 2.5 cm x 2.5 cm (1" x 1") NU-RAIL fitting for mounting the 03002 Wind Sentry Set to a crossarm, such as a CM201, CM204 or CM206.