

# Campbell Scientific

## 03002-L

### RM Young Wind Sentry Set

[www.campbellsci.com.au/rm03002](http://www.campbellsci.com.au/rm03002)



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**CAMPBELL  
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Australia, Pty Ltd

# 03002-L RM Young Wind Sentry Set

- 3-cup anemometer and wind vane mounted on a common crossarm
- Junction box allows a single cable to connect entire sentry set
- Replaces the popular 03001-L Sentry Set

R. M. Young's 03002 Wind Sentry Set accurately measures wind speed and direction, interfacing directly with most Campbell Scientific data logger models, with no signal conditioning required.

Wind speed is detected using a sturdy three-cup anemometer. 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 data logger pulse count channel, and then converted to engineering units (mph, m/s, knots). Campbell Scientific's version of the 03002 sensor uses shielded bearings which lowers the anemometer's starting threshold.

Wind direction is sensed by a potentiometer. With the precision excitation voltage from the data logger applied to the potentiometer element, the output signal is an analog voltage that is directly proportional to the azimuth angle of the wind direction.

The 03002 Wind Sentry ideal for wind profile study applications and when used in conjunction with the LLAC4 4-channel Low Level AC Conversion Module allows users to add multiple sentry sets to a single data logger.

The 03002 replaces our popular RM Young 03001 sentry set, using the same vane and anemometer. However the major difference in design is the new junction box, which allows a single cable to connect the entire set, rather than the multiple cables and connectors that were used previously.



*This 03002 is attached to a crossarm via a CM220 Mount and a 12-inch long x 1-inch IPS pipe (shipped with the sensor).*

The LLAC4 allows data logger control ports to read the anemometer's ac signals instead of using pulse channels. Data loggers compatible with the LLAC4 are the CR200-series (ac signal  $\leq 1$  kHz only), CR800, CR850, CR1000, CR3000, and CR5000.

## Mounting

The 03002 is supplied with a 12-inch-long x 1-inch IPS unthreaded aluminum pipe, which mounts to a crossarm via a CM220 Mount or 17953 NU-RAIL fitting.

Can also be mounted to the top of a CM110, CM115, or CM120 stainless-steel tripod via the CM216.

CM6	CM10	CM110	CM115	CM120	UT10	UT20	UT30
3 metres	4 metres	4 metres	6 metres	7 metres	4 metres	7 metres	10 metres

*These lead lengths assume the sensor is mounted atop the tripod/tower via a CM202 crossarm.*

## Specifications

### Wind Sentry Assembly

Operating Temperature: -50° to +50°C assuming on-rim-  
ing conditions

Overall Height: 32 cm (12.6")

Crossarm Length: 40 cm (15.7") between instruments  
(center-to-center)

Mounting Diameter: 34 mm (1.34"), mounts on standard 1"  
IPS pipe

### Wind Speed (Anemometer)

Range: 0 to 50 m s-1 (112 mph)

Gust survival: 60 m s-1 (134 mph)

Sensor: 12 cm diameter cup wheel assembly, 40 mm diam-  
eter hemispherical cups

Accuracy:  $\pm 0.5$  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 (1.1 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")

Weight: 113 g (4 oz)

### Wind Direction (Vane)

Range: 360° mechanical, 352° electrical (8° open)

Sensor: Balanced vane, 16 cm turning radius

Accuracy:  $\pm 5^\circ$

Damping Ratio: 0.2

Delay Distance (50% recovery): 0.5 m (1.6 ft)

Threshold: 0.8 m s-1 (1.8 mph) at 10° displacement;  
1.8 m s-1 (4 mph) at 5° displacement

Transducer: Precision conductive plastic  
potentiometer; 10 kohm resistance; 1.0% linearity; life ex-  
pectancy 50 million revolutions. Rated 1 watt at 40°C, 0 watts  
at 125°C.

Transducer Excitation: Requires regulated dc voltage, 15 Vdc  
maximum

Transducer Output: Analog dc voltage proportional to wind  
direction angle with regulated excitation voltage supplied by  
the datalogger

Vane Length: 22 cm (8.7")

Vane Weight: 170 g (6 oz)

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