



## WindSonic1 and WindSonic4

2D Ultrasonic Anemometers



## No moving parts

Minimizes routine maintenance costs

### Overview

The WindSonic1<sup>a</sup> and WindSonic4<sup>a</sup> are two-dimensional ultrasonic anemometers for measuring wind speed and wind direction. They provide a low-cost alternative to traditional mechanical cup and vane or propeller and vane anemometers.

The WindSonic1 and WindSonic4 differ in their output signal. The WindSonic1 outputs an RS-232 signal that can be read by a CR300, CR800, CR850, CR1000, CR1000X, or CR3000 datalogger. The WindSonic4 outputs an SDI-12 signal that can be read by a CR200(X)-series, CR510, CR10X, CR800, CR850, CR1000, CR3000 or CR5000 logger.

The WindSonic1 and WindSonic4 are not heated and are not recommended for conditions where rime, ice, or horizontal snow will occur.

Please contact Campbell Scientific for information on a heated 2D sonic anemometer that will work in these conditions.

### Benefits and Features

- › Low maintenance - no moving parts significantly reduces maintenance cost and time
- › Provides a minimum detectable wind speed of 0.01 m s<sup>-1</sup>
- › Four WindSonic1 anemometers can be connected to a single CR1000, CR1000X or CR3000 datalogger, while two can be connected to a single CR800 or CR850 datalogger and one to a CR300
- › The WindSonic1 is compatible with the SDM-SIO1 (not compatible with the CR300), which increases the number of sensors one datalogger can measure
- › Consistent performance throughout life
- › No calibration required
- › Robust, corrosion free UV-resistant material
- › Provides accurate results in weather conditions where traditional mechanical wind sensors may fail

### Technical Details

The WindSonic1 and WindSonic4 use two pairs of orthogonally oriented transducers to sense the horizontal wind. The transducers bounce the ultrasonic signal from a hood, thus minimizing the effects of transducer shadowing and flow distortion.

### Mounting

The instrument mounts on standard 44.45 mm outside diameter pipe. Campbell Scientific can supply crossarms suitable for tripod or tower use and an optional mounting kit which includes a suitable mounting post. The instrument can be rotated as required - an arrow on the underside indicates North to assist correct alignment (see mounting diagram on next page).

<sup>a</sup>The WindSonic1 and WindSonic4 are manufactured by Gill Instruments, Inc.

## Typical Applications

- › Environmental Studies/Wind Resource Surveys
- › Agriculture
- › Pollution Control
- › Portable/Roadside Weather Stations
- › HVAC
- › Marine Environments

## Specifications

- › Diameter: 14.2 cm (5.6 in.)
- › Length: 16.0 cm (6.3 in.)
- › Weight: 0.5 kg (1.1 lb)
- › Operating Humidity: < 5% to 100% RH
- › Temperature Range
  - Operating: -35° to +70°C
  - Storage: -40° to +80°C
- › Input Voltage: 9 to 30 Vdc
- › Typical Current Drain
  - WindSonic1: ~9 mA continuous
  - WindSonic4: <10 mA @ 12 V
- › Measurement Frequency: 40 Hz block averaged to a 1 Hz output frequency
- › Output Parameters: Polar (direction and speed) or orthogonal ( $U_x$  and  $U_y$  wind)
- › Output Signal
  - WindSonic1: RS-232
  - WindSonic4: SDI-12 version 1.3
- › WindSonic1 Maximum Cable Capacitance: 2500 pF

### Maximum Cable Length<sup>b</sup>

- › WindSonic1: 15 m (50 ft)
- › One WindSonic4 Connected to One Port: 91 m (300 ft)
- › Two to Ten WindSonic4s Connected to One Port: 60 m (200 ft)

### Wind Direction

- › Range: 0° to 359° (no dead band)
- › Accuracy:  $\pm 3^\circ$
- › Resolution: 1°

### Wind Speed

- › Range: 0 to 60 m s<sup>-1</sup>
- › Accuracy:  $\pm 2\%$  @ 12 m s<sup>-1</sup>
- › Resolution: 0.01 m s<sup>-1</sup>

## Ordering Information

### 2D Ultrasonic Anemometers

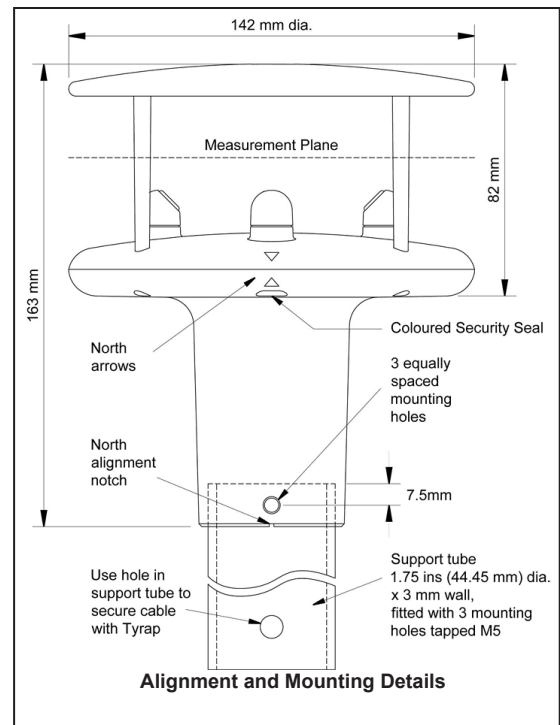
**WINDSONIC1** Gill 2D Sonic Wind Sensor with RS-232 Output.

**WINDSONIC4** Gill 2D Sonic Wind Sensor with SDI-12 Output.

### Cable

Standard cable length 3 m, other lengths available from 5 m in multiples of 5 m.

**010760** WindSonic mounting kit for mounting onto a CM200 series crossarm.



<sup>b</sup>Contact Campbell Scientific if longer cable lengths are required.