

WindMaster

3 Axis Ultrasonic Anemometer

WINDMASTER



ALL WEATHER SENSING TECHNOLOGY

- **METEOROLOGICAL SYSTEMS**
- **TRANSPORT SAFETY**
- **STRUCTURAL SAFETY**
- **WIND PROFILING**
- **MARINE RESEARCH**
- **WIND TURBINE SITE SURVEY**
- **MAINTENANCE FREE**
- **LIGHTWEIGHT CONSTRUCTION**
- **U, V, W, SOS & SONIC TEMP OUTPUT**
- **20Hz OR OPTIONAL 32Hz DATA RATE**
- **OPTIONAL ANALOGUE INPUTS OR OUTPUTS**

WINDMASTER - ULTRASONIC WIND SENSORS

The new WindMaster three axis anemometer is a robust instrument based on time of flight measurements and is essential in the understanding of turbulent flows, surface energy balance and scalar fluxes.

All these areas of research rely on accurate and precise measurements of mean and variance of (time averaged) wind velocities and Speed of Sound (SOS) derived temperature. This is particularly true in determining scalar fluxes using the eddy covariance technique. Gill employs the optimum mechanical configuration and electronic processing to minimise flow distortion and transducer shadow effects. Gill undertakes an individual calibration with a Gill wind tunnel test on each unit to provide the optimum performance. The WindMaster is available with a 20Hz data output rate with an option to increase this to 32Hz. The instrument is constructed in the familiar Aluminium/carbon fibre construction. The WindMaster is fitted with field proven standard Gill transducers with the ability to measure a top wind speed of 45 m/s.

Both software and electronics have been enhanced to provide improved vertical (W) resolution and SOS accuracy. New design electronics has facilitated a reduction in power consumption to 30 mA at 12 V dc, a significant advantage when used on power sensitive sites.

A number of orderable options are available including: -

- Increase in data output rate to 32 Hz
- 4 analogue output channels with options for 12 or 14 bit resolution.
- 4 analogue input channels, with options for 12 or 14 bit resolution, additional PRT input also available.
- A flange mounting arrangement is provided as standard, with option to order a different mounting.
- Wind tunnel calibration in accordance with ISO 16622 and traceable to national standards.
- Travelling case

OUTPUTS

Internal sample rate	20 Hz or 32 Hz
Output rate	1, 2, 4, 8, 10, 16, 20 & 32(option)
Units of measure	m/s, mph, KPH, knots, ft/min
Format	UVW, Polar or NMEA
Averaging	Flexible 0 - 3600 s

WIND SPEED

Range	0 - 45 m/s
Resolution	0.01 m/s
Accuracy (12 m/s) Generic	1.5% RMS *
Accuracy (12 m/s) Custom	1% RMS *

DIRECTION

Range	0-359°
Resolution	0.1°
Accuracy (12 m/s) Generic	2°
Accuracy (12 m/s) Custom	0.5°

SPEED OF SOUND

Range	300 - 370 m/s
Resolution	0.01 m/s
Accuracy	< ± 0.5% @ 20°C

POWER REQUIREMENT

9 - 30 Vdc, 30 mA @ 12 Vdc

DIGITAL OUTPUT

	RS232, 422, 485 network upto 26 anemometers
Baud rates	2400-115200
Format	ASCII / Binary

SONIC TEMPERATURE

Range	-40°C TO +70 °C
Resolution	0.01°C

ANALOGUE OUTPUTS (OPTIONAL)

Resolution 12 bits or 14 bits	4 channels available
Selectable Range	User selectable full scale wind speed
Output Type	0-20mA, 4-20mA, 0-5V, ±2.5V, ±5V

ANALOGUE INPUTS (OPTIONAL)

Resolution 12 bits or 14 bit	Up to 4 single ended or 2 differential
Input Type	±5V

GENERAL

Weight	1.0 kg
Size	750mm x 240mm
Environmental	IP65
Operating Temp	-40°C to + 70°C
Humidity	<5% to 100%
Precipitation	Operation to 300mm/hour
EMC	Emissions BS EN 61000 - 6- 3 Immunity BS EN 61000 - 6 -2

* Accuracy spec applies for wind speed, and for wind incidence up to ± 30° from the horizontal



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This range is in continuous development and therefore specifications may be subject to change without prior notice.

