

# R3-50

## Ultrasonic Research Anemometer

R3-50



### ALL WEATHER SENSING TECHNOLOGY

- WIND TURBULENCE MEASUREMENT
- COMPONENT WIND VELOCITY UVW
- WIND PROFILING
- MAINTENANCE FREE
- ROBUST CONSTRUCTION
- 50 Hz DATA RATE
- CUSTOM CALIBRATED
- ANALOGUE OUTPUTS
- SPEED OF SOUND AND SONIC TEMPERATURE OUTPUTS

The Solent Research R3-50 is a cost effective solution for projects requiring the benefit of Gill's proven experience in the production of ultrasonic anemometers for all weather applications. Robust and easy to use, the R3-50 employs the same software as the popular R3 range of sensors but with a data rate of 50 Hz.

If required the unit can be supplied with the optional Sensor Input Unit (for analogue inputs) and Power Supply (including analogue outputs).

Based on the highly successful range of Solent Research Anemometers, the R3-50 is ideal for users undertaking research

with large eddies at high mast levels.

Having identical output formats to the R3, the R3-50 is particularly suited to applications where a complete wind profile is required, with an R3 or HS positioned near the ground and the R3-50 positioned at a higher level.

Gill research grade units are individually custom calibrated and supplied with a certificate of calibration. All of our test equipment has been designed specifically to test and calibrate our range of ultrasonic sensors and is traceable to national standards.

### ULTRASONIC MEASUREMENT

Ultrasonic output rate	50 Hz
Parameters	UVW, Speed of Sound

### WIND SPEED

Range & resolution	0 - 45 m/s, 0.01 m/s
Accuracy	< ± 1% RMS

### DIRECTION

Range & resolution	0 - 359, 1°
Accuracy *	< ± 1°

### SPEED OF SOUND

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

### DIGITAL OUTPUT

Communication	RS422 full duplex, 8 data bits, 1 stop bit, no parity
Baud Rates	2400 - 115200
Output rate	Selectable 0.4 to 50s <sup>-1</sup>

### ANALOGUE OUTPUTS (requires PCIA unit)

Quantity	7 (U, V, W, SoS, PRT plus 2 analogue inputs)
Scale	± 10, ± 20, ± 30, ± 60 m/s
Update rate	0.4 to 50s <sup>-1</sup>
Range and resolution	± 2.5V, 14 bits
Accuracy	<0.1% of FSR

### ANALOGUE INPUTS (requires SIU)

Quantity	6 differential inputs
Sampling rate	50s <sup>-1</sup>
Range and resolution	± 5V, 14 bits
Accuracy	<0.1% of FSR

### PRT INPUT (requires SIU, PRT 100 not supplied)

Input resolution	0.01°C
Input accuracy	<0.01°C (0 to 50°C) <0.15°C (-40°C to +60°C)

### POWER REQUIREMENT

Anemometer	9 - 30V dc (<150mA @ 24VDC or 300mA @ 12VDC)
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### ENVIRONMENTAL

Operating temperature	-40°C to +60°C
Ingress protection	IP65
Precipitation	Operation maintained to 300mm/hr
EMC	BS EN 50081-1: 1992 (Emissions) BS EN 50082-1: 1997 (Immunity)

### GENERAL

Suitable for exposure to a marine environment

### MATERIALS

External construction Aluminium / Carbon Fibre

### DIMENSIONS

Size	750mm x 240mm
Weight	1 kg

\* Accuracy specification applies for wind speeds <32 m/s and for wind incidence up to ± 20° from the horizontal



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The R3-50 is part of the Solent range of ultrasonic anemometers. The range is in continuous development and therefore specifications may be subject to change without prior notice.

