R3-100™

3-Axis Ultrasonic Anemometer

Key Features

- 3-axis research anemometer
- 100Hz output rate
- 0-45 m/s wind speed
- 0-359º wind direction
- U, V, W vector outputs
- Sonic temperature output
- Aluminium/carbon fibre construction
- Custom calibration provided as standard



The R3-100™ anemometer is Gill's class-leading 3-axis anemometer ideal for scientific research applications, with a fast sampling rate of 100Hz. This 3-axis ultrasonic anemometer is used extensively for the determination of fluxes using the Eddy Covariance method.

R3-100 will monitor wind speeds of 0-45m/s, with analogue, sonic temperature, speed of sound and U, V, W vector outputs provided as standard and optional analogue and PRT inputs available. The R3-100 is of aluminium/carbon fibre construction and will operate effectively in environmental temperatures from -40°C to +60°C. Optional accessories are available such as cables, sensor input units (analogue inputs) and power supplies.

Wind Speed

Range	0 - 45 m/s
Resolution	0.01 m/s
Accuracy	<1% RMS

Direction

Range	0 - 360°
Resolution	1°
Accuracy*	<±1° RMS

Speed of Sound

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

Measurement

Ultrasonic sampling rate	100 Hz
Parameters	UVW, Speed of Sound

Digital Output

Communication	RS422 full duplex, 8 data bits, 1 stop bit, no parity
Baud rates	2400 - 115200
Output rate	Selectable 0.4 to 100Hz

Analogue Inputs (via optional SIU)

Quantity	6 differential inputs
Sampling rate	100Hz
Range and resolution	±5V, 14 bits
Accuracy	<0.1% of FSR

Analogue Outputs (via supplied PCIA)

Quantity	7 (U, V, W, SoS, PRT plus 2 analogue inputs)
Sampling	±10, ±20, ±30, ±60 m/s
Update rate	0.4 to 100Hz
Range and resolution	±2.5V, 14 bits
Accuracy	<0.25% of FSR

PRT Input (requires optional IU, PRT 100 not included)

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

Inclinometer (optional)

Range and resolution	±20°C, 0.01°
Null repeatability	± 0.15°
Accuracy	±0.3° (from -10° to 10° of inclination)

Power Requirement

Anemometer	9-30V dc <4w (eg. <150mA @ 24V DC or 300mA @ 12V dc)

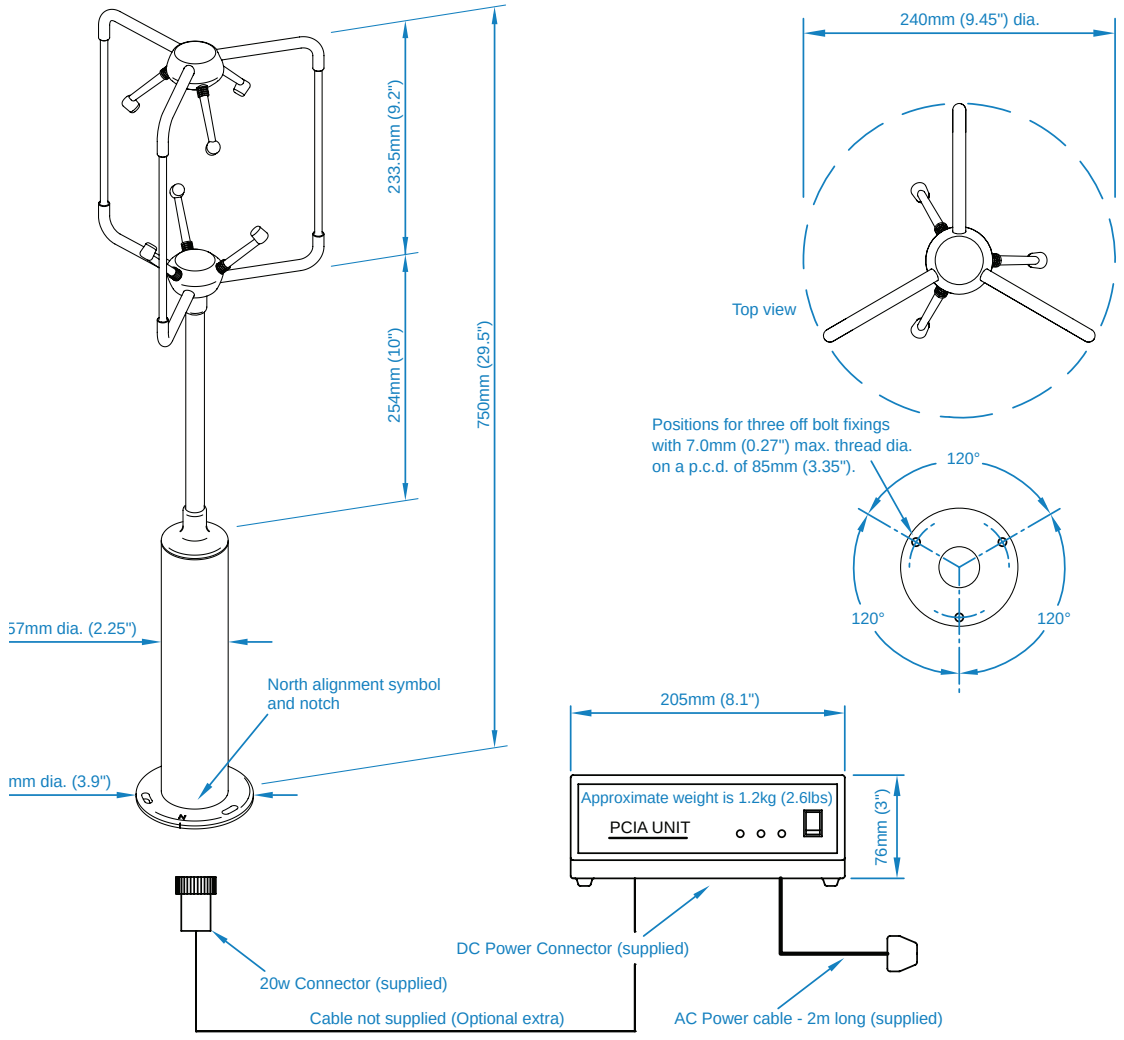
Environmental

Protection Class	IP65
Operating Temp	-40°C to +60°C
Precipitation	Operation to 300 mm per hour
EMC	BS EN 50081-1: 1992 (Emissions) BS EN 50082-1: 1992 (Immunity)
Suitable for exposure to a marine environment	

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

Typical Applications

- Wind Turbulence Measurement
- Component Wind Velocity UVW
- Wind Profiling



Specifications may be subject to change without prior notice.

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