

R3A-100



3-Axis Ultrasonic Anemometer

Asymmetric Head Configuration

Key Features

- Asymmetric 3-axis research anemometer
- 100Hz output rate
- 0-45 m/s wind speed
- 0-360° wind direction
- U, V, W vector outputs
- Sonic temperature output
- Aluminium/carbon fibre construction
- Custom calibration provided as standard

The R3A-100 is a precision anemometer designed for scientific research applications and features an asymmetric sensor head configuration, which allows for more accurate measurement of horizontal flows with minimum interruption of the prevailing wind.

This 3D ultrasonic anemometer will monitor wind speeds up to 45m/s and features a fast 100Hz sampling rate. R3A-100 is supplied as standard with 7 analogue outputs (U, V, W; SoS; PRT plus 2 analogue outputs) and is available with an optional inclinometer.

The R3A-100 is of aluminium/carbon fibre construction and will operate effectively in environmental temperatures from -40°C to +60°C. Optional accessories are available including 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% @ 20°C

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 outputs)
Sampling	±10, ±20, ±30, ±60 m/s
Update rate	0.4 to 100Hz
Range and resolution	±2.5V, 14 bits
Accuracy	<0.1% of FSR

PRT INPUT**

Input resolution	0.01°C
Input accuracy	< 0.01°C (0°C 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	9-30VDC (<150mA @ 24V DC or 300mA @ 12V dc)
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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: 1997 (Immunity)
Suitable for exposure to a marine environment	

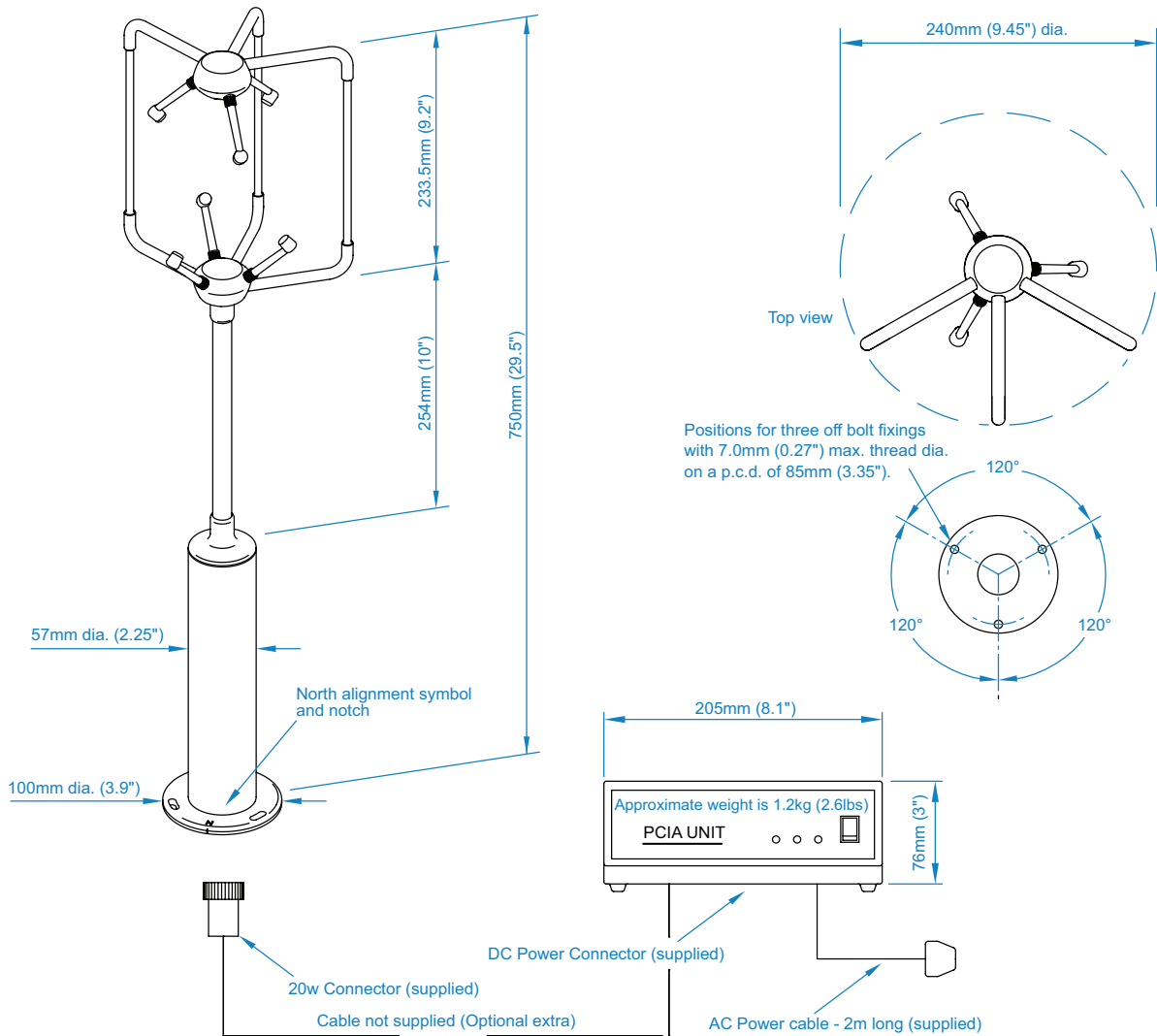
*Accuracy spec applies for wind speed <32 m/s and for wind incidence <±150° in the horizontal plane and up to ±50° from the horizontal

**Requires optional IU, PRT 100 not included

R3A-100

Typical Applications

- Wind Turbulence Measurement
- Component Wind Velocity UVW
- Wind Profiling
- Structural Monitoring
- Eddy Covariance Analysis
- Missile Test Sites



Specifications may be subject to change without prior notice.

GILL

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