



SiRRS02[®]

MEMS Rate Sensor

The UTC Aerospace Systems SiRRS02[®] rate sensor is an enhancement of our first generation silicon micro-machined ring gyroscope (SiRRS01[®]). Designed to provide high performance under harsh environmental conditions, this device uses the design of our highly successful silicon vibrating structure gyro SiVSG[®] MEMS angular rate sensor to deliver improved bias and noise performance - significantly outperforming similar products on the market today. The SiRRS02[®] is suitable for many commercial, aerospace and military applications and is supported by the UTC Aerospace Systems commitment to the technical through-life support necessary for major procurement programmes.

UTC Aerospace Systems has a long and respected heritage in the design and development of inertial sensors and today specialises in Micro Electro-Mechanical Systems (MEMS) products.

- First MEMS IMU in military service
- Selected by over 60 customers worldwide - over 130,000 MEMS products delivered
- Used in missile and weapons navigation, platform stabilisation and navigation
- Rigorous performance and simulated ageing ensures conformance to specification throughout life

Ais Atlantic Inertial Systems

UTC Aerospace Systems

For additional information: Atlantic Inertial Systems Ltd
Clifford Road, Southway, Plymouth PL6 6DE United Kingdom
Tel: +44(0)1752 69 56 95 Fax: +44(0)1752 72 20 95
Email: gnc.uk@utas.utc.com www.utcaerospace.com/gnc

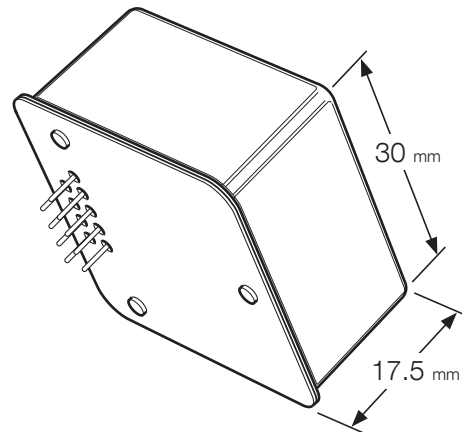
This document does not contain any export controlled technical data.



SiRRS02[®] | MEMS Rate Sensor

Product Benefits

- Excellent shock and vibration performance
- Improved performance in the critical parameters of bias and noise
- Range available from 50 deg/sec to 300 deg/sec



Parameters

Power requirements		
Input voltage	+5V, -5V	
Input current	40mA	
Performance (typical)		
Input ranges	±50°/s	(RRS02-05)
	±110°/s	(RRS02-01)
	±200°/s	(RRS02-09)
	±300°/s	(RRS02-03)
Output full scale	±2V	
Scale factor (nominal)	40mV/°/s	(RRS02-05)
	18.18mV/°/s	(RRS02-01)
	10mV/°/s	(RRS02-09)
	6.67mV/°/s	(RRS02-03)
Scale factor calibration (at 20°C)	0.5%	
Scale factor variation over temp	1%	
Linearity	1%	
Bias calibration (at 20°C)	0.1°/s	
Bias variation over temp	1°/s	
G sensitivity	7°/h/g	
Start-up time	300ms	
Output noise (in band)	0.1°/s rms	(RRS02-05)
	0.12°/s rms	(RRS02-01)
	0.15°/s rms	(RRS02-09)
	0.2°/s rms	(RRS02-03)
Bandwidth (90° phase lag)	50 Hz	
	60Hz	(RRS02-09)

Parameters

Pin connections		
	9	Case ground
	8	Rate reference
-5V	4	Commanded BIT
	7	Rate output
	6	Alarm BIT
	5	0V
+5V	1	Temperature
Environmental		
Operating temperature	-40°C to +85°C	
Operation vibration	10g rms	
Shock	1000g 1ms	
Weight	Mass <35gm	
Size (mm)	30 mm x 30 mm x 17.5 mm	

Increased Functionality Available

Extendable to	1500°/s
Bandwidth	
Extendable to	100 Hz
Bias performance after thermal compensation	
Temperature output provided for compensation	250°/h
General	
Built-in test (BIT)	Commanded, alarm

