

CRS39

Analogue Angular Rate Sensor
High Performance MEMS Gyroscope

CRS39-03



Key features

- Proven and Robust silicon MEMS vibrating ring structure
- FOG-like performance
- DTG-like size and performance
- Low Bias Instability ($0.1^\circ/h$)
- Excellent Angle Random Walk ($0.01^\circ/\sqrt{h}$)
- Ultra-low noise ($<0.006^\circ/s$ rms, 10Hz)
- Optimised for low rate range environments (e.g. North Finding)
- Precision analogue output
- Temperature range from $-10^\circ C$ to $+110^\circ C$
- High shock and vibration rejection
- Three temperature sensors and MEMS frequency output for precision thermal compensation
- RoHS Compliant

CRS39-03 provides the optimum solution for applications where bias instability, angle random walk and low noise are of critical importance.

At the heart of the CRS39-03 is Silicon Sensing's VSG3Q^{MAX} vibrating ring MEMS sensor which is at the pinnacle of 15 years of design evolution and the latest off a line which has produced over 30 million high integrity MEMS inertial sensors. The VSG3Q^{MAX} gyro sensor is combined with precision discrete electronics to achieve high stability and low noise, making the CRS39 a viable alternative to Fibre-Optic Gyro (FOG) and Dynamically Tuned Gyro (DTG).

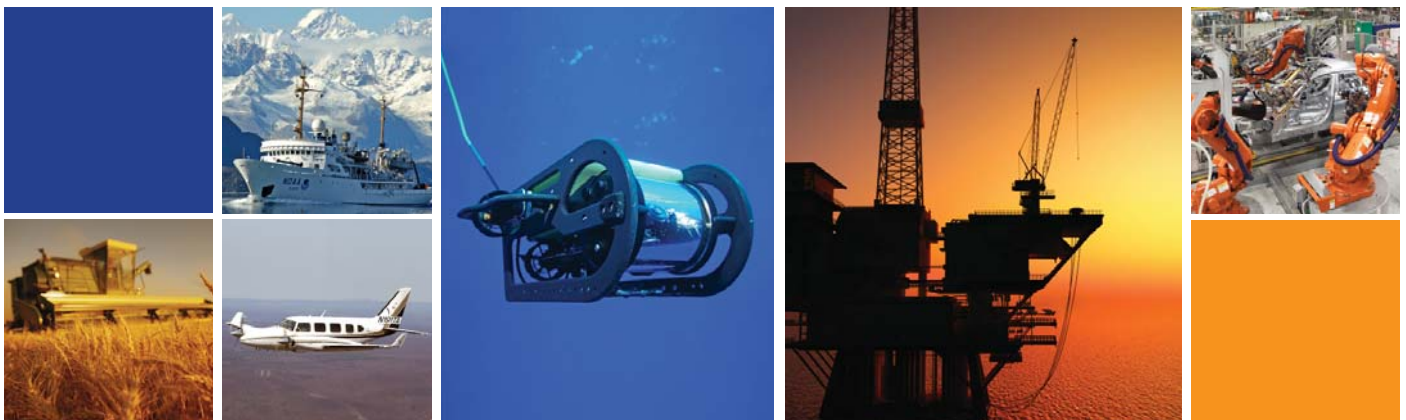
CRS39 has been designed for mounting within a 25mm inside diameter cylinder.

Three on board temperature sensors and the resonant frequency of the MEMS enable additional external conditioning to be applied to the CRS39 by the host, enhancing the performance even further.

Typical applications include downhole surveying, precision platform stabilization, ship stabilization, ship guidance and control, autonomous vehicles and high-end AHRS.

Applications

- Platform Stabilization
- Precision, Downhole Surveying, North Finding
- Maritime Guidance and Control
- Gyro-compassing and Heading Control
- Autonomous Vehicles and ROVs
- Rail Track monitoring
- Robotics



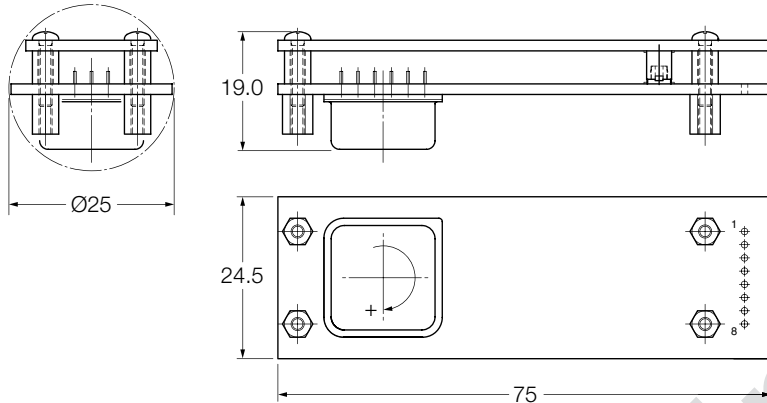
CRS39

Analogue Angular Rate Sensor High Performance MEMS Gyroscope

For full technical datasheets please go to our website where the documents can be downloaded

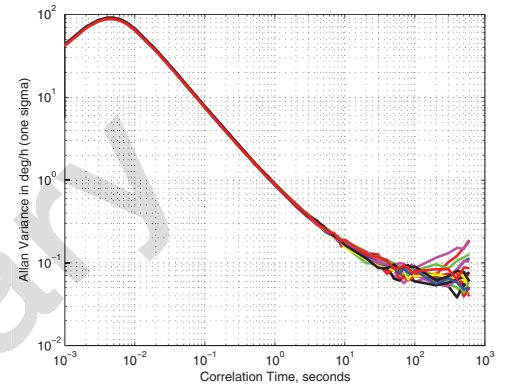


CRS39-03



All dimensions in millimetres

Allan Variance



Typical Data

Angular Rate Range	±25°/s
Output	Analogue (non-ratiometric)
Scale Factor	
Nominal	80mV/°/s
Setting tolerance (+45°C)	±0.08%
Variation over temperature	±0.2%
Non-linearity	±0.008% of full scale
Bias	
Setting error (+45°C)	±0.012V
Variation over temperature	±60°/h
Angular Random Walk	0.01°/√h
Bias instability	0.08°/h
Bandwidth (normal)	25Hz ±10Hz
Noise to 10Hz	0.006°/s rms
Wideband Noise	0.03°/s rms
Environment	
Temperature	-10°C to +110°C
Operational shock	95g, 6ms
Survival shock	1,000g, 1ms
RoHS Compliant	Yes

Pin Connections

1 +5V (4.9 to 5.25)	5 TMP1
2 GND	6 TMP2
3 Rate Output	7 TMP3
4 Reference	8 FREQ

Silicon Sensing Systems Limited
Clifford Road, Southway,
Plymouth, Devon
PL6 6DE United Kingdom

T +44 (0)1752 723330
F +44 (0)1752 723331
E sales@siliconsensing.com
W siliconsensing.com

Silicon Sensing Systems Japan Limited
1-10 Fuso-Cho,
Amagasaki,
Hyogo 6600891, Japan

T +81 (0)6 6489 5868
F +81 (0)6 6489 5919
E sssj@spp.co.jp
W siliconsensing.com

Specification subject to change without notice.

© Copyright 2015
Silicon Sensing Systems Limited
All rights reserved. Printed in England 07/15

CRS39-03-0100-131 Rev 2
DCR No. 710009301