

# CRS39

Analogue Angular Rate Sensor  
High Performance MEMS Gyroscope

## CRS39-03



### Key features

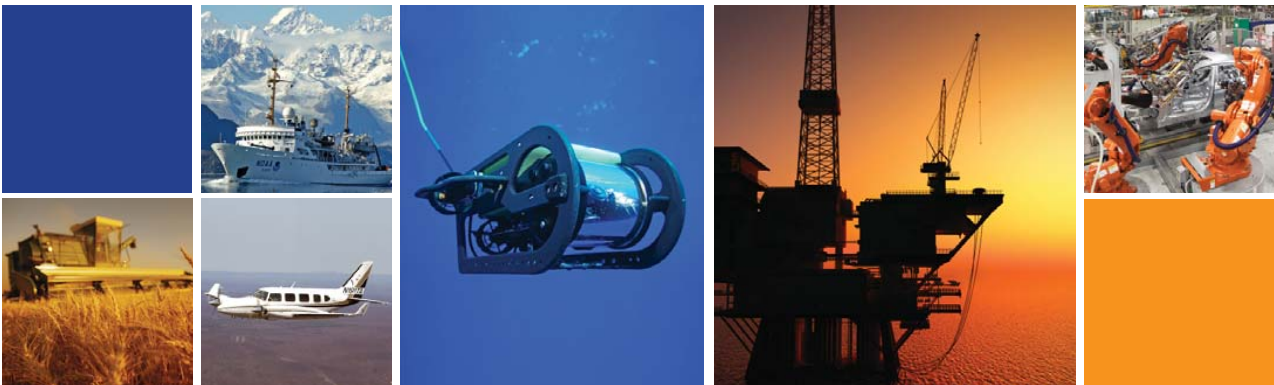
- Proven and Robust silicon MEMS vibrating ring structure
- FOG-like performance
- DTG-like size and performance
- Low Bias Instability ( $0.1^\circ/\text{h}$ )
- Excellent Angle Random Walk ( $0.015^\circ/\sqrt{\text{h}}$ )
- Ultra-low noise ( $<0.006^\circ/\text{s rms}$ .)
- Optimised for low rate range environments (e.g. North Finding)
- Precision analogue output
- Temperature range from  $-10^\circ\text{C}$  to  $+110^\circ\text{C}$
- High shock and vibration rejection
- Three temperature sensors and MEMS frequency output for precision thermal compensation
- RoHS Compliant

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

The outstanding stability, low noise and size of the CRS39 makes this a viable alternative to fibre-optic and dynamically tuned gyros.

### 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



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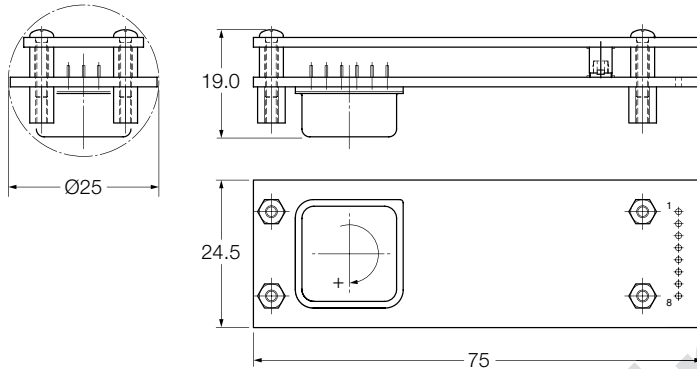
# CRS39

## Analogue Angular Rate Sensor High Performance MEMS Gyroscope

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

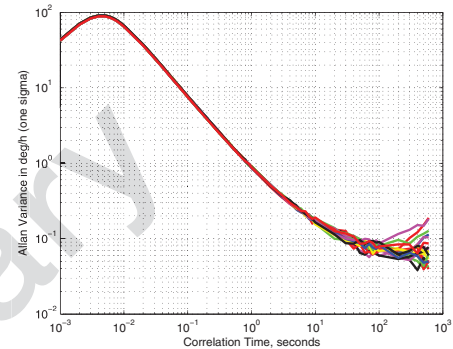


### CRS39-03



All dimensions in millimetres

### Allan Variance



### Typical Data

<b>Angular Rate Range</b>	$\pm 25^\circ/\text{s}$
<b>Output</b>	Analogue (non-ratiometric)
<b>Scale Factor</b>	
Nominal	80mV/ $^\circ/\text{s}$
Setting tolerance (+45°C)	$\pm 0.4\text{mV}/^\circ/\text{s}$
Variation over temperature	$\pm 0.35\%$
Non-linearity	$\pm 0.02\%$ of full scale
<b>Bias</b>	
Setting error (+45°C)	$\pm 0.1\text{V}$
Variation over temperature	$\pm 500^\circ/\text{h}$
Angular Random Walk	$0.015^\circ/\sqrt{\text{h}}$
Bias instability	$0.1^\circ/\text{h}$
<b>Bandwidth (normal)</b>	25Hz $\pm 10\text{Hz}$
<b>Noise to 10Hz</b>	$0.006^\circ/\text{s}$ rms
<b>Wideband Noise</b>	$0.03^\circ/\text{s}$ rms
<b>Environment</b>	
Temperature	$-10^\circ\text{C}$ to $+110^\circ\text{C}$
Operational shock	250g
Non-operational shock	1,000g
<b>RoHS Compliant</b>	Yes

### Pin Connections

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

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