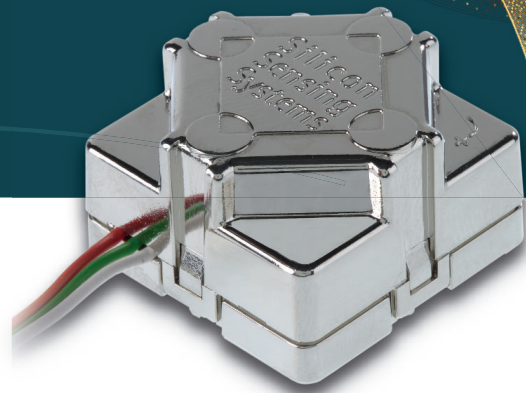


CRS43



Precision Navigation and Pointing Gyroscope

CRS43 is a modern replacement for Silicon Sensing's well-established CRS03 range of gyros, offering form, fit and function compatibility for existing applications. It is a robust and affordable mass-produced gyroscope for new and existing industrial and commercial applications.

At the heart of CRS43 is Silicon Sensing's popular chip-level CRM100 - piezoelectric resonating ring gyro. CRS43 is supplied as mechanically-housed gyro, making it simple to attach to the host structure using screws. Three versions are available, with either pin outputs or flying leads, and rate ranges of $\pm 100^\circ/s$ or $\pm 200^\circ/s$.

At the heart of the chip scale package is a silicon ring, mounted on a pedestal, and a controlling ASIC. The ring resonates at its natural frequency whenever power is applied to the device. Any device rotation rate is detected as a change to the resonating pattern and output as an analogue voltage proportional to rotation rate.

Silicon Sensing Systems is a market leader in silicon MEMS gyroscopes, accelerometers and inertial measurement systems, specialising in high performance, reliability and affordability. With a strong heritage in inertial sensing that can be traced back over 100 years, all sensors are based on in-house patented designs which are produced in its own state of the art MEMS foundry. Silicon Sensing has delivered over 40 million sensors to thousands of satisfied customers worldwide, and continues to drive performance through technical expertise and continuous innovation.

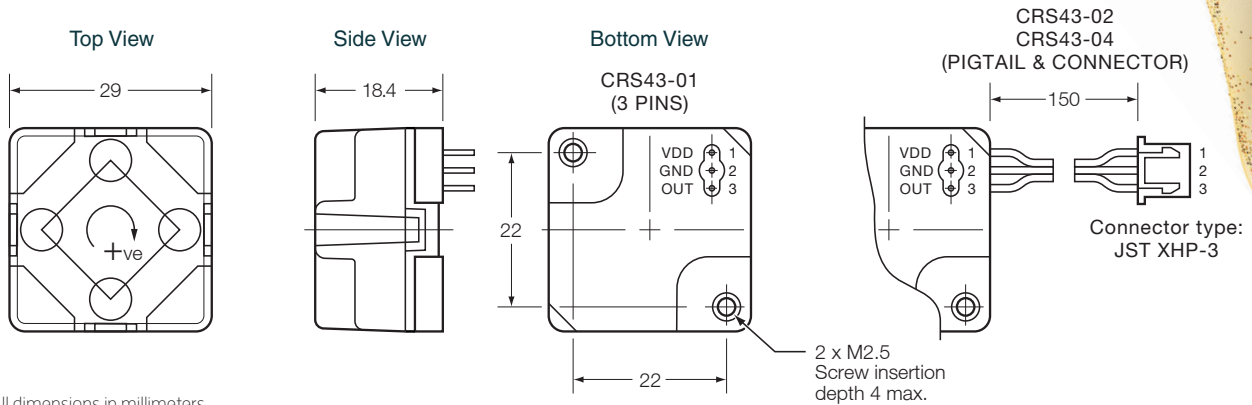
KEY FEATURES

- Three models available
- Dynamic ranges of $\pm 100^\circ/s$ and $\pm 200^\circ/s$
- Choice of output solder pins or flying lead and connector
- Simple mounting by two M2.5 screws
- Analogue voltage output proportional to rotation rate
- Excellent performance over temperature
- Repeatable drift characteristic
- Low noise
- High shock and vibration immunity
- High reliability
- Small (29 x 29 x 18.4mm)
- Wide temperature range $-40^\circ C$ to $+85^\circ C$
- Power consumption: 35mA at 5V
- RoHS and REACH compliant
- Metalised housing
- Form, fit and function replacement for CRS03

APPLICATIONS

- Commercial and industrial
- Antennae and platform stabilisation
- Machine control
- Robotics
- Precision agriculture
- Precision navigation
- GPS drop-out aiding

CRS43



All dimensions in millimeters

Typical Data

Parameter	Specification	
Part Number	CRS43-01/-02	CRS43-04
Output	Analogue (ratiometric)	
Rate range	$\pm 100^\circ/\text{s}$	$\pm 200^\circ/\text{s}$
Scale Factor		
Nominal	20mV/ $^\circ/\text{s}$	10mV/ $^\circ/\text{s}$
Tolerance at 25°C (1 σ)	$\pm 1\%$	
Variation over temperature (1 σ)	1.67%	
Non-linearity (1 σ)	1% of full scale	
Bias		
Tolerance at 25°C (1 σ)	$< \pm 1^\circ/\text{s}$	$< \pm 2^\circ/\text{s}$
Variation over temperature (1 σ)	$< \pm 1^\circ/\text{s}$	
Ratiometric error (1 σ)	$< \pm 0.33^\circ/\text{s}$	$< \pm 0.66^\circ/\text{s}$
Bandwidth and Noise		
Bandwidth (nominal)	$> 10\text{Hz}$ (-3dB 25Hz typ)	
Wideband noise	$< 0.03^\circ/\text{s rms}$	$< 0.06^\circ/\text{s rms}$
Environment		
Temperature	-40°C to $+85^\circ\text{C}$	
Random vibration	10g rms (20Hz to 2kHz)	
Sine sweep vibration	5g peak (15Hz to 2kHz)	
Vibration sensitivity	$< 0.003^\circ/\text{s/g}^2$ (20Hz to 2kHz)	
g sensitivity	$< \pm 0.1^\circ/\text{s/g}$ on any axis	
Misalignment		
Cross-axis sensitivity (1 σ)	$< 1.67\%$	
Properties		
Start-up time	$< 0.5\text{s}$	
Supply voltage	$+4.75\text{V}$ to $+5.25\text{V}$	
Power	0.165W (steady state)	
Mass	$< 18\text{ grams}$	

Pin Connections

1	+5V
2	0V
3	Rate Output

For full technical datasheets please visit:
www.siliconsensing.com



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CRS43-00-0100-131 Rev 4 DCR No. 710017594