

SDG500

Applications

The SDG500 provides commercial users with a low-cost, high performance sensor for a wide variety of applications such as:

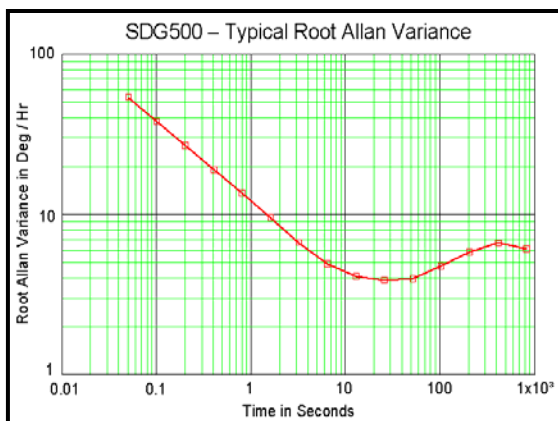
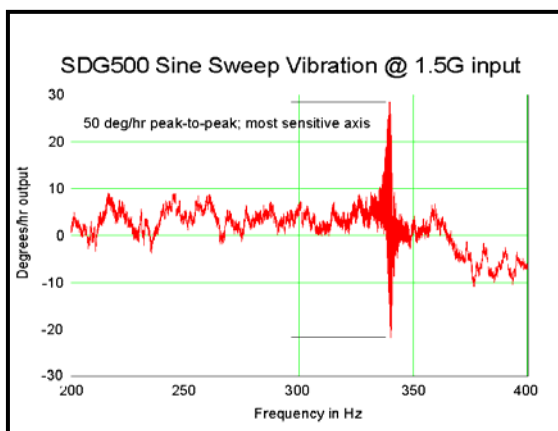
- Attitude Control for Small Business & Regional Aircraft
- Antenna, Optical Platform Stabilization and Pointing
- Instrumentation
- Motion Control
- Robotics and Robotic Vehicles



Description

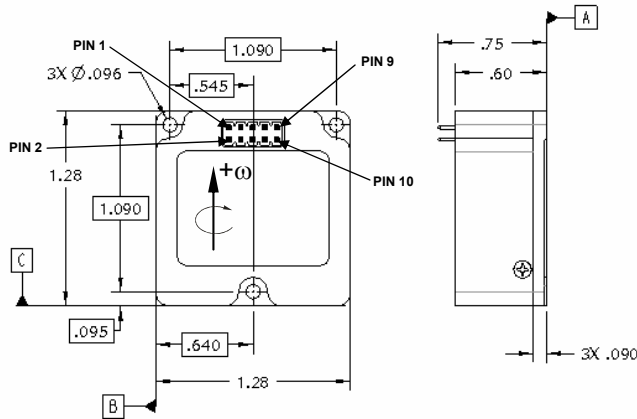
The SDG500 single-axis angular rate sensor provides exceptional performance versus similar sensors in its class, with a lower noise capability superior to silicon-based gyros. The SDG500 utilizes our proven Quartz MEMS sensing technology and fully-contained electronics in a durable, compact size.

By applying design techniques found only in more expensive rate sensors, excellent bias stability, temperature performance, noise, and vibration performance levels have been achieved.



Key Performance Features

- Outstanding Vibration and Noise Performance
- Exceptional Bias Stability
- Compact Size, No Wear-Out Mechanisms
- High Reliability and Long Life
- DC Voltage Input/High-Level Analog DC Voltage Output
- Adaptable, No Software Required



Connector Pin	Assignment
1	+Vdc Input
2	Power Ground
3	-Vdc Input
4	Temp Output
5	Signal Return
6	Rate Output
7	No Connection
8	Self Test Input
9	Case Ground
10	Built In Test

PARAMETER	SUMMARY SPECIFICATIONS
Part Number	SDG500-00100-100
Input Voltage	+ and - 10 to 15 Vdc
Input Current	< 20mA (each supply, typical)
Performance	
Standard Range Full Scale	$\pm 100^\circ/\text{sec}$
Full-Scale Output (Nominal)	± 5.0 Vdc
Scale Factor (at 25°C, typical)	0.050 ± 0.001 Vdc/ $^\circ/\text{sec}$.
Scale Factor Over Temperature	$\leq 0.1\%/^\circ\text{C}$
Bias Calibration (at 25°C)	$\leq 1.5^\circ/\text{sec}$.
Bias Variation over Temperature (Dev. from 25°C)	$\leq 5^\circ/\text{sec}$.
Bias Stability (In-run at const. temp, Std. Dev.)	< 20 $^\circ/\text{hr}$. typical
G Sensitivity	< 0.06 $^\circ/\text{sec/g}$
Start-Up Time	< 1.0 sec.
Bandwidth (-90°, includes temperature effect)	60 \pm 15 Hz
Damping Ratio	0.7 \pm 0.3
Non-Linearity, (% Full Range)	$\leq 0.05\%$
Resolution/Threshold	< 0.004 $^\circ/\text{sec}$.
Output Noise	< 0.005 $^\circ/\text{sec}/\sqrt{\text{Hz}}$ (DC to 100 Hz)
Environments	
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +95°C
Vibration Operating (20 – 2000 Hz, flat profile)	5 grms , 36 $^\circ/\text{hr/grms}$
Vibration Survival (5.83 grms)	D0160E, Curve C1
Shock Survival (20g 11ms)	D0160E, Category B
Weight	< 25 grams

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