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SDG1000

Applications

The SDG1000 establishes a new price-to-performance standard for a wide variety of commercial applications including:

- Primary/Secondary Standby Attitude Indicators Systems
- Short-Term Navigation
- Attitude and Heading Reference Systems
- Aircraft Flight Control
- Platform Stabilization
- Precise Instrumentation
- Robotics
- Autonomous Vehicle Control



Features

- Quartz MEMS Technology
- DC Voltage Input/High-Level Analog DC Voltage Output
- Exceptional Bias Stability
- High Bandwidth
- Rugged Small Size
- High Reliability and Long Life
- Internal Temperature Sensors

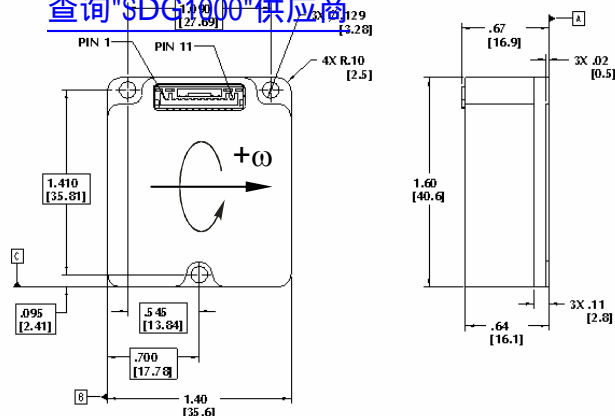
Description

The SDG1000 is a single-axis angular rate sensor that provides exceptional performance with Systron Donner Inertial's proven Quartz MEMS sensing element and fully self-contained electronics.

By applying design techniques found only in more expensive rate sensors, excellent Bias Stability, Temperature Performance, Noise, and Vibration performance levels have been achieved. The availability of the internal temperature sensors enables accurate Bias modeling.

MEMS Angular Rate Sensor

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Connector Pin	Assignment
1	Power Ground
2	+Vdc Input
3	-Vdc Input
4	Temp 1 Output
5	Signal Return
6	Rate Output
7	TMD
8	Temp 2 Output
9	No Connection
10	Factory Test, Leave Open
11	Case Ground

PARAMETER	SUMMARY SPECIFICATIONS
Part Number	SDG1000-200-100
Input Voltage	+ and - 10 to 16 Vdc
Input Current	< 26mA (each supply, typical)
Performance	
Standard Range Full Scale	$\pm 200^\circ/\text{sec}$
Full-Scale Output (Nominal)	$\pm 5.0 \text{ Vdc}$
Scale Factor (at 25°C)	$0.025 \pm 0.004 \text{ Vdc}/^\circ/\text{sec.}$
Scale Factor Over Temperature (Dev. from 25°C)	$\leq 0.03\%/^\circ\text{C}$
Bias Calibration (at 25°C)	$\leq 2^\circ/\text{sec.}$
Bias Variation over Temperature (Dev. from 25°C)	$\leq 1^\circ/\text{sec.}$
Bias Stability (In-run at const. temp, Std. Dev.)	$< 10^\circ/\text{hr.}$
G Sensitivity	$< 72^\circ/\text{hr/g}$
Start-Up Time	$\leq 1.0 \text{ sec.}$
Bandwidth (-90°)	$> 100\text{Hz}$
Damping Ratio	0.7 ± 0.2
Non-Linearity (% of Full Range)	$\leq 0.03\%$
Resolution/Threshold	$< 9^\circ/\text{hr.}$
Output Noise	$< 0.1^\circ/\sqrt{\text{hour}} (< 0.0017^\circ/\text{sec.}/\sqrt{\text{Hz}})$ (DC to 100 Hz)
Environments	
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +95°C
Vibration, Operating	5 g rms, flat profile, 20 to 2kHz
Vibration Rectification	$< 3.6^\circ/\text{hr/g rms.}$
Vibration Survival	20 g rms.
Shock (Survival)	200 g, 2 milliseconds, $\frac{1}{2}$ sine pulse
Weight	< 60 grams

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