

# SDD3000-A01

Quartz MEMS Digital Single Axis Rate Sensor

emcore®



DATASHEET | DECEMBER 2023

A New Era in Navigation



## Applications

- Targeting & Pointing Systems
- Gimbal & Platform Stabilization
- Tactical Land Navigation
- Gun & Turret Stabilization
- Marine Stabilization
- Unmanned Aerial Vehicles (UAVs)
- Industrial Robotics

## Key Performance Features

- Bias in-run Stability <0.5°/hr
- 0.01°/√hr Exceptionally Low Noise (ARW)
- Compact <8.0 in.3 Size
- Robust Shock & Vibration Tolerance
  - 40g Shock Operating / 150g Shock Survival
- RS-232 or RS-422 Digital Output
- Superior Quality & Reliability

## Ideal for High-Precision Applications

The SDD3000-A01 meets state-of-the-art systems requirements for precision accuracy, low noise angular rate sensing with a digital RS-232 / RS-422 output. The SDD3000-A01 is an enhanced alternative to fiber optic and spinning mass gyro technology or SDI's popular, highly-reliable QRS11 and QRS116 units. The SDD3000-A01 provides a temperature-compensated output with unprecedented bias stability and durability.



Ideal for rugged ground vehicle and aerospace applications, the SDD3000-A01 is an extremely versatile quartz gyro that requires very little configuration and integration time into new or retrofit applications. Using the latest-best generation version of EMCORE's unique quartz micro-machined sensing element, the SDD3000-A01 delivers excellent signal to noise ratio and vibration performance characteristics in a small, lightweight package. With no moving parts and no scheduled maintenance, the SDD3000-A01 provides reliable service and low total cost of ownership.

## Performance Highlights

Parameter	SDD3000-A01
Standard Range Full Scale	min ±100 °/sec
Bias Over Temperature 1σ	1.0 °/hr
Bias Over Temperature (max)	3.0 °/hr
Bias In-Run Stability (Constant Temperature) 1σ	0.5 °/hr
Scale Factor Error Over Temperature Stability 1σ	200 ppm



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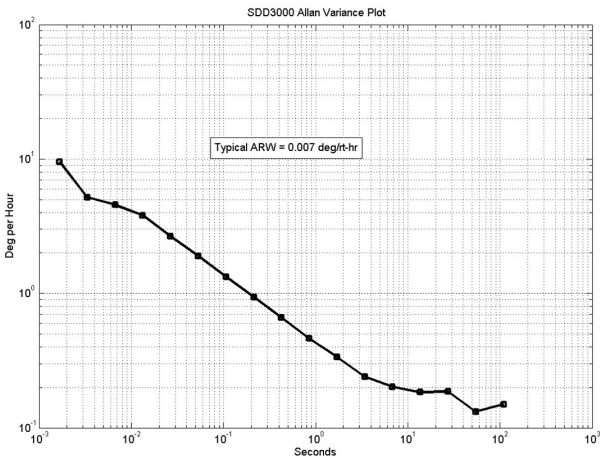
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Performance Specifications

Parameter	SDD3000-A01
System Performance	
Start-Up Time	max ≤ 1.5 sec
I/O (Dual Protocol, User Selectable)	RS-232 or RS-422, 115.2 KBaud
Gyro Performance	
Standard Range Full Scale (min)	±100°/sec
Bias Over Temperature 1σ	1.0°/hr
Bias Over Temperature (max)	3.0°/hr
Bias In-Run Stability (Constant Temperature) 1σ	0.5°/hr
Scale Factor Error Over Temperature Stability 1σ	200 ppm
Rate Output Noise (ARW) max	0.01 °/√hr
Non-Linearity (% Full Range) max	0.05%
System Physical & Environmental	
Input Voltage	+11 to +16 Vdc 1.5A (0.5msec) inrush/start-up surge
Power	<2.25W (230 mA @ 12V continuous) 1.5A (0.5msec) inrush/start-up surge
Size Dimensions	3.1" x 3.25" x 0.96" (78 x83 x 25 mm)
Weight	<0.5 lbs. (<227 grams)
Operating Temperature Range*	-2°C to + 60°C
Vibration Operating (10 – 1100 Hz, flat profile)	5.2 g rms. performance
Shock Operating	40 g, 30 milliseconds, ½ sine pulse
Shock Survival (20g 11ms)	150 g, 11 milliseconds, ½ sine pulse
MTBF	>25,000 hrs

\* Limited temperature range.

SDD3000 Allen Variance Plot



Dimensions/Scale



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