

6-DOF XYZ-Axis Gyroscope and XYZ-Axis Accelerometer with Digital SPI Interface for Industrial Applications

Features

- Single package 6DOF component
- Cross-axis calibration enables better than 0.15 ° orthogonality error
- Gyro bias instability level down to 0.3 °/h
- Gyro noise density level down to 0.0004 (°/s)/√Hz
- Stable offset and sensitivity over full temperature range
- Excellent linearity and vibration performance
- Extensive self-diagnostics features utilizing over 200 monitoring signals
- ±300 °/s angular rate measurement range
- ±8 g acceleration measurement range with default dynamic range of ±26 g
- −40 °C...+110 °C operating temperature range
- 3.0 V...3.6 V supply voltage
- SafeSPI2.0 interface with 20-bit data frame
- Data ready, timestamp index and SYNC functions for clock domain synchronization
- RoHS compliant robust 24-pin SOIC housing
- 11.8 mm x 13.4 mm x 2.9 mm (l x w x h) SOIC-24

Applications

SCH16T is targeted at applications demanding high performance with tough environmental requirements.

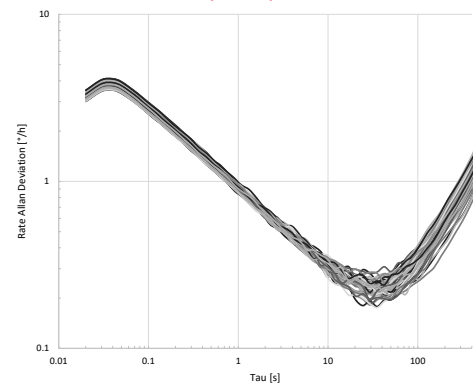
Typical applications include:

- Inertial Measurement Units (IMUs)
- Navigation and positioning
- Machine control and guidance
- Dynamic inclination
- Robotic control, Drones and UAVs

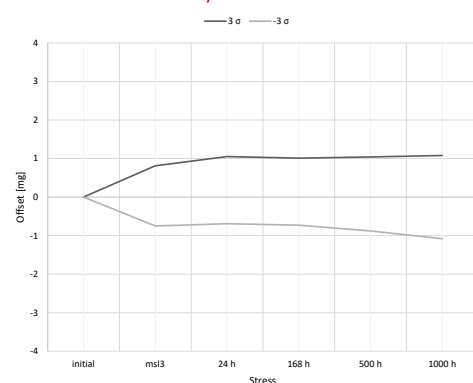
Measurement characteristics	Ω xyz	Acc xyz
Measurement range	±300 °/s	±8 g
Dynamic range	±328 °/s	±26 g
User selectable low pass filter	13, 30, 68, 235, 280, 370 Hz	
Default sensitivity	1600 LSB/(°/s)	3200 LSB/(m/s ²)
Offset Temperature Dependency −40°C...+110°C (3σ)	±0.2 °/s	±4 mg
Noise density (typ)	XY: 0.0004 (°/s)/√Hz Z: 0.0006 (°/s)/√Hz	80 µg/√Hz
Bias instability (typ) Allan deviation minimum divided by 0.664	0.3 °/h	15 µg



Gyroscope, Allan deviation in °/h



Accelerometer, Offset drift over lifetime in mg



Accelerometer, Sensitivity error over temperature in %

