



AXO[®]314

High performance
 ± 14 g MEMS accelerometer
with digital interface



Product overview

AXO314 is a closed-loop MEMS accelerometer with SPI interface that offers a digital and low-SWaP alternative to quartz accelerometers. With a 1 mg composite bias repeatability, it outpaces conventional MEMS acceleration sensors and is the perfect candidate for integration into high-performance IMU and INS operating in high-vibration environments (land, railway, aerospace).

Key performances

- ± 14 g input range
- Operating temperature: -40°C to $+85^{\circ}\text{C}$
- Bias temperature error: 0.5 mg
- Scale factor temperature error: 500 ppm
- Vibration rejection: $20\ \mu\text{g}/\text{g}^2$
- Noise density: $15\ \mu\text{g}/\sqrt{\text{Hz}}$

Key features

- 24-bit digital SPI interface
- Initial and continuous self-test
- Hermetic ceramic SMD package
- Non classified under dual-use export control
- REACH and RoHS compliant

Applications

- GNSS-assisted positioning of ground vehicles and trains
- Aerial survey and mapping
- Survey and drilling guidance
- Track Geometry Measurement Systems
- Industrial robotics





Parameter	Typ. value	Unit	Note
Range			
Input range	±14	g	Saturation at 15 g
Operating conditions			
Operating temperature	-40 to +85	°C	
Bias			
1 year composite repeatability	1	mg	
Instability (Allan Variance)	4	µg	
Residual temperature error (1σ)	0.5	mg	Compensated
Vibration Rectification Error (VRE)	20	µg/g ²	Under 4.12 g rms (20 to 2000Hz)
Scale Factor			
Digital Resolution	2	µg/LSB	
1 year composite repeatability	600	ppm	
Residual temperature error (1σ)	500	ppm	Compensated
Nonlinearity	50	ppm	
Noise			
Noise spectral density	15	µg/√Hz	
Velocity Random Walk (VRW)	0.006	m/s/√h	
Vibrations and shocks			
Operational vibrations	4.12	g rms	DO-160G standard, curve C
Operational shock	50 6	g ms	Half-sine
Survival shock	2000 0.3	g ms	
Frequency response			
Bandwidth	300	Hz	
Data rate	2500	Hz	User-configurable
Latency	1	ms	
Power and supply			
Power supply	5	V	
Current consumption	25	mA	
Reliability			
Mean Time Between Failure (MTBF)	> 1 000 000	h	

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