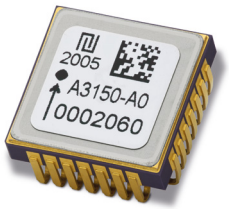
AXO®315



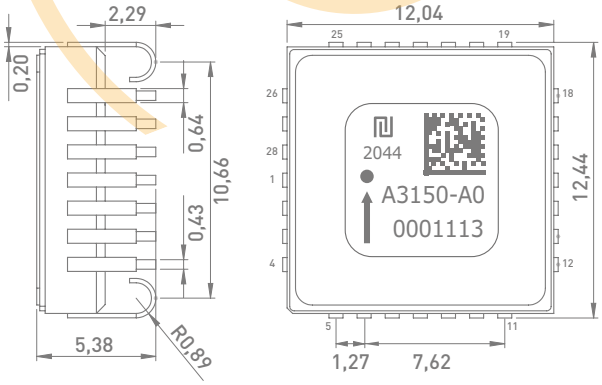
High performance ± 14 g MEMS accelerometer with digital interface

High performance and stability for precision navigation and positioning in severe environments

AXO®315 is a high performance, closed-loop, single-axis in-plane digital MEMS accelerometer which offers a digital and cost-effective alternative to quartz accelerometers at a fraction of their size, weight and power consumption. With a 1 year composite bias repeatability of 1 mg under demanding temperature and vibrations conditions, it overpasses all commercially available MEMS accelerometers.

AXO®315 is the perfect candidate for integration into high performance Inertial Measurement Units (IMU) and Inertial Navigation Systems (INS) operating in highly vibrating environments, such as land, railway and air transportation.

The hermetic ceramic SMD package combined with a 24 bits SPI interface eases the integration of AXO®315 and reduces the BOM. The built-in self-test ensures initial verification of the sensor's integrity and continuous in-operation functionality test.



12 x 12 x 5.5 mm³, 1.4 g, J-Lead ceramic package

Key performances

- ±14 g range, single-axis in-plane accelerometer
- 1 year composite bias repeatability: 1 mg
- 1 year composite scale factor repeatability: 600 ppm
- Vibration rejection: 20 µg/g²
- Noise: 15 µg/√Hz
- Temperature range: from -55°C to +105°C

Key features

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

Applications

- IMU and INS for GNSS-assisted navigation and positioning of UAV and VTOL
- AHRS (Attitude & Heading Reference Systems)
- Flight control systems
- Surveying and mapping instrumentation
- Measurement While Drilling (MWD)
- Borehole drilling guidance
- IMU for Track Geometry Measurement Systems

tronics

info.tronics@tdk.com
www.tronics.tdk.com

Key specifications

Parameter	Typ. value	Unit	Note
Range			
Input range	±14	g	Saturation at 15 g
Scale Factor			
Digital Resolution	2	µg/LSB	
1 year composite repeatability	600	ppm	
Non linearity	80	ppm	
Residual temperature error (1σ)	400	ppm	Compensated
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	$\mu g/g^2$	Under 4.12 g rms (20 to 2000Hz)
Bandwidth, noise and output signal			
Bandwidth	300	Hz	Customizable upon request
Velocity Random Walk (VRW)	0.006	m/s/√h	
Noise spectral density	15	µg/√Hz	
Data rate	2500	Hz	User-configurable
Latency	1	ms	
Operating Conditions			
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	
Operating temperature range	-55 to +105	°C	
Reliability			
Mean Time Between Failure (MTBF)	> 1 000 000	h	
Power and supply			
Power supply	5	V	
Current consumption	25	mA	

Sensors are factory calibrated and compensated for temperature effects to provide a high-accuracy digital output over the temperature range. Raw data output can also be chosen to enable compensations at the IMU or at the system level.

info.tronics@tdk.com
www.tronics.tdk.com

Disclaimer

ALL PRODUCTS, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Texim Europe B.V. its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Texim”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Texim makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product.

It is the customer’s responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application.

Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time.

All operating parameters, including typical parameters, must be validated for each customer application by the customer’s technical experts.

Please contact us if you have any questions about the contents of the datasheet.

This may not be the latest version of the datasheet. Please check with us if a later version is available.

Texim Europe - contact details

Headquarters & Warehouse

Elektrostraat 17
NL-7483 PG Haaksbergen
The Netherlands

T: +31 (0)53 573 33 33
E: info@texim-europe.com
Homepage: www.texim-europe.com

The Netherlands

Elektrostraat 17
NL-7483 PG Haaksbergen

T: +31 (0)53 573 33 33
E: nl@texim-europe.com

Belgium

Zuiderlaan 14, box 10
B-1731 Zellik

T: +32 (0)2 462 01 00
E: belgium@texim-europe.com

UK & Ireland

St Mary's House, Church Lane
Carlton Le Moorland
Lincoln LN5 9HS

T: +44 (0)1522 789 555
E: uk@texim-europe.com

Germany

Bahnhofstrasse 92
D-25451 Quickborn

T: +49 (0)4106 627 07-0
E: germany@texim-europe.com

Germany

Martin-Kollar-Strasse 9
D-81829 München

T: +49 (0)89 436 086-0
E: muenchen@texim-europe.com

Austria

Warwitzstrasse 9
A-5020 Salzburg

T: +43 (0)662 216 026
E: austria@texim-europe.com

Nordic

Stockholmsgade 45
2100 Copenhagen

T: +45 88 20 26 30
E: nordic@texim-europe.com

Italy

Martin-Kollar-Strasse 9
D-81829 München

T: +49 (0)89 436 086-0
E: italy@texim-europe.com