



InnaLabs® high performance accelerometers and gyroscopes meet the stringent requirements of our customers for precision guidance, stabilisation, navigation and orientation applications. InnaLabs® provide high quality robust solutions to industrial, oil and gas, marine, subsea, aerospace, land, civil engineering, transportation and space applications.

Production Facilities

Our best in class production facility consists of 6000m² plant room with 4 separate foundations containing ISO- Class 7 and ISO - Class 5 clean rooms. We have invested in state-of-the-art equipment including rate tables, temperature & pressure chambers, shakers, high precision soldering and etching machines to ensure our finished products are manufactured and tested to the highest quality.

Quality Policy

InnaLabs® Ireland are world class in everything we do: including product quality, customer fulfillment, ease of doing business and value to our customers.

Our primary goal is continual improvement in quality, cost, delivery and customer satisfaction.

We achieve this by:

- Every individual being responsible for the quality of their work, following basic principles and striving for defect-free product quality.
- Creating a culture to continually meet and exceed our customers current and future expectations
- Pursuing sensor design and manufacturing excellence in a safe, healthy and enjoyable environment.

The InnaLabs® Quality Management System is certified under the ISO 9001 standard for the design and manufacture of precision electromechanical sensors.

Our quality system has been independently audited by NSAI (National Standards Authority of Ireland). NSAI is a member of IQNet (the International Certification Network) based in Bern, Switzerland which gives NSAI certification worldwide recognition. Quality is a top strategic priority for InnaLabs and ISO 9001 certification as an internationally recognised standard for quality management systems, helps us to strengthen our leadership in this area. The certification reflects our continual efforts to improve and our commitment to on-going investment in technology, development and process maturity.



Why choose InnaLabs®

European Supplier

ITAR Free Products

Value

Competitive Pricing and Fast Delivery

Quality

High Performance Inertial Sensors for Superior Reliability

Support

Excellent Pre and Post Sale Customer Support

Flexibility

Custom Solutions to meet your Project Needs

Innovation

Highly skilled and Experienced Engineering Team Committed to ongoing Research and Development

AI-Q-551 Series ACCELEROMETER



AI-Q-551 Series Accelerometers

General Description

The InnaLabs® AI-Q-551 quartz-based servo accelerometer is an ideal, ITAR-Free choice for defence, aerospace, industrial, transport, and civil engineering applications where tactical grade performance, small dimensions, and a robust and reliable design are required.

By using a customer supplied output load resistor appropriately selected for the required acceleration range, the output current is converted into a voltage proportional to the input acceleration.

The AI-Q-551 accelerometer offers an input range of ± 80 g with a one-year bias composite repeatability better than 1,000 μ g in a compact and ruggedized casing that provides a high shock and vibration resistance matching the highest industry standards.

The AI-Q-551 features an internal temperature sensor that allows the user to carry out temperature calibration and compensation, enhancing the bias, scale factor and axis misalignment performance over temperature.

State-of-the-art manufacturing processes enable InnaLabs® to offer AI-Q-551 accelerometers at competitive prices.

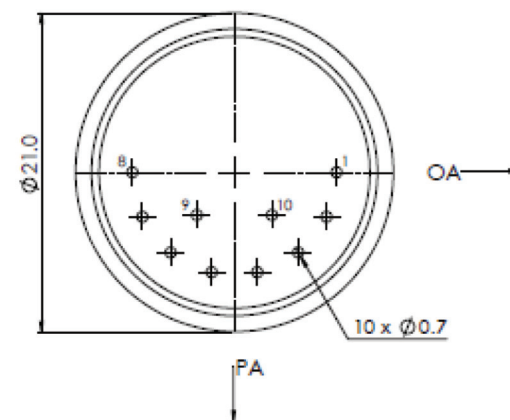
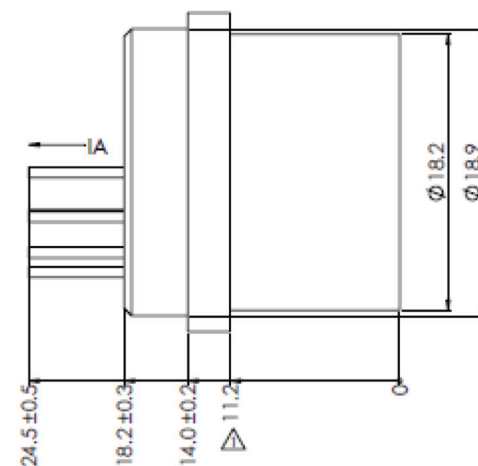


Features

- Bias one-year composite repeatability $\leq 1,000$ μ g
- Input Range: ± 80 g (10 Ω)
- High thermal stability
- Internal temperature sensor for thermal compensation
- Environmentally rugged
- Analogue Current output
- Miniaturised design
- ITAR-Free

Applications

- Tactical grade Inertial Measurement Units
- Flight control systems
- Unmanned systems, ROV, UAV
- Platform levelling
- Structural health and maintenance
- Land vehicles
- Inclometers for industrial and drilling
- Train and rail measurement systems
- Robotic systems
- Seismic sensing



Accelerator dimensions (mm)

Parameter	Units	Values
Performance		
Input Range (10 Ω load resistor)	g	± 80
Bias	mg	≤ 4
One-year Composite Repeatability (3σ)	μ g	$< 1,000$
Temperature Sensitivity	μ g/ $^{\circ}$ C	< 50
Scale Factor	mA/g	0.65 to 0.85
One-year Composite Repeatability (3σ)	ppm	< 600
Temperature Sensitivity	ppm/ $^{\circ}$ C	< 100
Axis Misalignment	μ rad	< 1500
Vibration Rectification	μ g/g2RMS	< 25 (50-200 Hz)
		< 50 (200-750 Hz)
		< 100 (750-2000 Hz)
Intrinsic Noise (1k Ω load resistor)	μ gRMS	< 7 (0-10 Hz)
		< 70 (10-500 Hz)
		$< 1,500$ (500-10KHz)
Environment		
Operating Temperature	$^{\circ}$ C	-55 to +105
Shock half-sine (4 ms)	g	250
Vibration peak sine (≤ 2 kHz)	g	35g @ 20 to 2000 Hz
Resolution/Threshold	μ g	< 1
Bandwidth	Hz	> 300
Thermal Modelling		
Temperature Model		Yes
Electrical		
Quiescent Current per Supply (0 g)	mA	< 6
Quiescent Power @ ± 15 VDC (0 g)	mW	< 180
Interface	-	Temperature sensor
	-	Voltage Self-Test
	-	Current Self-Test
	-	Power / Signal Ground
Input Voltage	VDC	± 13 to ± 28
Physical		
Mass	gm	25.8
Diameter below mounting surface	mm	$\varnothing 18.2$
Height – bottom to mounting surface	mm	11.2
Case Material	-	Stainless Steel (300 series)

How to order

AI-Q-551 is orderable under part number AI-Q-551-001 from InnaLabs® and our worldwide network of Agents and Distributors.

Related Products

InnaLabs® offers a range of accelerometers based on the same design and production processes, including the AI-Q-710, AI-Q-1410 and AI-Q-20X0 families.

Contact your local InnaLabs® Sales Agent for further details, or visit www.innalabs.com

If you wish to be automatically updated on future releases of this product datasheet, please contact your local InnaLabs® Sales Agent.

Revision History

1.0 – First Release (20 October 2017)

