

## General description

The InnaLabs® **AI-Q-2020** navigation grade accelerometer is the leading ITAR-Free choice for high-performance, high accuracy inertial navigation systems. The proven quartz flexure technology inside InnaLabs® accelerometers provides a very high input range and excellent long-term repeatability, which make the AI-Q-2020 an optimal solution for AHRS and strap-down INS in aerospace, marine and land applications.

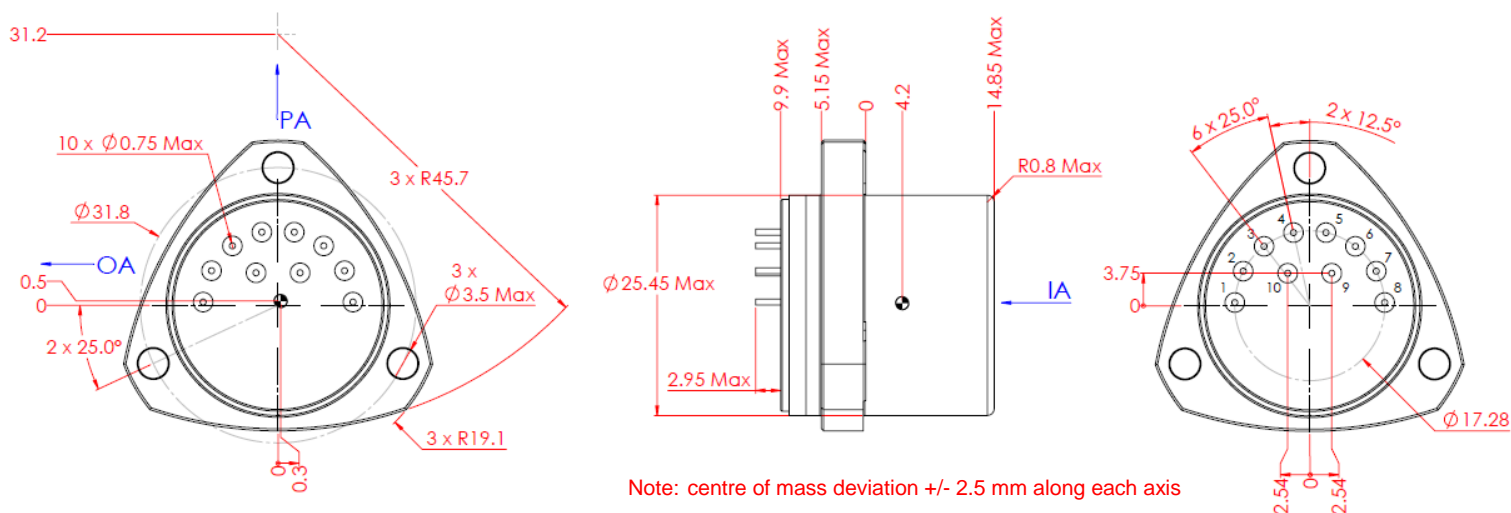
The AI-Q-2020 features an internal temperature sensor that allows the user to carry out temperature calibration and compensation, enhancing the bias, scale factor and axis misalignment performance over temperature.



In addition to navigation applications, the AI-Q-2020 can be used to calculate speed, distance and inclination in a wide range of applications, ranging from industrial control, test and measurement, transport, oil and gas and civil engineering.

State-of-the-art manufacturing processes enable InnaLabs® to offer AI-Q-2020 accelerometers at competitive prices.

## Accelerometer Dimensions (mm)



## Features

- Navigation grade performance (<220 µg one year bias composite repeatability)
- High input range (up to ±60g measurement range)
- Analogue current output
- Compact, rugged design
- High stability under temperature changes
- High reliability
- Internal temperature sensor for thermal compensation
- Dual built-in self test
- ITAR-Free

## Applications

- Inertial Navigation Systems (INS)
- Inertial Measurement Units (IMU)
- Attitude and Heading Reference Systems (AHRS)
- Commercial and military aircraft
- Unmanned systems and helicopters
- Land vehicles
- Marine vehicles
- Orientation systems for oil drilling industry
- Train and rail measurement systems
- Robotic systems control

## Specifications

Parameters	Units	Values
Input Range	g	±60
Bias	mg	<4
One-year Composite Repeatability	µg	<220
Temperature Sensitivity	µg/°C	<30
Scale Factor	mA/g	1.2 to 1.46
One-year Composite Repeatability	ppm	<500
Temperature Sensitivity	ppm/°C	<180
Axis Misalignment	µrad	<2000
One-year Composite Repeatability	µrad	<100
Vibration Rectification	µg/g <sup>2</sup> <sub>RMS</sub>	<40 (50-500 Hz) <60 (500-2000 Hz)
Intrinsic Noise	µg <sub>RMS</sub>	<7 (0-10 Hz) <70 (10-500 Hz) <1500 (500-10000 Hz)
Operating Temperature	°C	-55 to +95
Shock	g	250
Vibration Peak Sine	g, Hz	15g @ 20 to 2000 Hz
Resolution/Threshold	µg	<1
Bandwidth	Hz	>300
Temperature Model		Yes
Quiescent Current per Supply	mA	<16
Quiescent Power @ ±15V <sub>DC</sub>	mW	<480
Electrical interface		Temp Sensor
		Voltage Self Test
		Current Self Test
		Power/Signal Ground
		-10 V <sub>DC</sub> Output
		+10 V <sub>DC</sub> Output
Input Voltage	V <sub>DC</sub>	±13 to ±28
Weight	g	71 ±4
Diameter below mounting surface	mm	Ø 25.45 Max
Height – bottom to mounting surface	mm	14.85 Max
Case Material		300 Series Stainless Steel

## How to order

AI-Q-2020 is orderable under this part number 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-700, AI-Q-1400, and AI-Q-2000 series.

Contact your local InnaLabs® Sales Agent for further details, or visit [www.innalabs.com](http://www.innalabs.com).

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

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