General description

Innalabs AI-Q-701 tactical grade accelerometer is an ideal, ITAR-free choice for aerospace, defense, industrial, transport and civil engineering applications.

AI-Q-701 quartz-based servo accelerometer offers a dynamic range of ±30g with a one-year bias composite repeatability of <1200ug in a compact and ruggedized casing that provides a high shock and vibration resistance, matching the highest industry standards at a very economical price.

The AI-Q-701 features an internal temperature sensor that allows the user to carry out temperature calibration and compensation, enhancing the bias, scale factor and axis misalignment repeatability figures.

The AI-Q-701 is the optimum choice for a wide range of military and civilian applications such as: platform leveling, low-end tactical grade IMUs, INS for land military vehicles, control sensors for high speed trains, structural health monitoring and seismic sensors.

State-of-the-art manufacturing processes enable Innalabs to offer AI-Q-701 accelerometers at competitive prices.

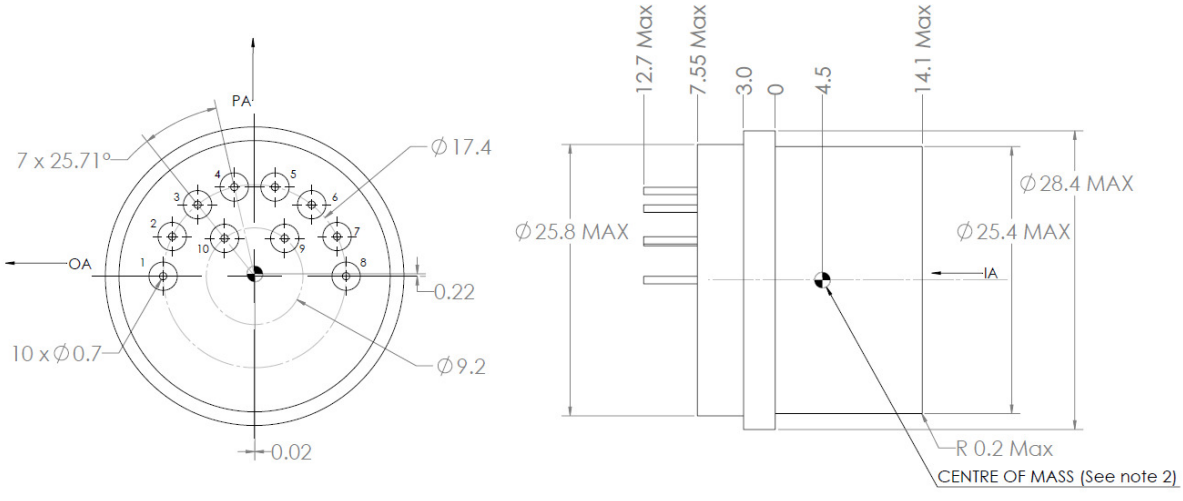
Features

- Tactical grade performance (<1200 µg one year bias composite repeatability)
- High Input Range (up to ±30g)
- Environmentally rugged
- Analogue Current output
- Compact design
- High thermal stability
- Internal temperature sensor for thermal compensation
- Dual built-in self test
- ITAR Free

Applications

- Tactical grade Inertial Navigation Systems (INS)
- Inertial Measurement Units (IMUs)
- Flight control systems
- Unmanned systems and helicopters
- Platform leveling
- Structural health and maintenance
- Land and marine vehicles
- Inclinometers for industrial and drilling
- Train and rail measurement systems
- Robotic systems control
- Seismic sensing

Accelerometer dimensions (mm)



Specifications

Parameters	Units	Values
Input Range	g	±30
Bias	mg	<8
One-year Composite Repeatability	µg	<1200
Temperature Sensitivity	µg/°C	<70
Scale Factor	mA/g	1.23 to 1.43
One-year Composite Repeatability	ppm	<1200
Temperature Sensitivity	ppm/°C	<200
Axis Misalignment	µrad	<2000
Vibration Rectification	$\mu g/g^2_{RMS}$	<50 (50-200 Hz) <100 (200-750 Hz) <150 (750-2000 Hz)
Intrinsic Noise	μg_{RMS}	<7 (0-10 Hz) <70 (10-500 Hz) <1500 (500-10000 Hz)#1
Operating Temperature	℃	-55 to +96
Shock	g	250
Vibration Peak Sine	g, Hz	25g @ 20 to 2000 Hz
Resolution/Threshold	µg	<1
Bandwidth	Hz	>300
Temperature Model		Yes
Quiescent Current per Supply	mA	<16
Quiescent Power @±15V_{DC}	mW	<480
Electrical interface		Temp Sensor
		Voltage Self Test
		Current Self Test
		Power/Signal Ground
		-9V_{DC} Output
		+9V_{DC} Output
Input Voltage	V_{DC}	±13 to ±18
Weight	g	55 nominal, 57 maximum
Size	mm	Ø 28.4 x 21.65 Max
Case Material		300 Series Stainless Steel

Note #1: when a 1.6 kHz low pass filter on the output is implemented

Note #2: centre of mass deviation +/- 2.5 mm along each axis

How to order

AI-Q-701 is directly 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-1400 and AI-Q-2000 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.