



Navigation-grade MEMS Accelerometers

TAA-308

TAA-315

TAA-340



The **Inertial Labs MEMS TAA-308, TAA-315 and TAA-340** are the third generation of the Inertial Labs MEMS, three-axis high-precision accelerometers released in a stand-alone design. The **TAA-308, TAA-315 and TAA-340** are revolutionary, compact, self-contained, strapdown, Navigation-grade Accelerometers that measure linear accelerations with high precision due to their unique design and developed by Inertial Labs over last 20 years several significant know-know and technics in calibrations of inertial sensors. Measured by TAA Accelerometers accelerations are determined with low noise and very good repeatability for both motionless and dynamic applications.



The **Inertial Labs TAA-308, TAA-315 and TAA-340** models are the breakthrough, fully integrated inertial sensors that combines the latest MEMS sensor technologies and can measure accelerations with $\pm 8g$, $\pm 15g$ or $\pm 40g$ measurement ranges.

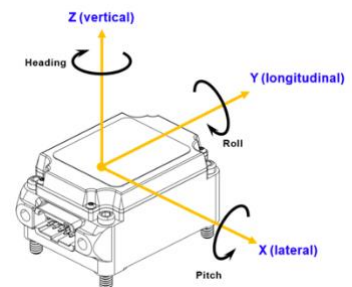
Fully calibrated, temperature compensated, mathematically aligned to an orthogonal coordinate system, the TAA accelerometer's Bias in-run stability is up to 0.005 mg at $\pm 8g$ dynamic range with very low noise and high reliability.

Continuous Built-in Test (BIT), configurable communications protocols and flexible input power requirements make the **Inertial Labs TAA Accelerometers** easy to use in a wide range of higher order integrated system applications.



The **Inertial Labs TAA Accelerometers** models were designed for applications, like:

- ❖ Autonomous vehicles
- ❖ Antenna and Line of Sight Pointing systems
- ❖ Passengers trains acceleration / deceleration and jerking systems
- ❖ Motion Reference Units (MRU) and Motion Control Sensors (MCS)
- ❖ Gimbals, EOC/IR, platforms orientation and stabilization
- ❖ GPS-Aided Inertial Navigation Systems (INS)
- ❖ Attitude and Heading Reference Systems (AHRS)
- ❖ Guidance and Navigation
- ❖ UAV & AUV/ROV navigation and control



Parameter	TAA-308	TAA-315	TAA-340
Measurement range	$\pm 8g$	$\pm 15g$	$\pm 40g$
Accelerometers Bias in-run stability	0.005 mg	0.01 mg	0.02 mg
Accelerometers Bias error over temperature range	0.5 mg	0.7 mg	1.2 mg
Accelerometers Bias One Year repeatability	1 mg	1.3 mg	1.5 mg
Accelerometers Noise (Velocity Random Walk)	0.015 m/sec/Vhr	0.035m/sec/Vhr	0.045 m/sec/Vhr

TAA-308, TAA-315, TAA-340 Specifications

Parameter	Units	TAA-308	TAA-315	TAA-340
Output signals		Three-axis Accelerations, Temperature, Synch		
Color of Enclosure		Gold		
Update rate	Hz	2000		
Output data rate	Hz	2000		
Start-up time	sec	<0.2		
Full Accuracy Data (Warm-up Time)	sec	<1		
Latency	milli sec	<1		
Performance	Units	TAA-308	TAA-315	TAA-340
Measurement range	g	±8	±15	±40
Bandwidth (-3dB)	Hz	260	260	260
Data update rate	Hz	2000	2000	2000
Bias in-run stability (Allan Variance)	mg	0.005	0.01	0.02
Bias residual error (in temp. range, RMS)	mg	0.5	0.7	1.2
Bias one-year repeatability	mg	1.0	1.3	1.5
SF accuracy (over temperature range)	ppm	150	300	500
SF one-year repeatability	ppm	500	1300	1500
Noise. Velocity Random Walk (VRW)	m/sec/vhr	0.015	0.035	0.045
Non-linearity	ppm	150	150	150
Axis misalignment (STD)	mrاد	0.2	0.2	0.2
Environment	Units	TAA-308	TAA-315	TAA-340
Mechanical shock	g, msec	400 g, 0.1 ms		
Vibration	g RMS, Hz	8, 10 – 2000		
Operating temperature	deg C	-40 to +85		
Storage temperature	deg C	-50 to +90		
Low pressure	Pa, min	1750, 30		
Humidity	%	up to 95		
MTBF (G _M @+65degC, operational)	hours	100,000		
Life time (operational)	years	10		
Life time (storage)	years	17		
Electrical	Units	TAA-308	TAA-315	TAA-340
Supply voltage	V DC	4.8 - 36		
Power consumption	Watts	0.3		
Output Interface	-	RS-422 + discrete IOs		
Output data format	-	Binary, ASCII, KERNEL		
Physical	Units	TAA-308	TAA-315	TAA-340
Size	mm	28.5 x 19.5 x 13.6	28.5 x 19.5 x 13.6	28.5 x 19.5 x 13.6
Weight	grams	13	13	13

TAA accelerometers Product Code structure

Model	Measurement range	Calibration	Connector	Color	Version	Interface
TAA-308	A8	TA	C20	A	V1	2
TAA-315	A15					
TAA-340	A40					

Example: TAA-308-A8-TA-C20-A-V1.2 or TAA-315-A15-TA-C20-A-V1.2 or TAA-340-A40-TA-C20-A-V1.2

- A8: Accelerometers measurement range = ±8 g
- A15: Accelerometers measurement range = ±15 g
- A40: Accelerometers measurement range = ±40 g
- TA: Accelerometers are calibrated over operational temperature range
- C20: Aluminum case (Captive screws; reference mechanical drawing)
- A: Color of enclosure: Aurum (Gold)
- V1: version 1
- .2: RS-422 interface

TAA accelerometers Mechanical Interface Description

