



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.

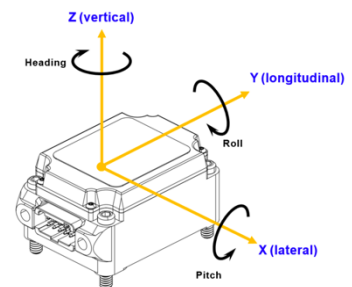
Fully calibrated, temperature compensated, mathematically aligned to an orthogonal coordinate system, the TAA accelerometer’s Bias in-run stability is up to 0.005 mg at $\pm 8g$ dynamic range with very low noise and high reliability.

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	4000		
Output data rate	Hz	4000		
Start-up time	sec	<0.2		
Full Accuracy Data (Warm-up Time)	sec	<1		
Latency*	milli sec	<0.25		
Performance	Units	TAA-308	TAA-315	TAA-340
Measurement range	g	±8	±15	±40
Bandwidth (-3dB)	Hz	260	260	260
Data update rate	Hz	4000	4000	4000
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	40 g, 11 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	4.5 - 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

* Note: Data latency is the time between the moment the sensors are sampled and the moment the IMU starts transmitting the frame with those sensor data. This time does not include the transmission time.

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

