



# Navigation-grade MEMS Accelerometers

**TAA-308EC**

**TAA-315EC**

**TAA-340EC**





The **Inertial Labs MEMS TAA-308EC, TAA-315EC and TAA-340EC** are the third generation of the Inertial Labs MEMS, three-axis high-precision accelerometers released in a stand-alone design. The **TAA-308EC, TAA-315EC and TAA-340EC** 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-308EC, TAA-315EC and TAA-340EC** 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.

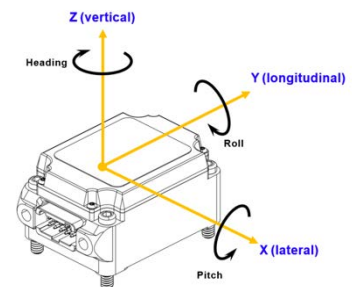
Fully calibrated, temperature compensated, mathematically aligned to an orthogonal coordinate system, the TAA accelerometer's Bias in-run stability is up to 0.005 mg at  $\pm 8g$  dynamic range with very low noise and high reliability.

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-308EC	TAA-315EC	TAA-340EC
Measurement range	$\pm 8g$	$\pm 15g$	$\pm 40g$
Accelerometers Bias in-run stability	0.003 mg	0.005 mg	0.01 mg
Accelerometers Bias error over temperature range	0.2 mg	0.3 mg	0.5 mg
Accelerometers Bias One Year repeatability	0.35 mg	0.45 mg	0.55 mg
Accelerometers Noise (Velocity Random Walk)	0.01 m/sec/Vhr	0.02 m/sec/Vhr	0.03 m/sec/Vhr

## TAA-308EC, TAA-315EC, TAA-340EC Specifications

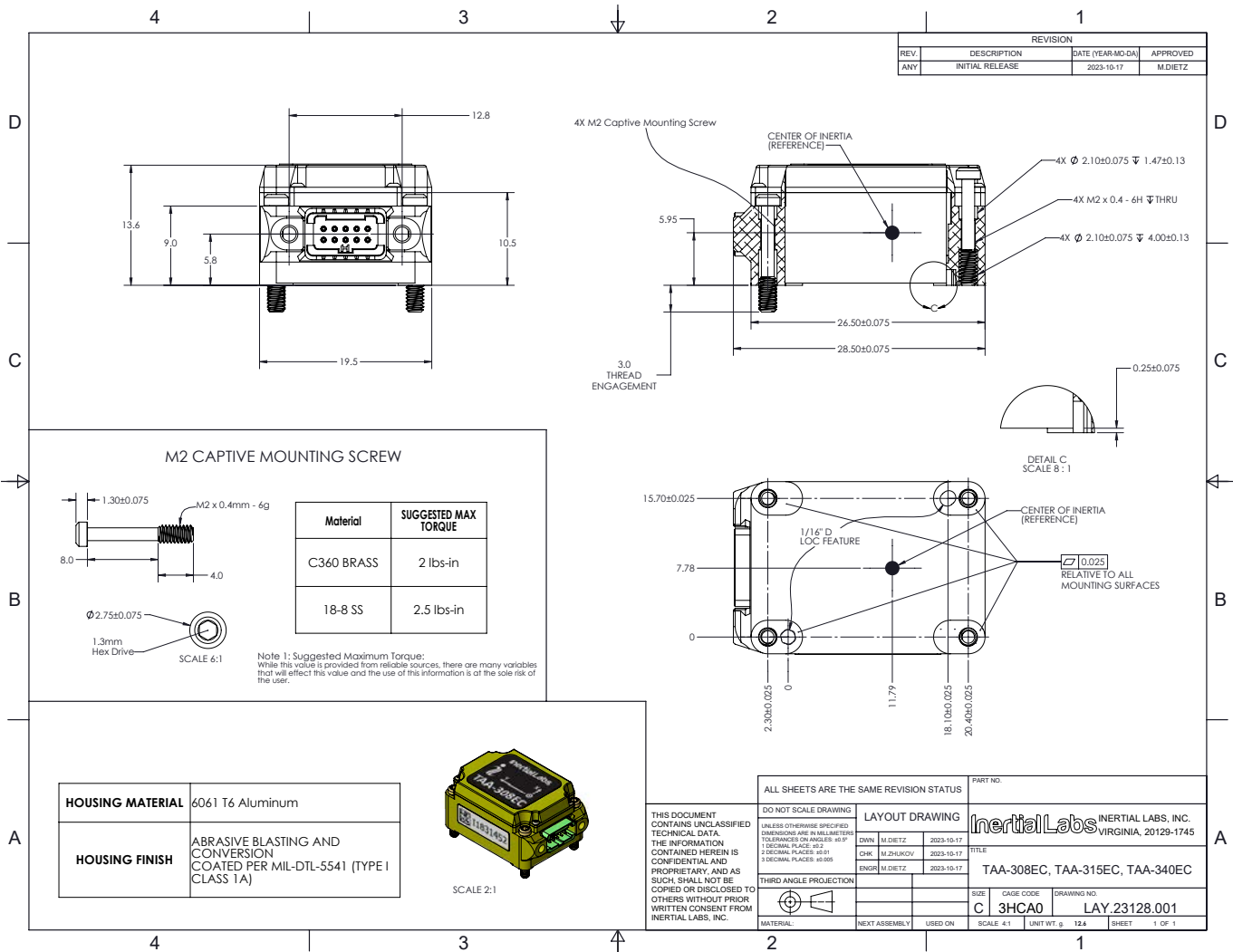
Parameter	Units	TAA-308EC	TAA-315EC	TAA-340EC
Output signals		Three-axis Accelerations, Temperature, Synch		
Color of Enclosure		Gold		
Update rate	Hz	2000		
Output data rate	Hz	2000		
Start-up time	sec	<0.2		
Full Accuracy Data (Warm-up Time)	sec	<1		
Latency	milli sec	<1		
Performance	Units	TAA-308EC	TAA-315EC	TAA-340EC
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	0.003	0.005	0.01
Bias residual error (in temp. range, RMS)	mg	0.2	0.3	0.5
Bias one-year repeatability	mg	0.35	0.45	0.55
SF accuracy (over temperature range)	ppm	50	100	200
SF one-year repeatability	ppm	200	400	550
Noise. Velocity Random Walk (VRW)	m/sec/vhr	0.01	0.02	0.03
Non-linearity	ppm	100	100	100
Axis misalignment (STD)	mrad	0.2	0.2	0.2
Environment	Units	TAA-308EC	TAA-315EC	TAA-340EC
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 <sub>M</sub> @+65degC, operational)	hours	100,000		
Life time (operational)	years	10		
Life time (storage)	years	17		
Electrical	Units	TAA-308EC	TAA-315EC	TAA-340EC
Supply voltage	V DC	4.8 - 36		
Power consumption	Watts	0.3		
Output Interface	-	RS-422 + discrete I/Os		
Output data format	-	Binary, ASCII, KERNEL		
Physical	Units	TAA-308EC	TAA-315EC	TAA-340EC
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-308EC	A8	TA	C20	A	V1	2
TAA-315EC	A15					
TAA-340EC	A40					

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

- TAA-308EC/315EC/340EC: model of the three-axis accelerometers (EAR export-controlled version)
- 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**


**DISCLAIMER:** Specifications are subject to change without notice. Inertial Labs Inc. reserves the right to make changes to any product or technology herein to improve reliability, function or design. Honeywell does not assume any liability arising out of the application or use of the product.

TAA-308EC, TAA-315EC, TAA-340EC Accelerometers exported from the United States must be done in accordance with the Export Administration Regulations (EAR).