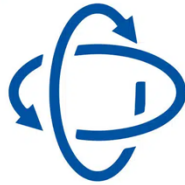


HIGH PERFORMANCE FIBER-OPTIC GYROSCOPES (FOG) INERTIAL MEASUREMENT UNITS



ITAR
FREE

The **Inertial Labs IMU-FI-200C** and **IMU-FI-200T Inertial Measurement Units** are the latest addition to the Inertial Labs Advanced Inertial Measurement Units (IMU) family. Revolutionary due to its compact, self-contained strapdown, advanced tactical-grade Inertial Measurement Units, which measure linear accelerations and angular rates with three-axis tactical-grade, closed-loop Fiber-Optic Gyroscopes (FOG) and three-axis high-precision MEMS accelerometers in motionless and high dynamic applications.



Officially classified as ECCN 7A994 (NLR - No License Required), **IMU-FI-200C** and **IMU-FI-200T** are the breakthrough, fully integrated inertial measurement solution that combines the latest closed-loop FOG and high precision MEMS sensors technologies.

Fully calibrated, temperature compensated, and mathematically aligned to an orthogonal coordinate system, the IMU contains up to 0.5 deg/hr gyroscopes and less than 1 mg bias repeatability over operational range accelerometers with very low noise and high reliability.

Continuous Built-in Test (BIT), configurable communications protocols, electromagnetic interference (EMI) protection, and flexible input power requirements make the **Inertial Labs IMU-FI-200C** and **IMU-FI-200T** easy to use in a wide range of higher order integrated system applications.

The **Inertial Labs IMU-FI-200C** and **IMU-FI-200T** models were designed for applications, like:

- ❖ Antenna and Line of Sight Stabilization Systems
- ❖ Passenger's trains acceleration / deceleration and jerking systems
- ❖ Motion Reference Units (MRU)
- ❖ Motion Control Sensors (MCS)
- ❖ Gimbals, EOC/IR, platforms orientation and stabilization
- ❖ GPS-Aided Inertial Navigation Systems (INS)
- ❖ Attitude and Heading Reference Systems (AHRS)
- ❖ Land vehicles navigation and motion analysis
- ❖ Buoy or Racing Boat Motion Monitoring
- ❖ UAV & AUV/ROV navigation and control

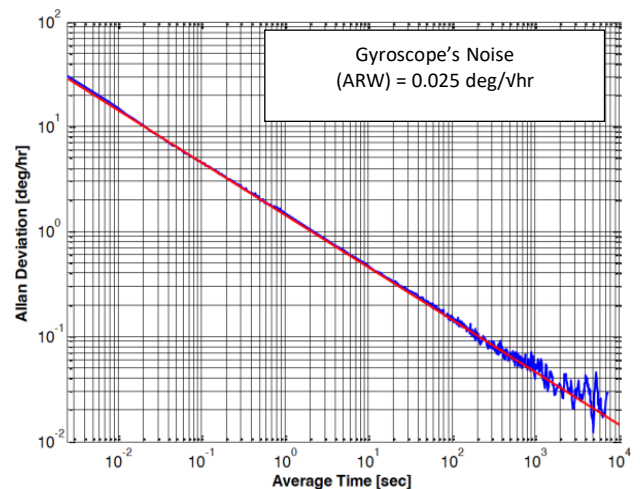
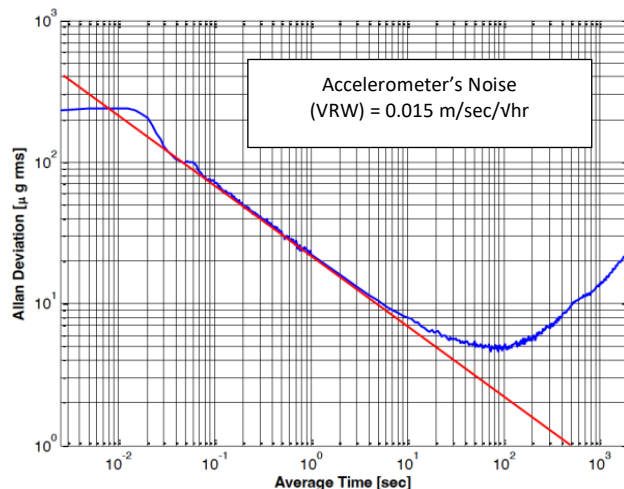


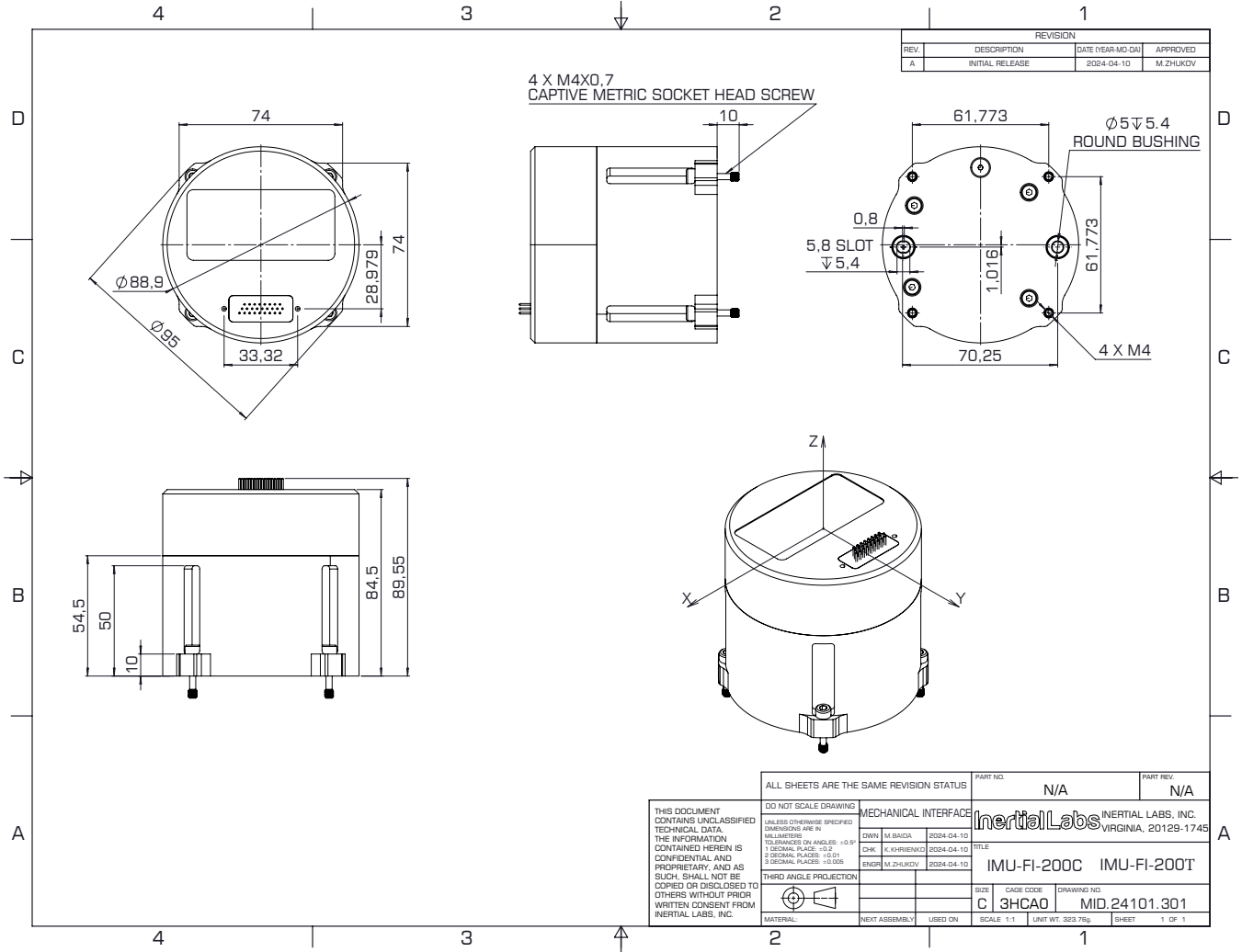
IMU-FI-200C and IMU-FI-200T Gyroscopes & Accelerometers Key Performance

Parameter	IMU-FI-200C	IMU-FI-200T
GYROSCOPES		
Gyroscopes technology	Closed-loop FOG	Closed-loop FOG
Gyroscopes measurement range	±490 deg/sec	±490 deg/sec
Gyroscopes Bias repeatability over temp. range	0.5 deg/hr	0.5 deg/hr
Gyroscopes Noise – Angular Random Walk	0.025 deg/vhr	0.025 deg/vhr
ACCELEROMETERS		
Accelerometers technology	MEMS	MEMS
Accelerometers measurement range	±10 g	±8 g / ±40 g
Accelerometers Bias repeatability over temp. range	1.2 mg	0.5 mg / 1.2 mg
Accelerometers Noise - Velocity Random Walk	0.015 m/sec/vhr	0.015 m/sec/vhr / 0.045 m/sec/vhr

IMU-FI-200C and IMU-FI-200T Specifications

Parameter	Units	IMU-FI-200C	IMU-FI-200T	
Output signals		Accelerations, Angular Rates, Delta Angle, Delta Velocity, Temperature, Synch.		
Start-up time	sec	<1		
GYROSCOPES	Units	IMU-FI-200C	IMU-FI-200T	
Technology		Closed-loop FOG		
Measurement range	deg/sec	±490		
Bandwidth (-3dB)	Hz	200		
Data update rate	Hz	400 (1000 is optional)		
Bias repeatability (over temperature range)	deg/hr	0.5		
SF accuracy (over temperature range)	ppm	100		
Noise. Angular Random Walk (ARW)	deg/vhr	0.025 (typical)		
Non-linearity	ppm	50		
Axis misalignment	mrاد	0.1		
ACCELEROMETERS	Units	IMU-FI-200C	IMU-FI-200T	
Technology		MEMS	MEMS	
Measurement range	g	±10	±8	±40
Bandwidth (-3dB)	Hz	200	260	260
Data update rate	Hz	400 (1000 is optional)	400 (1000 is optional)	400 (1000 is optional)
Bias in-run stability (RMS, Allan Variance)	mg	0.015	0.005	0.02
Bias repeatability (over temperature range)	mg	1.2	0.5	1.2
Bias one year repeatability	mg	2	1.0	1.5
SF accuracy (over temperature range)	ppm	300	150	500
Noise. Velocity Random Walk (VRW)	m/sec/vhr	0.015 (typical)	0.015 (typical)	0.045 (typical)
Non-linearity	ppm	150	150	150
Axis misalignment	mrاد	0.2	0.2	0.2
ENVIRONMENT	Units	IMU-FI-200C	IMU-FI-200T	
Mechanical shock (MIL-STD-810G)	g	40g, 11ms saw-tooth (operation) / 150g, 8ms half-sine (survival)		
Vibration (MIL-STD-810G)	gRMS, Hz	7.7g, 20 – 2000 Hz		
Operational and storage temperature	deg C	-40 to +71		
Low pressure	Pa, min	8400, 30 (55,000 feet altitude)		
Humidity	%	up to 95		
MTBF (G _M @+65degC, operational)	hours	55,000		
Life time (operational)	years	7		
Life time (storage)	years	100		
ELECTRICAL	Units	IMU-FI-200C	IMU-FI-200T	
Supply voltage	V DC	5		
Power consumption	Watts	5.5 @ 5V		
Output Interface	-	UART (RS-422); SDLC		
Output data format	-	Binary		
EMC/EMI/ESD		MIL-STD-461G		
PHYSICAL	Units	IMU-FI-200C	IMU-FI-200T	
Size	mm	D88.9 x H84.5		
Weight	grams	790		



IMU-FI-200C and IMU-FI-200T Mechanical interface

IMU-FI-200C and IMU-FI-200T Product Codes Description

Model	Gyroscope	Accel	Calibration	Connector	Color	Version	Interface
IMU-FI-200C	G490	A10	TGA	C18	S	V1	.2
							.6
Model	Gyroscope	Accel	Calibration	Connector	Color	Version	Interface
IMU-FI-200T	G490	A8	TGA	C18	S	V1	.2
		A40					.6

IMU-FI-200C	IMU-FI-200T
G490: Gyroscopes dynamic range = ± 490 deg/sec	G490: Gyroscopes dynamic range = ± 490 deg/sec
A10: Accelerometers measurement range = ± 10 g	A8: Accelerometers measurement range = ± 8 g
TGA: Gyroscopes and Accelerometers	A40: Accelerometers measurement range = ± 40 g
C18: 26-pin male, D-sub connector	TGA: Gyroscopes and Accelerometers
S: Color of enclosure: Silver	C18: 26-pin male, D-sub connector
V1: Version 1	S: Color of enclosure: Silver
_.2 UART (RS-422) interface	V1: Version 1
_.6 SDLC interface	_.2 UART (RS-422) interface
	_.6 SDLC interface
Example: IMU-FI-200C-G490-A10-TGA-C18-S-V1.2	Example: IMU-FI-200T-G490-A40-TGA-C18-S-V1.2