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ITAR
FREE

STANDARD
MIL-STD
810G



INERTIAL NAVIGATION SYSTEMS

PRODUCT CATALOG

PIONEERING PRECISION IN INERTIAL NAVIGATION AND SENSOR FUSION FOR OVER 20 YEARS

About VIAVI Solutions

VIAVI (NASDAQ: VIAV) is a global provider of network test, monitoring and assurance solutions for telecommunications, cloud, enterprises, first responders, military, aerospace and railway. VIAVI is also a leader in light management technologies for 3D sensing, anti-counterfeiting, consumer electronics, industrial, automotive, government and aerospace applications.

Learn more about VIAVI at www.viavisolutions.com.

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About Inertial Labs, a VIAVI Solutions Company

With over 20 years of industry experience, Inertial Labs, a VIAVI Solutions Company, is a leading designer, integrator, and manufacturer of cutting-edge Inertial Measurement Units (IMUs), GPS-Aided Inertial Navigation Systems (INSs), and Attitude & Heading Reference Systems (AHRs), as well as sensor fusion products and solutions ranging from Inertial Sensing, Assured Position Navigation and Timing (APNT) and GNSS Tracking to LiDAR Scanning, Alternative Navigation (ALTNAV), Visual Navigation, and Programmable Navigation Solutions.

As experts in sensor fusion, Inertial Labs designs and develops quality products at the best price-performance ratio. Our team provides solutions capable of utilizing data from an array of sources, including air data computers (ADCs), ToF Mesh-Based Software Defined Radios (SDRs), Visual Odometry, Air Speed Sensors, Odometers, Encoders, and Standalone Magnetic Compasses (SAMCs).

APPLICATIONS



AEROSPACE

Navigation, Stabilization and Pointing



LAND

Commercial and Military



INDUSTRIAL

Small to Large Scale Operations



MARITIME

Dynamic Position, Heave, Surge and Sway



About Inertial Labs, a VIAVI Solutions Company

2001

Founded

150+

Highly Technical Staff

400+

Customers WorldWide

100,000+

Devices in Operation

GPS-Aided Inertial Navigation Systems



CHEETAH NAV

Heading Accuracy	3 MIL (INS-B); 1 MIL (INS-D)
Position Accuracy	1 cm (RTK), 2.5 cm (PPP), 60 cm (SBAS)
Pitch & Roll Accuracy	0.5 MIL
GNSS Constellations	BDS, GAL, GLO, GPS, QZSS, IRNSS (NavIC)
Corrections	DGPS, PPK, PPP, RTK, SBAS
Type of IMU	MEMS, Tactical-grade, FOG IMU Optional
Magnetometer	External Magnetic Compass (optional)
Size	MDU: 322 x 233 x 50 mm; DDU: 128 x 100 x 34 mm; INS: 120 x 50 x 53 mm
Weight	MDU: 4050 g; DDU: 650 g; INS-B: 220 g; INS-D: 320 g

GPS-Aided Inertial Navigation Systems



INS-U

Heading Accuracy	0.6° static / 0.3° dynamic
Position Accuracy	1 (RTK)
Pitch & Roll Accuracy	0.08° static / 0.05° dynamic
GNSS Constellations	BDS, GAL, GLO, GPS, QZSS
Corrections	DGPS, RTK, SBAS
Type of IMU	.MEMS
Magnetometer	Embedded Mini-Fluxgate Magnetometer
Size	82 x 40 x 26 mm
Weight	200 g

GPS-Aided Inertial Navigation Systems



INS-D | INS-DU | INS-DL

INS-D

INS-DU

INS-DL

Heading Accuracy	 0.08° (2m baseline), 0.15° (1m baseline).	 0.2° (2m baseline), 0.4° (1m baseline).	 0.2° (2m baseline), 0.4° (1m baseline)
Position Accuracy	 1 cm (RTK), 2.5 cm (PPP), 60 cm (SBAS).	 0.5 cm (PPK), 1 cm (RTK), 60 cm (SBAS).	 1 cm (RTK), 60 cm (SBAS)
Pitch & Roll Accuracy	 0.05° static / 0.03° dynamic.	 0.08° static / 0.05° dynamic.	 0.08° static / 0.04° dynamic
GNSS Constellations	 BDS, GAL, GLO, GPS, QZSS.	 BDS, GAL, GLO, GPS, QZSS.	 BDS, GAL, GLO, GPS, QZSS
Corrections	 DGPS, PPK, PPP, RTK, SBAS.	 PPK, RTK, SBAS.	 PPK, RTK, SBAS
Type of IMU	 MEMS, Tactical-grade.	 MEMS, Industrial-grade.	 MEMS, Industrial-grade
Magnetometer	 External Magnetic Compass (optional).	 Embedded Fluxgate Magnetic Compass.	 External Magnetic Compass (optional)
Size	 120.5 x 53.2 x 49.3 mm.	 120.5 x 53.2 x 49.3 mm.	 120.5 x 53.2 x 49.3 mm
Weight	 320 g.	 320 g.	 320 g

GPS-Aided Inertial Navigation Systems



INS-P | INS-B | INS-BU

	INS-P	INS-B	INS-BU
Heading Accuracy	0.3° static, 0.1° dynamic	1° static, 0.1° dynamic	0.6° static, 0.3° dynamic
Position Accuracy	1 cm (RTK), 2.5 cm (PPP), 60 cm (SBAS)	1 cm (RTK), 2.5 cm (PPP), 60 cm (SBAS)	0.5 cm (PPK), 1 cm (RTK), 60 cm (SBAS)
Pitch & Roll Accuracy	0.05° static / 0.03° dynamic	0.05° static / 0.03° dynamic	0.08° static / 0.05° dynamic
GNSS Constellations	BDS, GAL, GLO, GPS, QZSS	BDS, GAL, GLO, GPS, QZSS	BDS, GAL, GLO, GPS, QZSS
Corrections	DGPS, PPK, PPP, RTK, SBAS	DGPS, PPK, PPP, RTK, SBAS	PPK, RTK, SBAS
Type of IMU	MEMS, Tactical-grade	MEMS, Tactical-grade	MEMS, Industrial-grade
Magnetometer	Embedded Fluxgate Magnetic Compass	External Magnetic Compass (optional)	Embedded Mini-Fluxgate Magnetometer
Size	120.5 x 53.2 x 49.3 mm	120.5 x 53.2 x 49.3 mm	120.5 x 53.2 x 49.3 mm
Weight	280 g	220 g	320 g



INS-DM-N11

Heading Accuracy	0.08°
Position Accuracy	1 cm (RTK), 40 cm (DGPS)
Pitch & Roll Accuracy	0.01° Dynamic
GNSS Constellations	BDS, GAL, GLO, GPS, QZSS
Corrections	DGPS, PPK, RTK
Type of IMU	HG4930, IMU-NAV, IMU-P, Kernel IMU
Magnetometer	Embedded/External Magnetic Compass
Size	160.4 x 141.2 x 61.1 mm
Weight	1060 - 1300 g

GPS-Aided Inertial Navigation Systems



INS-DM-FI

Heading Accuracy	0.08°
Position Accuracy	1 cm (RTK), 40 cm (DGPS)
Pitch & Roll Accuracy	0.01° Dynamic
GNSS Constellations	BDS, GAL, GLO, GPS, NavIC (IRNSS), QZSS
Corrections	PPK, PPP, RTK, SBAS
Type of IMU	FOG, Tactical
Magnetometer	External Magnetic Compass (optional)
Size	160 x 149 x 96 mm
Weight	2100 g

GPS-Aided Inertial Navigation Systems



INS-FI

Heading Accuracy	0.08°
Position Accuracy	1 cm (RTK), 40 cm (DGPS)
Pitch & Roll Accuracy	0.01° Dynamic
GNSS Constellations	BDS, GAL, GLO, GPS, NavIC (IRNSS), QZSS
Corrections	PPK, PPP, RTK, SBAS
Type of IMU	FOG, Tactical
Magnetometer	External Magnetic Compass (optional)
Size	D88.9 x H129 mm
Weight	950 g



VISION-AIDED INERTIAL NAVIGATION SYSTEM

	GNSS-Enabled	GNSS-Denied
Horizontal Position Visual Odometry	 1 m	 <1% DT
Vertical Position	 <2 m	 <5 m
Velocity	 0.03 m/s	 <0.9 m/s
Heading	 0.1 °	 1 °
Pitch & Roll	 0.03 °	 0.1 °

Air Data Computer



ADC

Pressure Sensor Measurement Range	±25 / ±600 / ±4000 mbar
Static Pressure Accuracy	±0.1% FSS
Dynamic Pressure Accuracy	±0.25% FSS
Max Calibrated and True Airspeed	64 / 310 / 800 meters/s
Calibrated and True Airspeed Accuracy	.0.5 meters/s
Size	.73.5 x 55 x 29.5 mm
Weight	.130 g

Controlled Reception Pattern Antenna



M-AJ-QUATRO

Bands	GNSS L1, L2, L5
Polarization	RHCP (AR< 3dB above 15° elevation)
Gain.....	2dBic > 15° elevation
Interference sources.....	3
Suppression level.....	> 34dB
Interference types.....	Wideband, in-band
RF Module Size.....	64 x 50.7 x 141.31 mm
Antenna Module Size.....	132 x 132 x 19 mm

INERTIAL NAVIGATION SYSTEMS

							
	INS-U	INS-B	INS-P	INS-BU	INS-D	INS-DL	INS-DU
Heading Accuracy	0.6° static / 0.3° dynamic	1° static / 0.1° dynamic	0.3° static / 0.1° dynamic	0.6° static / 0.3° dynamic	0.08° (2m baseline) 0.15° (1m baseline)	0.2° (2m baseline) 0.4° (1m baseline)	0.2° (2m baseline) 0.4° (1m baseline)
Position Accuracy (cm)	1 (RTK)	1 (RTK), 2.5 (PPP), 60 (SBAS)	1 (RTK), 2.5 (PPP), 60 (SBAS)	1 (RTK), 0.5 (PPK), 60 (SBAS)	1 (RTK), 2.5 (PPP), 60 (SBAS)	1 (RTK), 60 (SBAS)	1 (RTK), 0.5 (PPK), 60 (SBAS)
Pitch & Roll Accuracy	0.08° static / 0.05° dynamic	0.05° static / 0.03° dynamic	0.05° static / 0.03° dynamic	0.08° static / 0.05° dynamic	0.05° static / 0.03° dynamic	0.08° static / 0.04° dynamic	0.08° static / 0.05° dynamic
GNSS Constellations	BDS, GAL, GLO, GPS, QZSS	BDS, GAL, GLO, GPS, QZSS	BDS, GAL, GLO, GPS, QZSS	BDS, GAL, GLO, GPS, QZSS	BDS, GAL, GLO, GPS, QZSS	BDS, GAL, GLO, GPS, QZSS	BDS, GAL, GLO, GPS, QZSS
Corrections	DGPS, RTK, SBAS	DGPS, PPK, PPP, RTK, SBAS	DGPS, PPK, PPP, RTK, SBAS	PPK, RTK, SBAS	DGPS, PPK, PPP, RTK, SBAS	PPK, RTK, SBAS	PPK, RTK, SBAS
Type of IMU	MEMS	MEMS, Tactical-grade	MEMS, Tactical-grade	MEMS, Industrial-grade	MEMS, Tactical-grade	MEMS, Industrial-grade	MEMS, Industrial-grade
Magnetometer	Embedded Mini-Fluxgate Magnetometer	External Magnetic Compass (optional)	Embedded Fluxgate Magnetic Compass	Embedded Mini-Fluxgate Magnetometer	External Magnetic Compass (optional)	External Magnetic Compass (optional)	Embedded Fluxgate Magnetic Compass
Size (mm)	82 x 40 x 26	120.5 x 53.2 x 49.3	120.5 x 53.2 x 49.3	120.5 x 53.2 x 49.3	120.5 x 53.2 x 49.3	120.5 x 53.2 x 49.3	120.5 x 53.2 x 49.3
Weight (g)	200	220	280	320	320	320	320
Applications	Fixed Wing UAV Flight Control and Navigation in longterm GNSS- Denied Environment	UGV, Land Vehicle Navigation, Lightweight AGV, Post Processed Imagery	Extended GNSS- Denied Navigation, UAS, North Finding & Keeping	Low-Cost Precision Agriculture, Low- Cost Land Vehicle Navigation	Heavy Vehicle Guidance, Land Vehicle Navigation, Fixed Wing Navigation	Antenna Pointing, Low Cost Position and Velocity, Industrial Navigation	Low-Cost GNSS- Denied Navigation, Low-Cost Survey and Scanning System

				
	Cheetah NAV	INS-DM	INS-FI	INS-DM-FI
Heading Accuracy	3 MIL (INS-B); 1 MIL (INS-D)	0.08°	0.08°	0.08°
Position Accuracy (cm)	1 (RTK), 2.5 (PPP), 60 (SBAS)	1 (RTK), 40 (DGPS)	1 (RTK), 40 (DGPS)	1 (RTK), 40 (DGPS)
Pitch & Roll Accuracy	0.5 MIL	0.01° Dynamic	0.01° Dynamic	0.01° Dynamic
GNSS Constellations	BDS, GAL, GLO, GPS, QZSS, IRNSS (NavIC)	BDS, GAL, GLO, GPS, QZSS	BDS, GAL, GLO, GPS, NavIC (IRNSS), QZSS	BDS, GAL, GLO, GPS, NavIC (IRNSS), QZSS
Corrections	DGPS, PPK, PPP, RTK, SBAS	DGPS, PPK, RTK	PPK, PPP, RTK, SBAS	PPK, PPP, RTK, SBAS
Type of IMU	MEMS, Tactical-grade, FOG IMU Optional	HG4930, IMU-NAV, IMU-P, Kernel IMU	FOG, Tactical	FOG, Tactical
Magnetometer	External Magnetic Compass (optional)	Embedded/External Magnetic Compass	External Magnetic Compass (optional)	External Magnetic Compass (optional)
Size (mm)	MDU: 322 x 233 x 50 DDU: 128 x 100 x 34 INS: 120 x 50 x 53	160.4 x 141.2 x 61.1	D88.9 x H129	160 x 149 x 96
Weight (g)	MDU: 4050 DDU: 650 INS-B: 220 INS-D: 320	1060 - 1300	950	2100
Applications	UGV, Land Vehicle, Fixed Wing UAV, Helicopter Extended GNSS-Denied Navigation	Land Vehicle Navigation in GNSS-Enabled and GNSS- Denied Environments	Tactical Navigation. Medium accuracy gyrocompassing	Tactical Navigation. Medium accuracy gyrocompassing



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