Inertial Labs
a VIAVI Solutions company

PRODUCT CATALOG

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PIONEERING PRECISION IN INERTIAL NAVIGATION AND SENSOR FUSION FOR **OVER 25 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.

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About Inertial Labs, a VIAVI Solutions Company

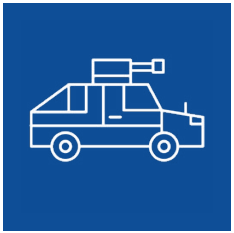
With over 25-years of industry experience, Inertial Labs, a VIAVI Solutions Company, is a leading designer, integrator, and manufacturer of cutting-edge Inertial Measurement Units (IMUs), GPS-Aided Inertial Navigation Systems (INSs), and Attitude & Heading Reference Systems (AHRSs), as well as sensor 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

200+
Highly Technical Staff

1000+
Customers WorldWide

1M+
Devices in Operation

ASSURED POSITIONING, NAVIGATION AND TIMING

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

VINS

	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 °

IRINS-DM

Heading Accuracy	0.6° static / 0.3° dynamic
Position Accuracy	50 m, CEP50
Pitch & Roll Accuracy	0.03° static / 0.05° dynamic
GNSS Constellations	GPS, GLONASS, Galileo, BeiDou, QZSS, NavIC
Corrections	TerraStar-L/C PRO, RTK, DGPS, SBAS, GLIDE, SPAN, GRIT
Type of IMU	MEMS
Magnetometer	Embedded Mini-Fluxgate Magnetometer
Size	160.0 x 141.2 x 61.3 mm
Weight	1400 g

INS-NV

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

ASSURED POSITIONING, NAVIGATION AND TIMING

	INS-U	**VINS**	**IRINS-DM**	**INS-NV**
GNSS-Denied Position Accuracy	1% DT	<35 m, RMS	50 m, CEP50	Dependent on Platform
GNSS-Denied Velocity Accuracy (m/s)	0.5	< 0.9	< 0.9, RMS	Dependent on Platform
Jamming and Spoofing Mitigation?	YES	YES	YES	YES
Size (mm)	82 x 40 x 26	Sensor Module: 83 x 100 x 80 Processing Module: 80 x 45 x 134	160 × 141.2 x 61.3	111 x 75 x 92 107 x 68 x 92 (OEM)
Weight (g)	< 200 grams	Sensor Module: 330 Processing Module: 420	1400	480
Input Voltage (V DC)	5-32	9-36	9-36	9-36
Power Consumption (W)	<2 W	10	<10	15
Interfaces	RS-232, RS-422, RS-485	RS-232, RS-422, Ethernet	RS-232, RS-422, CAN, Ethernet, RF	RS-232, RS-422, Ethernet, GPIO, USB 2.0, PPS output, Camera Strobe I/O

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MEMS ACCELEROMETERS

TAA-308 | TAA-315 | TAA-340

	TAA-308	TAA-315	TAA-340
Measurement range	±8 g	±15 g	±40 g
Interface	RS-422 + discrete IOs	RS-422 + discrete IOs	RS-422 + discrete IOs
Bias in-run stability	0.01 mg	0.01 mg	0.02 mg
Bias residual error (in temp. range, RMS)	0.7 mg	0.7 mg	1.2 mg
Bias one-year repeatability	1.3 mg	1.3 mg	1.5 mg
SF accuracy (over temp. range)	300 ppm	300 ppm	500 ppm
SF one-year repeatability	1300 ppm	1300 ppm	1500 ppm
Noise (VRW)	0.035 m/s/√h	0.035 m/s/√h	0.045 m/s/√h
Size	28.5 x 19.5 x 13.6 mm	28.5 x 19.5 x 13.6 mm	28.5 x 19.5 x 13.6 mm
Weight	13 g	13 g	13 g

TAA-308EC | TAA-315EC | TAA-340EC

	TAA-308EC	TAA-315EC	TAA-340EC
Measurement range	±8 g	±15 g	±40 g
Interface	RS-422 + discrete IOs	RS-422 + discrete IOs	RS-422 + discrete IOs
Bias in-run stability	0.003 mg	0.005 mg	0.01 mg
Bias residual error (in temp. range, RMS)	0.2 mg	0.3 mg	0.5 mg
Bias one-year repeatability	0.35 mg	0.45 mg	0.55 mg
SF accuracy (over temp. range)	50 ppm	100 ppm	200 ppm
SF one-year repeatability	200 ppm	400 ppm	550 ppm
Noise (VRW)	0.01 m/s/√h	0.02 m/s/√h	0.03 m/s/√h
Size	28.5 x 19.5 x 13.6 mm	28.5 x 19.5 x 13.6 mm	28.5 x 19.5 x 13.6 mm
Weight	13 g	13 g	13 g

MEMS THREE-AXIS ACCELEROMETERS

	TAA-308	**TAA-315**	**TAA-340**	**TAA-308EC**	**TAA-315EC**	**TAA-340EC**
Measurement range (g)	±8	±15	±40	±8	±15	±40
Interface	RS-422 + discrete IOs	RS-422 + discrete IOs	RS-422 + discrete IOs	RS-422 + discrete IOs	RS-422 + discrete IOs	RS-422 + discrete IOs
Bias in-run stability (mg)	0.005	0.01	0.02	0.003	0.005	0.01
Bias residual error (in temp. range, RMS) (mg)	0.5	0.7	1.2	0.2	0.3	0.5
Bias one-year repeatability (mg)	1.0	1.3	1.5	0.35	0.45	0.55
SF accuracy (over temp. range) (ppm)	150	300	500	50	100	200
SF one-year repeatability (ppm)	500	1300	1500	200	400	550
Noise (VRW) (m/s/√h)	0.015	0.035	0.045	0.01	0.02	0.03
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	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 (g)	13	13	13	13	13	13
Applications	UAV and AUV/ROV navigation and control, platform orientation and stabilization, gimbals, EOC/IR, antennas and line-of-sight systems	UAV and AUV/ROV navigation and control, platform orientation and stabilization, gimbals, EOC/IR, antennas and line-of-sight systems	UAV and AUV/ROV navigation and control, platform orientation and stabilization, gimbals, EOC/IR, antennas and line-of-sight systems	UAV and AUV/ROV navigation and control, platform orientation and stabilization, gimbals, EOC/IR, antennas and line-of-sight systems	UAV and AUV/ROV navigation and control, platform orientation and stabilization, gimbals, EOC/IR, antennas and line-of-sight systems	UAV and AUV/ROV navigation and control, platform orientation and stabilization, gimbals, EOC/IR, antennas and line-of-sight systems

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MEMS GYROSCOPES

TAG-304

Number of Axes	Three
Measurement Range	±2000 °/s
Data Update Rate	4000 Hz
Bias in-run Stability	2°/h (Allan Variance, RMS)
Noise (ARW)	0.2°/√h
Size	19.5 x 15.2 x 5.5 mm
Weight	10 g

TAG-207 | TAG-307

	TAG-207	TAG-307
Number of Axes	Two	Three
Measurement Range	±450 °/s	±450 °/s
Data Update Rate	4000 Hz	4000 Hz
Bias in-run Stability (Allan Variance, RMS)	0.45°/h	0.45°/h
Noise (ARW)	0.06°/√h	0.06°/√h
Size	39 x 45 x 22 mm	39 x 45 x 22 mm
Weight	70 g	70 g

TWO- AND THREE-AXIS GYROSCOPES

	TAG-304	**TAG-207**	**TAG-307**
Number of Axes	Three	Two	Three
Measurement Range (°/s)	±2000	±450	±450
Data Update Rate (Hz)	4000	4000	4000
Bias in-run Stability (Allan Variance, RMS) (°/h)	2	0.45	0.45
Noise (ARW) (°/√h)	0.2	0.06	0.06
Size (mm)	19.5 x 15.2 x 5.5	39 x 45 x 22	39 x 45 x 22
Weight (g)	10	70	70
Applications	Guidance & Navigation, Electro-Optical Systems, Gimbals, Line-Of-Site and Pan & Tilt Platforms stabilization and pointing applications	Anti-Roll Systems, Computer Pointing Devices, Optical Image Stabilization	Three Dimensional Optical Image Stabilization, Virtual Reality

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INERTIAL MEASUREMENT UNITS

KERNEL-100

Gyro Bias in-run Stability (RMS)	2°/h
Gyro Noise (ARW)	0.38°/√h
Accel Bias in-run Stability	0.01 mg (RMS, 8 g)
Pitch & Roll Accuracy	0.05° (Static,RMS)
Accel SF Accuracy (over temp. range)	500 ppm
Size	28.5 x 19.5 x 8.5 mm
Weight	7 g

KERNEL-110 | KERNEL-120

Gyro Bias in-run Stability (RMS)	2°/h
Gyro Noise (ARW)	0.3°/√h
Accel Bias in-run Stability	0.01 mg (RMS, 8 g)
Pitch & Roll Accuracy	0.05° (Static,RMS)
Accel SF Accuracy (over temp. range)	500 ppm
Size	28.38 x 19.5 x 10.5 mm
Weight	10 g

KERNEL-201

Gyro Bias in-run Stability (RMS)	0.7°/h
Gyro Noise (ARW)	0.065°/√h
Accel Bias in-run Stability	0.015 mg (RMS, 8 g)
Accel SF Accuracy (over temp. range)	500 ppm
Size	28.5 x 19.5 x 11.2 mm
Weight	10 g

KERNEL-210 | KERNEL-220

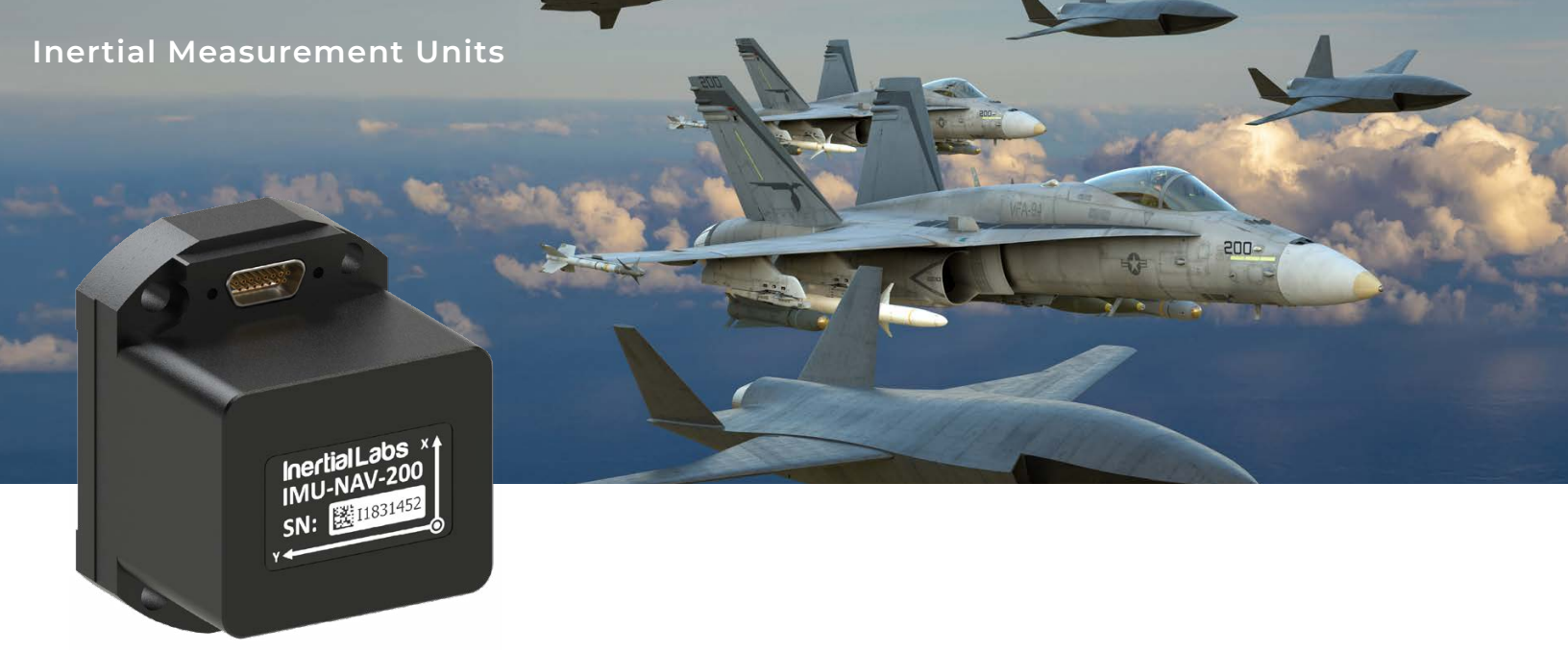
Gyro Bias in-run Stability (RMS)	.1°/h
Gyro Noise (ARW)	0.2°/√h
Accel Bias in-run Stability	0.005 mg (RMS, 8 g)
Pitch & Roll Accuracy	0.05° (Static,RMS)
Accel SF Accuracy (over temp. range)	150 ppm
Size	28.38 x 19.5 x 10.5 mm
Weight	17 g

IMU-P TACTICAL / INDUSTRIAL A, S

	Tactical A	Industrial A	Tactical S	Industrial S
Gyro Bias in-run Stability (RMS)	1°/h	3°/h	0.5°/h	2°/h
Gyro Noise (ARW)	0.2°/√h	0.3°/√h	0.06°/√h	0.1°/√h
Accel Bias in-run Stability	0.005 mg (RMS,8g)	0.01 mg (RMS,8g)	0.005 mg (RMS,8g)	0.01 mg (RMS,8g)
Pitch & Roll Accuracy	0.05° (Static,RMS)	0.05° (Static,RMS)	0.05° (Static,RMS)	0.05° (Static,RMS)
Accel SF Accuracy (over temp. range)	150 ppm	500 ppm	150 ppm	500 ppm
Size	39 x 45 x 22 mm	39 x 45 x 22 mm	39 x 45 x 22 mm	39 x 45 x 22 mm
Weight	70 g	70 g	70 g	70 g

IMU-NAV-100

Gyro Bias in-run Stability (RMS)	0.5°/h
Gyro Noise (ARW)	0.1°/√h
Accel Bias in-run Stability	0.003 mg (RMS, 8g)
Pitch & Roll Accuracy	0.03° (Static, RMS)
Accel SF Accuracy (over temp. range)	150 ppm
Size	62.6 x 47 x 43.5 mm
Weight	155 g



IMU-NAV-200

Gyro Bias in-run Stability (RMS)	0.3°/h
Gyro Noise (ARW)	0.04°/√h
Accel Bias in-run Stability	0.003 mg (RMS, 8g)
Pitch & Roll Accuracy	0.03° (Static, RMS)
Accel SF Accuracy (over temp. range)	150 ppm
Size	47.0 x 62.6 x 43.5 mm
Weight	155 g

IMU-FI-200T

Gyro Noise (ARW)	0.025°/√h (typical)
Accel Bias in-run Stability	0.02 mg (RMS)
Accel SF Accuracy (over temp. range)	500 ppm (over temp. range)
Size	D88.90 x H84.50 mm
Weight	790 g

IMU-H100

Gyro Bias in-run Stability (RMS)	1 °/h
Gyroscopes Measurement range	±2000 deg/sec
Accel Bias in-run Stability	0.03 mg
Accel Bias Repeatability	1.2 mg
Accelerometers Noise (VRW)	0.045 m/sec/√hr
Size	50.8 x 64.8 x 35.6 mm
Weight	160 g

INERTIAL MEASUREMENT UNITS

	Kernel-100	**Kernel-110, 120**	**Kernel-210, 220**	**Kernel-201**	**IMU-H100**	**IMU-P Industrial A**	**IMU-P Industrial S**
Gyro Bias in-run Stability (RMS) (°/h)	2	2	1	0.7	1	3	2
Gyro Noise (ARW)(°/√h)	0.38	0.3	0.2	0.065	0.2	0.3	0.1
Accel Bias in-run Stability (mg) (RMS, 8g)	0.01	0.01	0.005	0.015	0.03	0.01	0.01
Pitch & Roll Accuracy (Static,RMS)	0.05°	0.05° (Static,RMS)	0.05° (Static,RMS)	N/A	N/A	0.05°	0.05°
Accel SF Accuracy (over temp. range) (ppm)	500	500	150	500	150	150	500
Size (mm)	28.5 x 19.5 x 8.5	28.38 x 19.5 x 10.5	28.38 x 19.5 x 10.5	28.5 x 19.5 x 11.2	50.8 x 64.8 x 35.6	39 x 45 x 22	39 x 45 x 22
Weight (g)	7	10	17	10	160	70	70
Applications	Autonomous Vehicles, LoS Stabilization, Micro-UAV Systems	Autonomous Vehicles, LoS Stabilization, Micro-UAV Systems	Autonomous Vehicles, Guidance and Nav, LoS Stabilization, Micro-UAV Systems	Autonomous Vehicles, LoS Stabilization, Micro-UAV Systems	Autonomous Vehicles, LoS Stabilization, Micro-UAV Systems	Anti-Roll Systems, Gimbals, Motion Control Sensors	Anti-Roll Systems, Gimbals, Motion Control Sensors

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	IMU-P Tactical S	**IMU-P Tactical A**	**IMU-NAV-100**	**IMU-NAV-200**	**IMU-FI-200T**
Gyro Bias in-run Stability (RMS) (°/h)	0.5	1	0.5	0.3	N/A
Gyro Noise (ARW) (°/h)	0.06	0.2	0.1	0.04	0.025
Accel Bias in-run Stability (RMS, 8g) (mg)	0.005	0.005	0.003	0.003	0.02
Pitch & Roll Accuracy (Static, RMS)	0.05°	0.05°	0.03°	0.03°	N/A
Accel SF Accuracy (over temp. range) (ppm)	150	150	150	150	500
Size (mm)	39 x 45 x 22	39 x 45 x 22	62.6 x 47 x 43.5	47.0 x 62.6 x 43.5	D88.90 x H84.50
Weight (g)	70	70	155	155	790
Applications	Anti-Roll Systems, Gimbals, Motion Control Sensors	Electro-Optical Components (EOC/IR), Orientation Control, Platform Stabilization	Antenna and Line of Sight Stabilization Systems, UAV & AUV/ROV navigation and control	Guidance & Navigation in GPS-denied environments	Tactical Navigation. Medium accuracy gyrocompassing

ATTITUDE AND HEADING REFERENCE SYSTEMS

miniAHRS

Heading Accuracy	0.3° static / 0.6° dynamic
Pitch & Roll Accuracy	0.05° static / 0.08° dynamic
Gyroscopes	2°/h Bias in-run stability
Accelerometers	0.01mg Bias in-run stability
Magnetometer	Embedded Fluxgate Magnetic Compass
Size	53 × 19 × 13 mm
Weight	20 g

AHRS-10B | AHRS-10P

	AHRS-10B	AHRS-10P
Heading Accuracy	0.3° static / 0.6° dynamic	0.3° static / 0.6° dynamic
Pitch & Roll Accuracy	0.05° static / 0.08° dynamic	0.03° static / 0.05° dynamic
Gyroscopes	2°/h Bias in-run stability	1°/h Bias in-run stability
Accelerometers	0.01mg Bias in-run stability	0.005mg Bias in-run stability
Magnetometer	Embedded Fluxgate Magnetic Compass	Embedded Fluxgate Magnetic Compass
Size	90 × 27 × 26 mm	90 × 27 × 26 mm
Weight	77 g	84 g

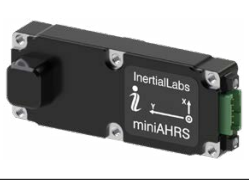
AHRS-II-P

Heading Accuracy	0.3° static / 0.6° dynamic
Pitch & Roll Accuracy	0.03° static / 0.05° dynamic
Gyroscopes	1°/h Bias in-run stability
Accelerometers	0.005mg Bias in-run stability
Magnetometer	Embedded Fluxgate Magnetic Compass
Size	120 x 50 x 53 mm
Weight	280 g

OptoAHRS-II

Heading Accuracy	<0.2° static
Pitch & Roll Accuracy	0.05° static
IMU	MEMS, Tactical-grade (1°/h)
Camera Type	Single or Dual Day/Night (Infrared)
Magnetometer	Embedded Fluxgate Magnetic Compass
Size	172.2 × 80.5 × 55 mm
Weight	784 g

ATTITUDE AND HEADING REFERENCE SYSTEMS

					
	AHRS-10B	**AHRS-10P**	**AHRS-II-P**	**miniAHRS**	**OptoAHRS-II**
Heading Accuracy	0.3° static / 0.6° dynamic	0.3° static / 0.6° dynamic	0.3° static / 0.6° dynamic	0.3° static / 0.6° dynamic	<0.2° static
Pitch & Roll Accuracy	0.05° static / 0.08° dynamic	0.03° static / 0.05° dynamic	0.03° static / 0.05° dynamic	0.05° static / 0.08° dynamic	0.05° static
Gyroscopes (bias in-run stability) (°/h)	2	1	1	2	N/A
Accelerometers	0.01mg Bias in-run stability	0.005mg Bias in-run stability	0.005mg Bias in-run stability	0.01mg Bias in-run stability	N/A
Magnetometer	Embedded Fluxgate Magnetic Compass	Embedded Fluxgate Magnetic Compass	Embedded Fluxgate Magnetic Compass	Embedded Fluxgate Magnetic Compass	Embedded Fluxgate Magnetic Compass
Size (mm)	90 × 27 × 26	90 × 27 × 26	120 x 50 x 53	53 × 19 × 13	172.2 × 80.5 × 55
Weight (g)	77	84	280	20	784
Applications	Industrial Platform Stabilization, Industrial Pointing, Rapidly Rotating Platform	Tactical Pointing & Stabilization, Tactical-Grade Magnetic and True North Finding	Dynamic Motion Control, Navigation Aiding/Filtering Solution	Fire Control for Low Caliber Artillery, UAV	Antenna Pointing, Simulation & Training of Indirect Fire Control

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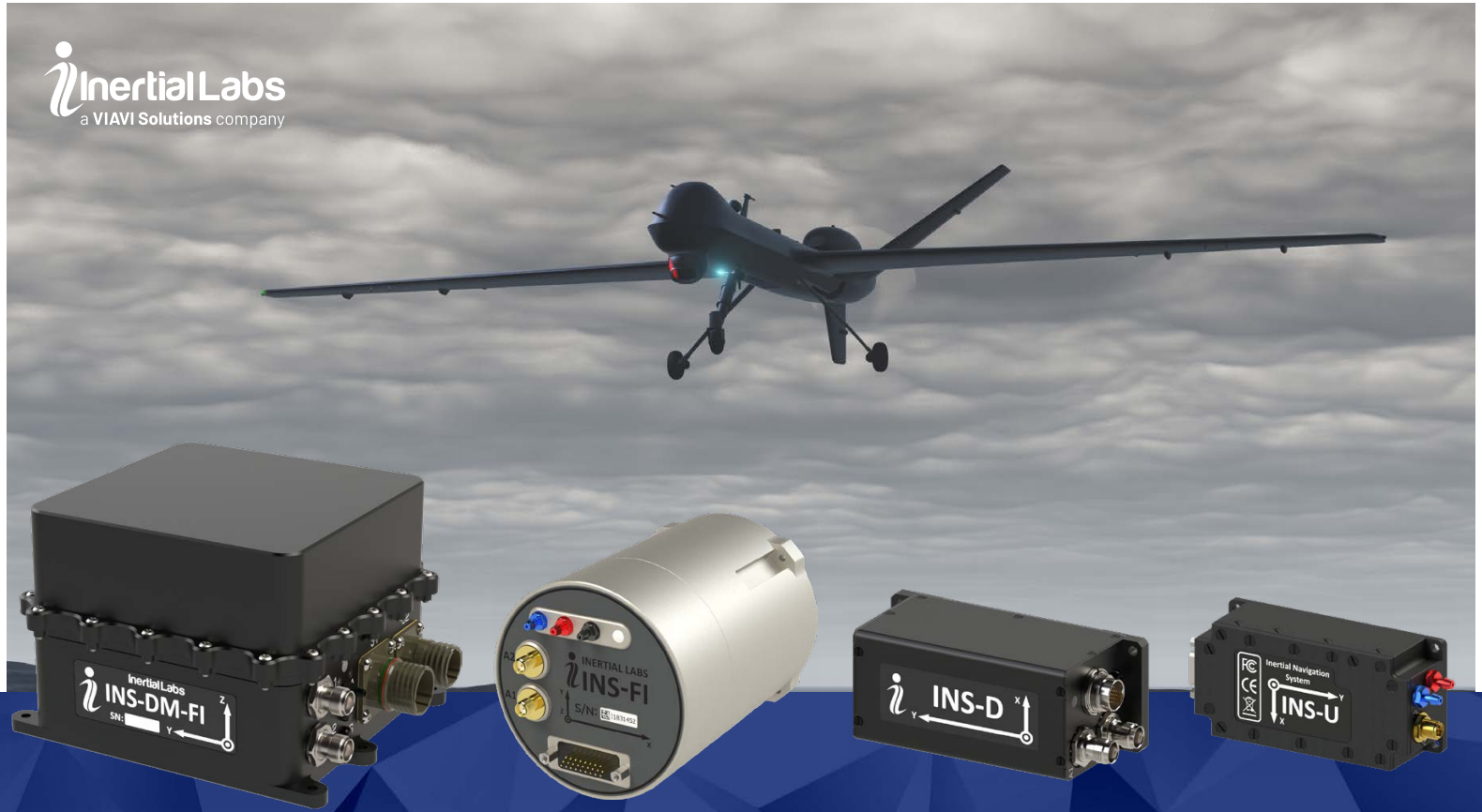


INERTIAL NAVIGATION SYSTEMS

CHEETAH NAV

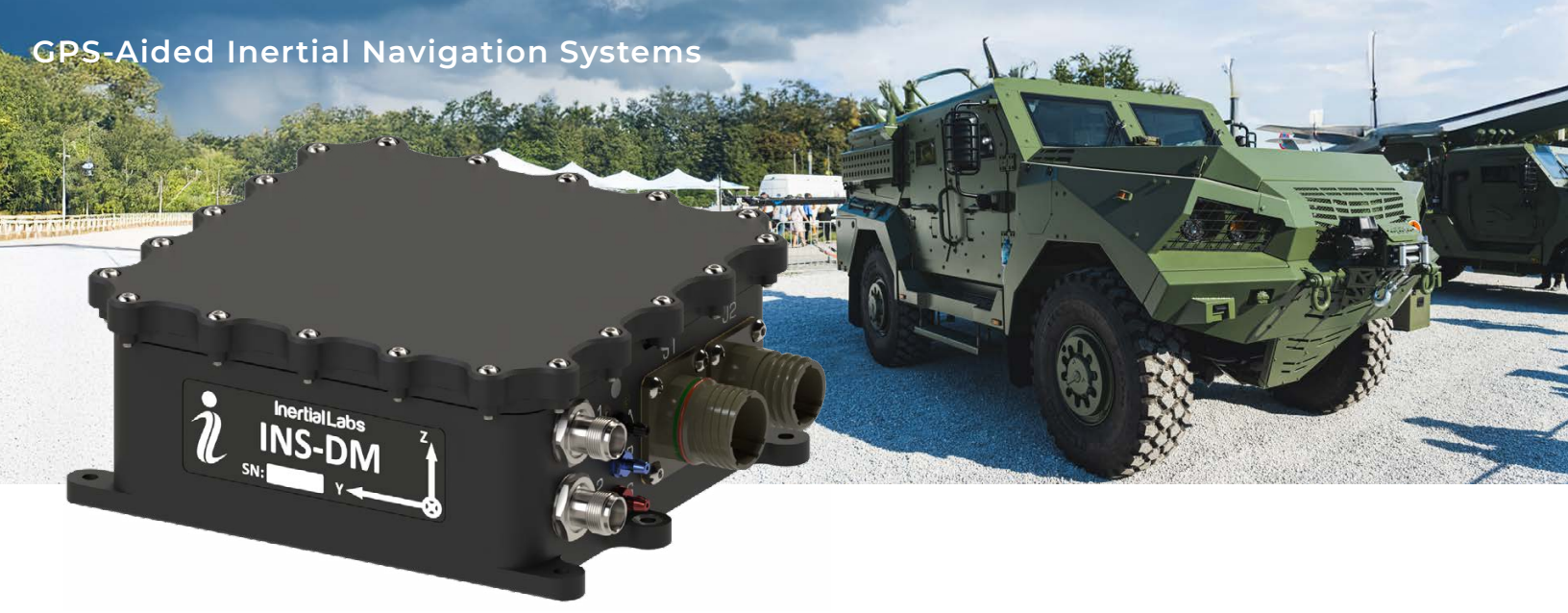
Heading Accuracy	3 MIL (INS-B); 1 MIL (INS-D)
Position Accuracy	1 cm (RTK), 2.5 cm (PPP), 60 cm (SBAS)
Pitch & Roll Accuracy	0.5 MIL
GNSS Constellations	BDS, GAL, GLO, GPS, QZSS, IRNSS (NavIC)
Corrections	DGPS, PPK, PPP, RTK, SBAS
Type of IMU	MEMS, Tactical-grade, FOG IMU Optional
Magnetometer	External 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

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

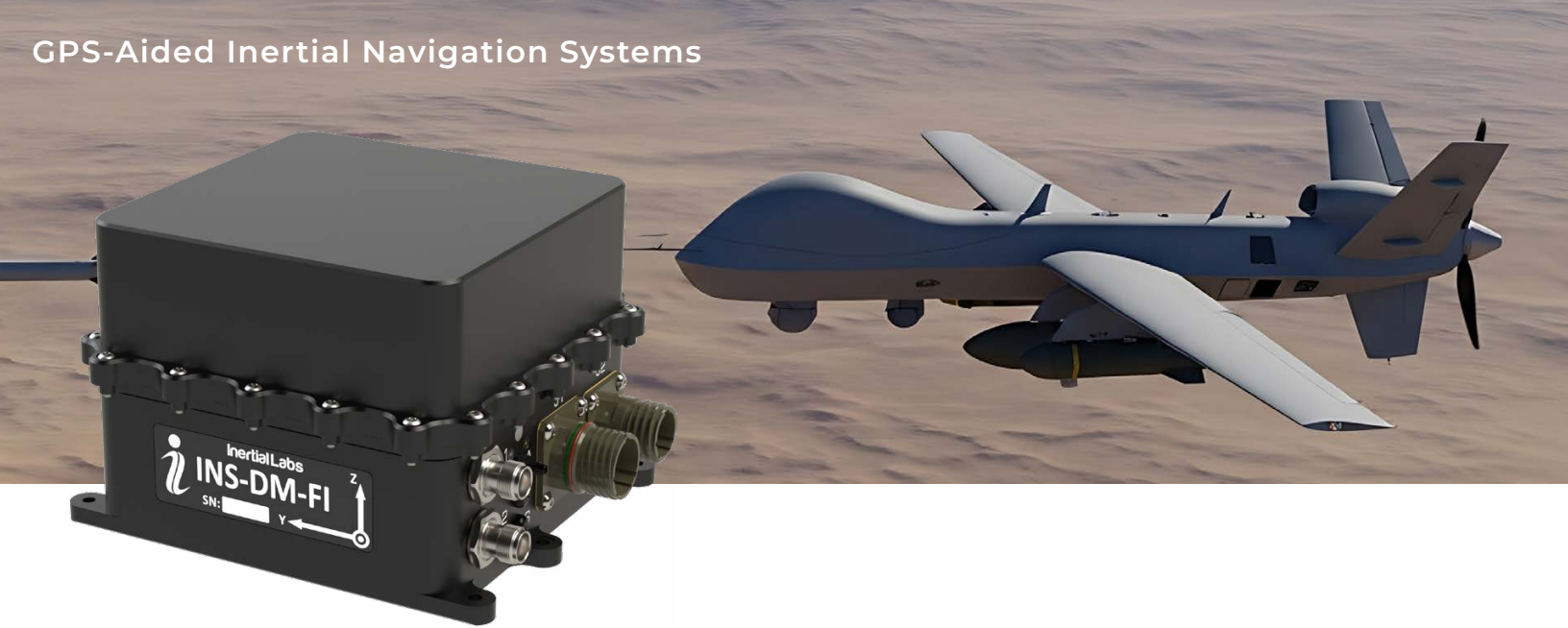
INS-P | INS-B

	INS-P	INS-B
Heading Accuracy	0.3° static, 0.1° dynamic	1° static, 0.1° dynamic
Position Accuracy	1 cm (RTK), 2.5 cm (PPP), 60 cm (SBAS)	1 cm (RTK), 2.5 cm (PPP), 60 cm (SBAS)
Pitch & Roll Accuracy	0.05° static / 0.03° dynamic	0.05° static / 0.03° dynamic
GNSS Constellations	BDS, GAL, GLO, GPS, QZSS	BDS, GAL, GLO, GPS, QZSS
Corrections	DGPS, PPK, PPP, RTK, SBAS	DGPS, PPK, PPP, RTK, SBAS
Type of IMU	MEMS, Tactical-grade	MEMS, Tactical-grade
Magnetometer	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
Weight	280 g	220 g



INS-DM

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	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



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

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

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

M-AJ-QUATRO PRIME

Bands	GNSS L1, L2, L5, Optional: L6 & LEO IRIDIUM
Polarization	RHCP (AR< 3dB above 15° elevation)
Gain	2dBic > 15° elevation
Interference sources	3
Suppression level	up to 70 dB
Interference types	Wideband, in-band
Antenna Module Size	140 x 140 x 43 mm

INERTIAL NAVIGATION SYSTEMS

	INS-B	**INS-P**	**INS-D**	**INS-DL**	**INS-DU**
Heading Accuracy	1° static / 0.1° dynamic	0.3° static / 0.1° 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), 2.5 (PPP), 60 (SBAS)	1 (RTK), 2.5 (PPP), 60 (SBAS)	1 (RTK), 2.5 (PPP), 60 (SBAS)	1 (RTK), 60 (SBAS)	1 (RTK), 0.5 (PPK), 60 (SBAS)
Pitch & Roll Accuracy	0.05° static / 0.03° dynamic	0.05° static / 0.03° 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
Corrections	DGPS, PPK, PPP, RTK, SBAS	DGPS, PPK, PPP, RTK, SBAS	DGPS, PPK, PPP, RTK, SBAS	PPK, RTK, SBAS	PPK, RTK, SBAS
Type of IMU	MEMS, Tactical-grade	MEMS, Tactical-grade	MEMS, Tactical-grade	MEMS, Industrial-grade	MEMS, Industrial-grade
Magnetometer	External Magnetic Compass (optional)	Embedded Fluxgate Magnetic Compass	External Magnetic Compass (optional)	External Magnetic Compass (optional)	Embedded Fluxgate Magnetic Compass
Size (mm)	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)	220	280	320	320	320
Applications	UGV, Land Vehicle Navigation, Lightweight AGV, Post Processed Imagery	Extended GNSS-Denied Navigation, UAS, North Finding & Keeping	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

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	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

MOTION REFERENCE UNITS

MRU-B1 | MRU-B1.1 | MRU-B2

	MRU-B1	MRU-B1.1	MRU-B2
Output Signals	Heave, Surge and Sway	Pitch and Roll	Heave, Surge, Sway, Pitch and Roll
Heave Accuracy	5% or 5 cm (RMS)		5% or 5 cm (RMS)
Pitch & Roll Accuracy	N/A	0.02° (RMS)	0.02° (RMS)
Size	120 x 50 x 53 mm	120 x 50 x 53 mm	120 x 50 x 53 mm
Weight	220 g	220 g	220 g

MRU-E | MRU-P | MRU-PD

	MRU-E	MRU-P	MRU-PD
Output Signals	Heave, Surge, Sway, Heading, Pitch and Roll	Heave, Surge, Sway, Heading, Pitch, Roll, Position and Velocity	Heave, Surge, Sway, Pitch, Roll, Dual Antenna Heading, Position and Velocity
Heave Accuracy	5% or 5 cm (RMS)	5% or 5 cm (RMS)	5% or 5 cm (RMS)
Heading Type	Embedded Fluxgate Magnetometer.	Embedded Fluxgate Magnetometer.	Dual Antenna GNSS, External Magnetic Compass (optional)
Pitch & Roll Accuracy	0.02° (RMS)	0.02° (RMS)	0.02° (RMS)
Heading Accuracy	0.6° (RMS)	0.4 ° (wRMS)	0.05 °(RMS)
Position Accuracy	N/A	40 cm (DGPS), 1 cm (RTK)	40 cm (DGPS),1 cm (RTK)
Size	120 x 50 x 53 mm	120 x 50 x 53 mm	120 x 50 x 53 mm
Weight	280 g	320 g	320 g

WS-E | WS-PD

	WS-E	WS-PD
Output Signals	Wave Energy, Spectral Data, Fourier Coefficients, Attitude.	Wave Energy, Spectral Data, Fourier Coefficients, Attitude, Position and Velocity
Heading Type	Embedded Fluxgate Magnetometer.	Dual Antenna GNSS
Pitch & Roll Accuracy	0.02° (RMS).	0.02° (RMS)
Heading Accuracy	0.6 °(RMS).	0.05 °(RMS)
Position Accuracy	N/A.	40 cm (DGPS), 1 cm (RTK)
Size	120 x 50 x 53 mm.	120 x 50 x 53 mm
Weight	320 g.	320 g

MOTION REFERENCE UNITS

	MRU-B1	**MRU-B1.1**	**MRU-B2**	**MRU-E**	**MRU-P**	**MRU-PD**	**WS-E**	**WS-PD**
Output Signals	Heave, Surge and Sway	Pitch and Roll	Heave, Surge, Sway, Pitch and Roll	Heave, Surge, Sway, Heading, Pitch and Roll	Heave, Surge, Sway, Heading, Pitch, Roll, Position and Velocity	Heave, Surge, Sway, Dual Antenna Heading, Pitch, Roll, Position and Velocity	Wave Energy, Spectral Data, Fourier Coefficients, Attitude	Wave Energy, Spectral Data, Fourier Coefficients, Attitude, Position and Velocity
Heave Accuracy	5% or 5 cm (RMS)	N/A	5% or 5 cm (RMS)	5% or 5 cm (RMS)	5% or 5 cm (RMS)	5% or 5 cm (RMS)	-	-
Heading Type	N/A	N/A	N/A	Embedded Fluxgate Magnetometer	Embedded Fluxgate Magnetometer	Dual Antenna GNSS, External Magnetic Compass (optional)	Embedded Fluxgate Magnetometer	Dual Antenna GNSS
Pitch & Roll Accuracy (RMS)	N/A	0.02°	0.02°	0.02°	0.02°	0.02°	0.02°	0.02°
Heading Accuracy (RMS)	N/A	N/A	N/A	0.6°	0.4°	0.05°	0.6°	0.05°
Size (mm)	120 x 50 x 53	120 x 50 x 53	120 x 50 x 53	120 x 50 x 53	120 x 50 x 53	120 x 50 x 53	120 x 50 x 53	120 x 50 x 53
Weight (gram)	220	220	220	280	320	320	320	320
Applications	Marine Loading Dock, Platform Heave Compensation	Crane Rotation Compensation, Nearshore Drilling Platform	Survey Vessel Motion Analysis, Offshore Refinery Motion Control	Marine Antenna Pointing, Helideck Stabilization Monitoring	Cargo Transfer Stabilization, DP-1/2/3 Buoys, Small Craft Positioning	Vessel Navigation, Autonomous Survey Craft, Dynamic Positioning System	Research Buoy, Wave Direction and Energy Analysis	Wave and Ocean Surge Tracking, Ocean Current and Tide Analysis

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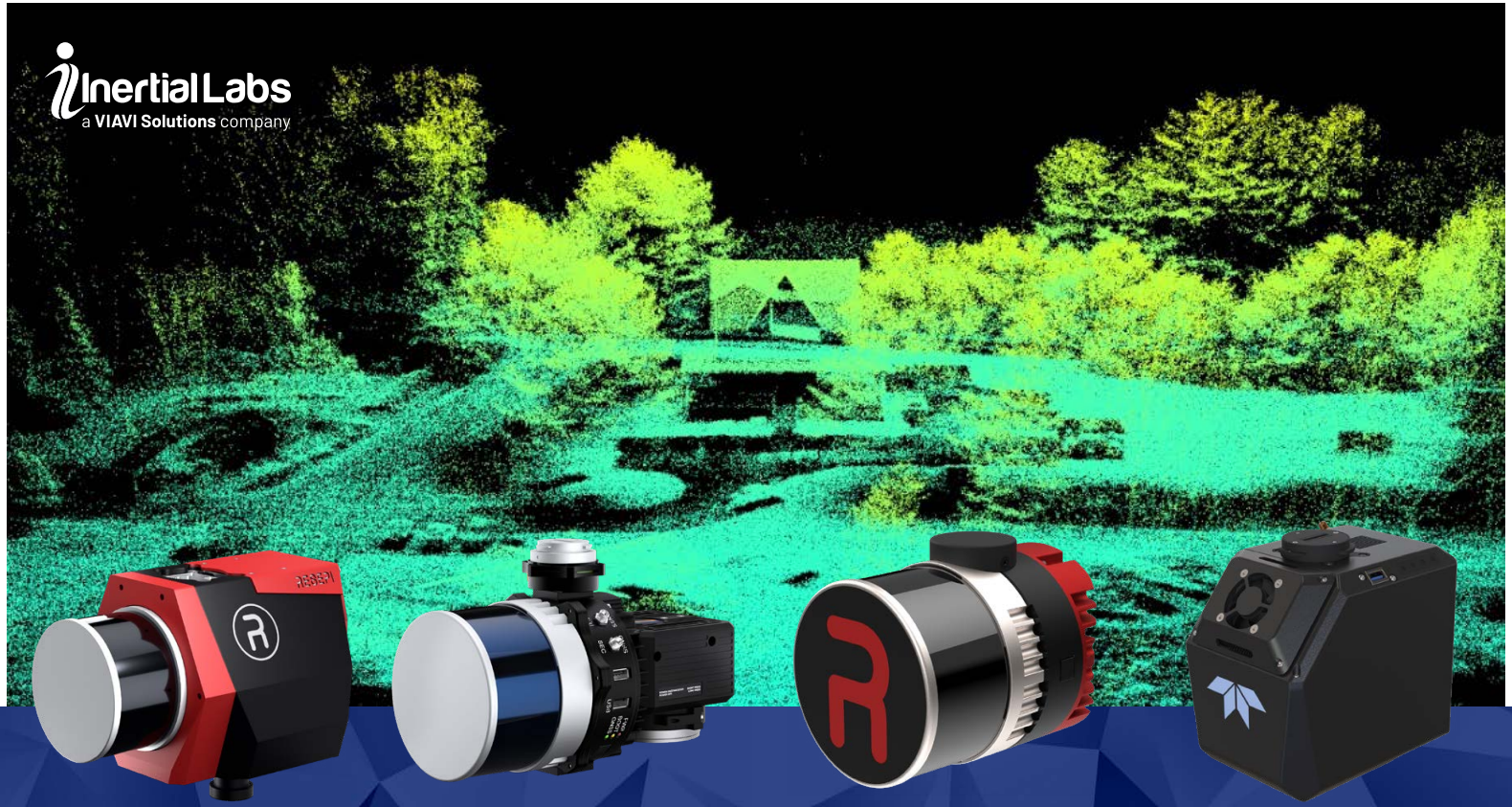
RAILWAY MOTION CONTROL UNIT

RMCU

Heading Accuracy	0.3° static / 0.6° dynamic
Pitch & Roll Accuracy	0.05° static / 0.08° dynamic
Gyroscopes	<2°/h Bias in-run stability
Accelerometers	0.005 mg Bias in-run stability (8g)
Magnetometer	Mini Fluxgate Magnetometer
Applications	Railway, Monitoring, Navigation Safety
Certifications	EN 45545, EN 50155, EN 50011
Size	129 × 53 × 49 mm
Weight	120 g



REMOTE SENSING PAYLOAD INSTRUMENT

Remote Sensing Payload Instrument

TELEDYNE EchoONE

System Accuracy (max. achievable)	1.5 cm
Example Area Coverage	814 acres / 329 ha
Range Accuracy/Precision	10 mm / 5 mm
Recommended AGL	Up to 175 m
Max Flight Time (DJI M350)	33 minutes
Storage	Internal 512GB SSD and Removable USB
Camera	Embedded 5MP, External 61 MP

RESEPI™ GEN-II

RGB Camera Option	Sony ILX-LR1 61MP
System Accuracy (max. achievable)	2 cm
Data Internal Precision (max. achievable)	2 cm
Features	Flex Configuration, Sensor Expansion, Real-time Protocol, Dual-Antenna, MMS, SLAM Onboard Storage (SSD)External Data Comm (MAVLink, DJI PSDK), RESEPI SnapFit Interface
Weight	1.7 kg

RESEPI™ Ultra LITE

RGB Camera Option	OEM 5 MP
System Accuracy (max. achievable)	2 cm
Data Internal Precision (max. achievable)	2 cm
Features	MMS, SLAM, Backpack/Handheld Kit
Weight	1.2 kg

RESEPI™ LITE

RGB Camera Option	Sony A5100 OEM 24MP
System Accuracy (max. achievable)	2 cm
Data Internal Precision (max. achievable)	2 cm
Features	Flex Configuration, Dual-Antenna, MMS, SLAM, Backpack/Handheld Kit
Weight	0.9 - 4.3 kg

REMOTE SENSING PAYLOAD INSTRUMENT

Technology Architecture	RESEPI GEN-II	RESEPI LITE	RESEPI LITE	TELEDYNE EchoONE
Available Laser Scanner	Ouster OS1-64 M2X	Teledyne CL-360HD, VLP-32 M2X, Ouster OS1-64, XT32, Livox Avia	XT32	Teledyne Geospatial
RGB Camera Option	Sony ILX-LR1 61MP	Sony A5100 OEM 24MP	OEM 5MP	5MP Global Shutter Optional: Sony ILX-LR1
System Accuracy	2 cm	2 cm	2 cm	1.5 cm
Data Internal Precision	2 cm	2 cm	2 cm	0.5 cm
Flex Configuration	+	+		
Sensor Expansion	+			
Real-time Protocol	+			+
Dual-Antenna	+	+		+
MMS	+	+	+	
SLAM	+	+	+	
Backpack / Handheld Kit	+	+	+	
Onboard Storage (SSD)	+			+
RESEPI SnapFit Interface	+		+	+
Weight	1.7 kg	0.9 - 4.3 kg	1.2 kg	1.65 kg

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rev-1.4_Oct_8_2026