LPMS-IG1

LPMS Low-Drift, Low-Noise Inertial Measurement Unit (IMU) with CAN Bus / RS232 Connectivity

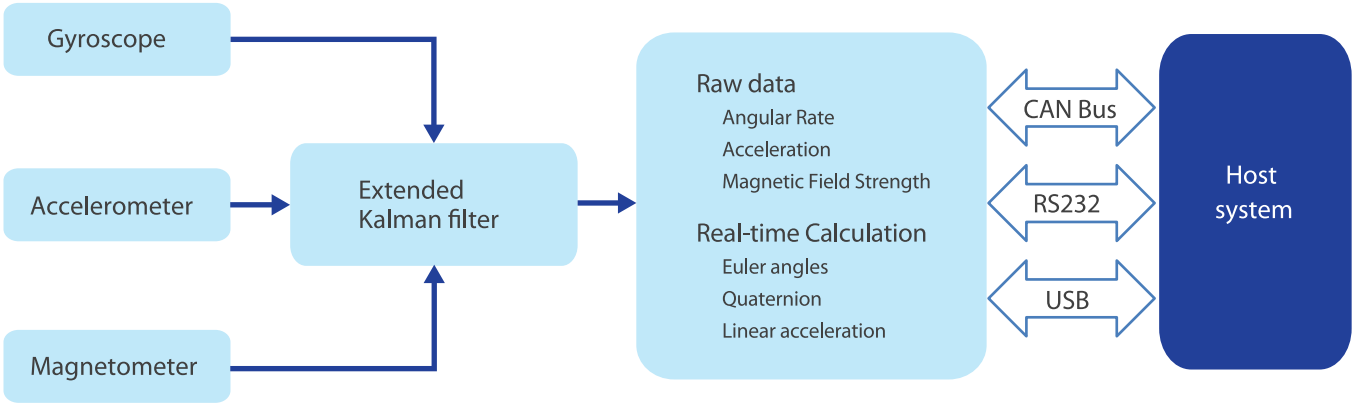
The LPMS-IG1 is a 9-axis inertial measurement unit (IMU) offering high precision orientation and linear acceleration measurements in an IP67-rated enclosure. It is equipped with a powerful central processing unit fusing raw data from gyroscope, accelerometer, magnetometer to calculate results on the fly with low drift and high accuracy. LPMS-IG1 perfectly fits application cases in an industrial environment where motion measurements with high precision and low latency are required.

Key Features

- MEMS-based 9-axis inertial measurement unit (IMU) with on-board sensor fusion
- Very low-noise gyroscope for low-drift measurements with a bias stability of 4°/hour
- Dual gyroscope mode with additional high-range gyroscope for measurements above 400°/s up to 2000°/s
- Real-time, on-device calculation of sensor orientation and linear acceleration
- CAN bus (partial CANopen support) or RS232 communication interface options. All models include a USB connection.
- IP67 rated housing (dustproof and waterproof)
- Versatile software and library support for data acquisition and sensor configuration

Potential Applications

- Robotic manipulator forward kinematics control
- Automotive dead reckoning
- Object orientation tracking for VR/AR
- Automatic guided vehicle (AGV) navigation



For pricing or any further information, please contact Omni Instruments Ltd.

Measurement and data acquisition solutions

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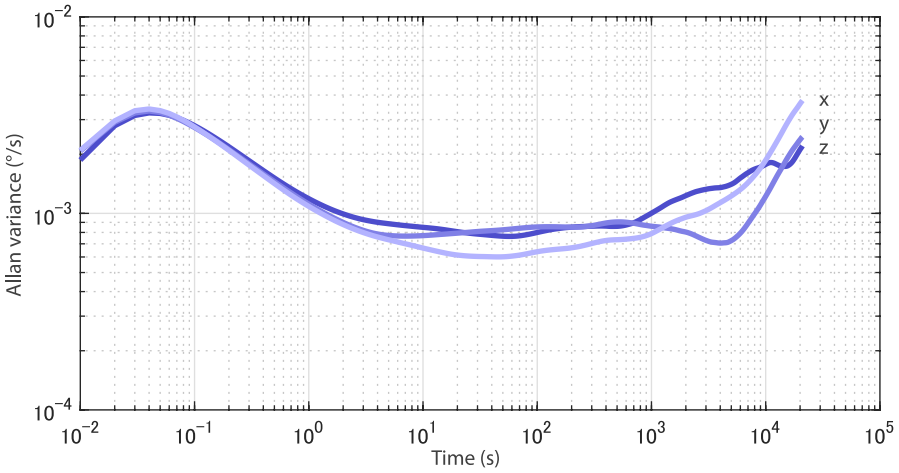
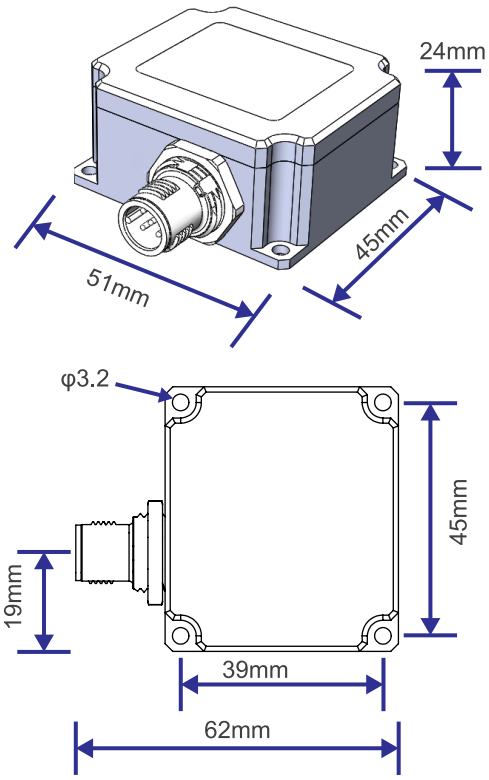
Sensor Specifications

Product name	LPMS-IG1 CAN	LPMS-IG1 RS232
Wired interface	CAN Bus, USB	RS232, USB
Baudrate	1M bit/s	921600 bit/s
Communication protocol	LP-CAN / CANopen	LP-BUS
Size	51 x 45 x 24 mm	
Weight	74 g	
Orientation range	Roll: ±180°; Pitch: ±90°; Yaw: ±180°	
Orientation resolution	0.01°	
Accelerometer	3-axis, ±2 / ± 4 / ± 8 / ± 16 g, 16 bits	
Gyroscope	Dual gyroscope design: #1: 3-axis, ± 400, 24 bits #2: 3-axis, ± 1000 / ± 2000 dps, 16 bits	
Static orientation stability	#1: 4 °/hour, #2: 6 °/hour	
Gyroscope noise density	#1: 0.002 dps/√Hz, #2: 0.004 dps/√Hz	
Magnetometer	3-axis, ±2 / ±8 gauss, 16 bits	
Data output format	Raw data / Euler angle / Quaternion	
Data output rate	5 ~ 500 Hz	
Power consumption	≤400 mW @12 V	
Power supply	5 V ~ 24 V DC	
Connector	Signal connector: M12	
Housing	Aluminum, IP67 rated	
Temperature range	-20 ~ +80°C	

LPMS-IG1 High Precision Gyroscope (#1) Allan Variance Plot



Mechanical Drawing



Package Contents

- LPMS-IG1 sensor x 1
- User guide card x 1
- Cable x 1
- Box x 1
- Warranty (1 year)

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