

LPMS-ME1

LPMS-ME1: Miniature 9-Axis Inertial Measurement Unit (IMU) / AHRS with UART, i2c and SPI Connectivity

LPMS-ME1 is a high performance miniature inertial measurement unit (IMU) with multiple communication interfaces. Integrating UART, i2c and SPI in the same unit LPMS-ME1 perfectly fits both machine and human motion measurements for size and cost sensitive applications. LPMS-ME1 is our most small-scale sensor solution, consisting only of a 12-by-12mm multi-layer PCB to be integrated into a user's design as a surface-mounted component.

For easy creation of hardware and software designs based on LPMS-ME1, we offer a development kit that allows LPMS-ME1 to be directly connected to a PC via USB. In this way all sensor parameters can be adjusted using our LPMS-Control application. Furthermore, the board has a pin header for convenient access of all relevant sensor pins.

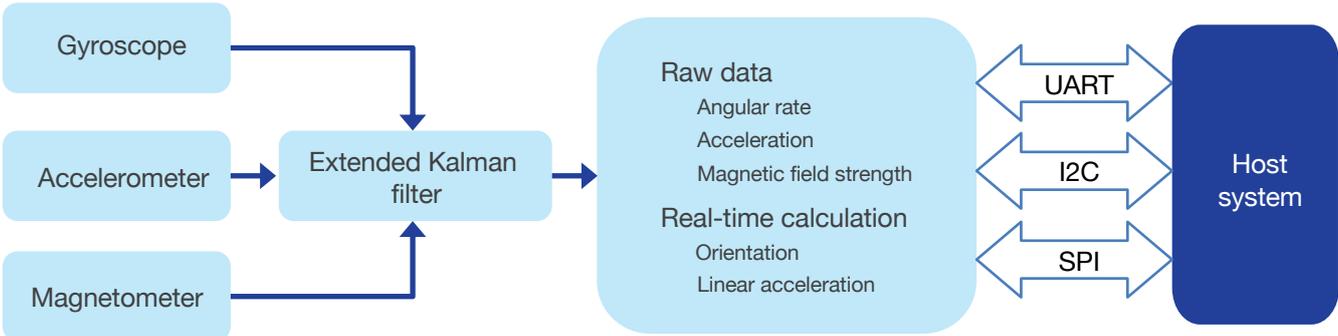


Key Features

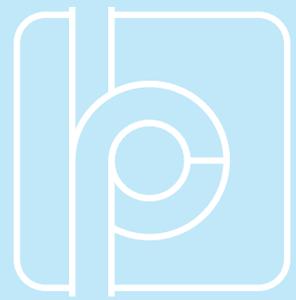
- MEMS-based miniature inertial measurement unit (IMU)
- Integration of 3-axis gyroscope, accelerometer, magnetometer, temperature and barometric pressure sensor in one unit
- Maker edition SMD version without enclosure
- Real-time, on-device calculation of sensor orientation, linear acceleration and altitude
- Data output rates of up to 400Hz
- Interfaces: UART, I2C, SPI
- Development kit with USB interface available

Applications

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



NOTE: Diagram is simplified. Please ask us, if you need more detailed information.



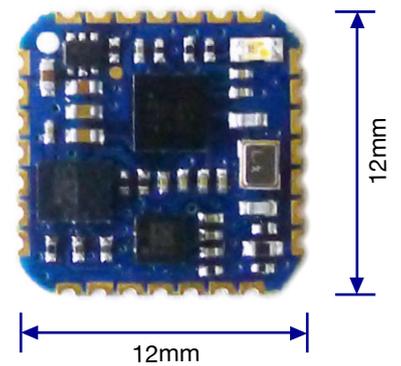
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Sensor Specifications

	LPMS-ME1
Size	12.0×12.0×2.6mm
Weight	0.3g
Orientation range	Roll: ±180°; Pitch: ±90°; Yaw: ±180°;
Resolution	<0.01°
Accuracy	< 0.5°(static), < 2° RMS (dynamic)
Accelerometer	3-axis, ±2 / ± 4 / ± 8 / ± 16 g, 16 bits
Gyroscope	3-axis, ± 125 / ± 245 / ± 500 / ± 1000 / ± 2000 dps, 16 bits
Static orientation stability	9 °/hour
Gyroscope noise density	0.007 dps/√Hz
Magnetometer	3-axis, ± 4 / ± 8 / ± 12 / ± 16 gauss, 16 bits
Data output format	Raw data / Euler angle / Quaternion
Power Consumption (100Hz, UART)	<20mA @ 3.3V
Power supply	3.3-5.5V DC
Temperature	-40~+80°C
Interface	UART, I2C, SPI

NOTE: For detailed specifications, please refer to our product manuals.

Mechanical Drawing



LPMS-ME1 Development Kit



NOTE: LPMS-ME1 DK needs to be ordered separately.

Package

- LPMS-ME sensor x 1
- User guide card x 1
- Warranty (1 year)