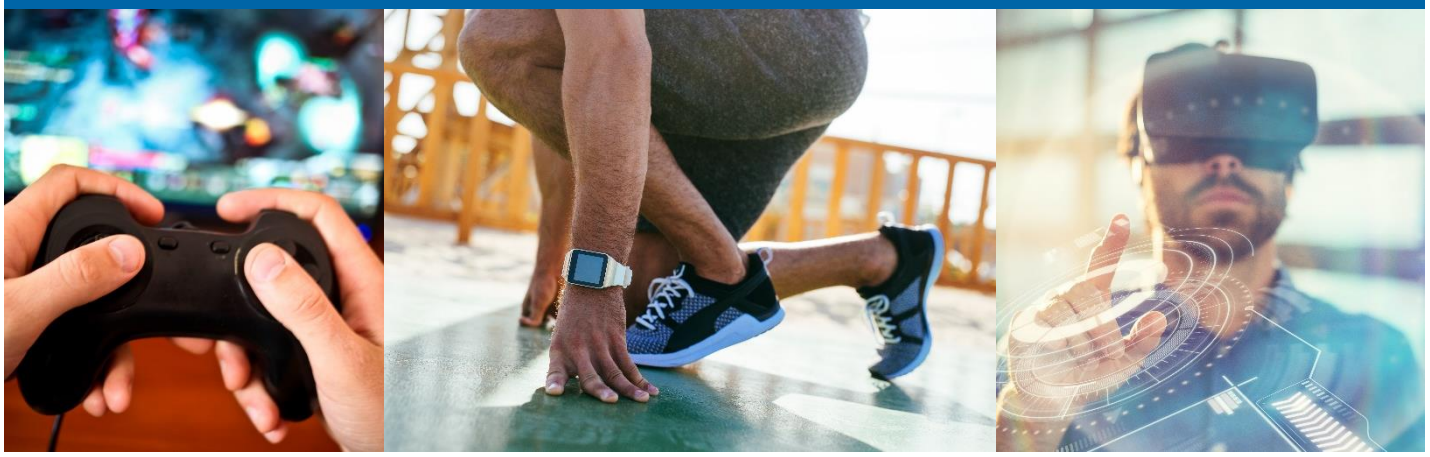
Motion & Measurement Modules
9-Axis and 10-Axis

Simplify development with embedded sensor fusion algorithms



PNI's motion and measurement modules provide accurate heading and orientation data in a small, low-power and easy-to-integrate package.

The M&M modules are small form-factor boards that integrate PNI's ultra-low-power SENtral or SENtral-A2 motion coprocessors with embedded sensor fusion algorithms and motion sensors. The PNI M&M modules allow developers to focus on creating innovative end-applications rather than the sensor fusion algorithms.

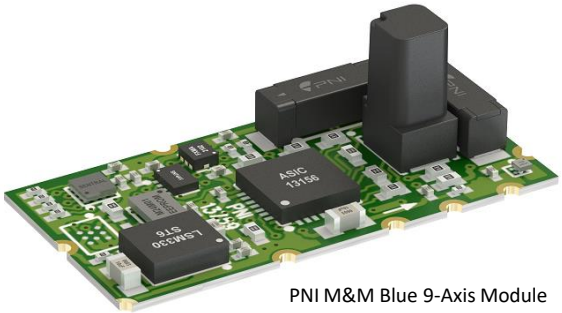
Unlike other inertial measurement units (IMUs) requiring extensive sensor fusion algorithm development and sensor calibration work, the M&M modules are pre-engineered to provide high accuracy motion tracking, heading and environmental data – at a fraction of the power used by a general-purpose microprocessor.

PNI M&M Blue 9-Axis module includes: SENtral, RM3100 magnetic sensor, and ST LSM330 Accel/Gyro (part number: 13759).

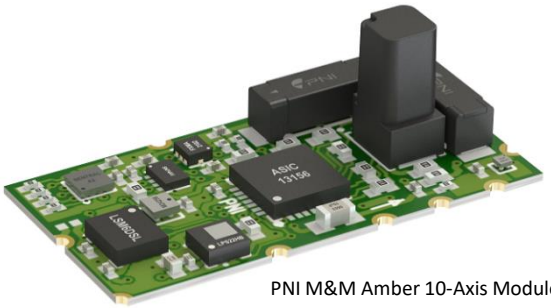
PNI M&M Amber 10-Axis module includes: SENtral-A2, RM3100 magnetic sensor, ST LSM6DSL Accel/Gyro and ST LPS25H pressure sensor (part number: 14047).

Features & Benefits

- Low power consumption provides ability to manage the tradeoff between power consumption and motion tracking performance
- Unparalleled heading accuracy for consumer electronics applications
- Continuous hard and soft-iron auto-calibration reduces magnetic distortion and ensures accuracy over time
- Magnetic anomaly compensation so heading and motion tracking is unaffected by a transient magnetic anomaly



PNI M&M Blue 9-Axis Module



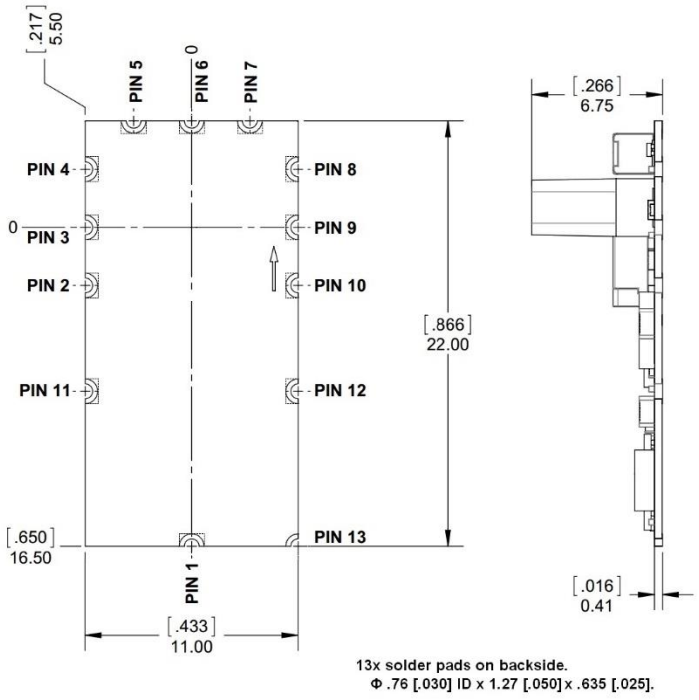
PNI M&M Amber 10-Axis Module

Technical Specifications*

Outputs	M&M Blue	Heading, Pitch & Roll, Rotation Matrix Quaternions, Sensor Data	
	M&M Amber	Above plus Barometric Pressure, Rotational Velocity, Step Count, Linear Acceleration	
Operating Parameters	Min	Max	Units
Digital Supply Voltage	1.71	3.6	VDC
Analog Supply Voltage	2.4	3.6	VDC
I^2C Interface Data Rate	Host Bus	3400	kbits/sec
	Sensor Bus	1000	kbits/sec
	Pass-Through	400	kbits/sec
Operating Temperature	-40°	+85°	C

Dimensions in [inches] mm

PIN	FUNC
1	N/C
2	DVDD
3	SCLS
4	GPIO6
5	SDAS
6	GPIO4
7	AVDD
8	GND
9	SDAM
10	SCLM
11	GND
12	N/C
13	N/C



With over 30 years of experience, PNI is the world's foremost expert in precision location, motion tracking, and fusion of sensor systems into real-world applications.

PNI's sensors and algorithms serve as the cornerstone of successful IoT projects and other mission-critical applications where pinpoint location, accuracy, and low power consumption are essential.

Building on decades of patented sensor and algorithm development, PNI offers the industry's highest-performance geomagnetic sensor in its class, location and motion coprocessors, high-performance modules, sensor fusion algorithms, and complete sensor systems.

To learn more, please visit www.pnicorp.com.

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*Specifications are subject to change.

M&M Modules 6-25-2020