



## Simplify your development with SENtral M&M modules.

The M&M modules are small form factor boards that integrate PNI's ultra-low power SENtral motion co-processor with embedded sensor fusion algorithms and sensors from many different manufacturers. SENtral M&M modules allow designers to focus on creating innovative end-applications rather than on complex mathematical functions required for optimal sensor fusion algorithms.

### Comes with algorithms embedded on SENtral

- 9- and 6-axis Rotational Fusion
- Heading, pitch and roll
- High-accuracy accelerometer based step-counting
- Significant motion
- Tilt
- Barometric pressure and more.....

### Plug-and-play small form factor board

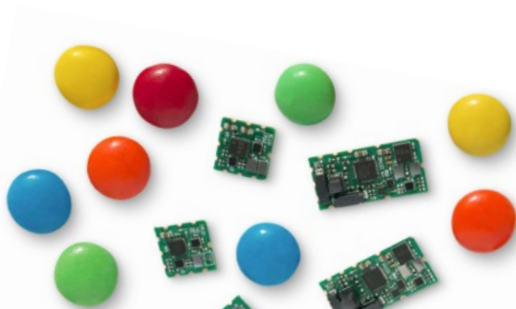
Current family of M&M modules include

- Gyroscope
- Accelerometer
- Geomagnetic sensor
- Barometric pressure

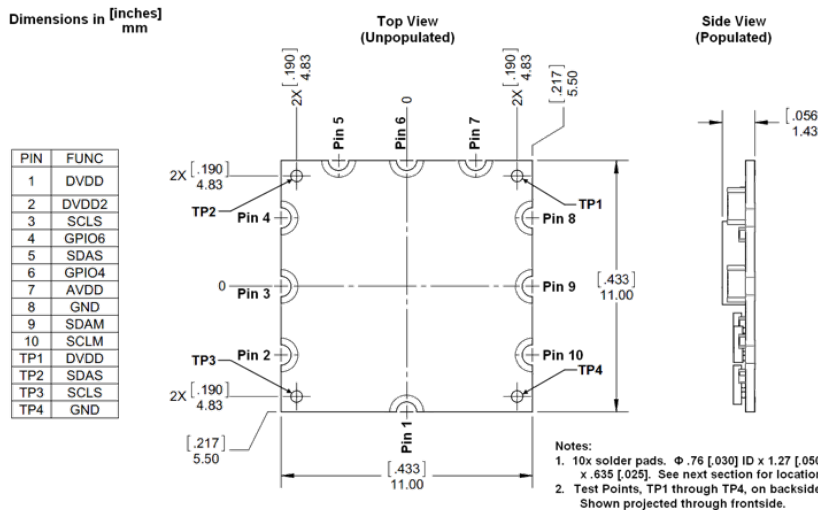
Look for additional environmental sensors in future M&M module releases.

### About SENtral

SENtral is a motion coprocessor that functions as an intelligent sensor hub with smart continuous calibration and magnetic anomaly rejection, allowing for true accuracy in contextual awareness, activity monitoring and PDR. Carrying advanced sensor fusion algorithms on an extremely low-power IC, SENtral dramatically reduces power usage by offloading sensor management and fusion work for less efficient general-purpose CPUs onto an ultra-low power IC tailor-made for sensor fusion.



Outputs			
Red, Green, Yellow, Blue & Orange M&M	Heading, Pitch & Roll, Rotation Matrix Quaternions, Sensor Data		
Pink & Purple M&M	Above plus barometric pressure		
Operating Parameters	Min	Max	Units
Digital Supply Voltage	1.71	AVDD	VDC
Analog Supply Voltage	2.4	3.6	VDC
Host I2C Data Rate		3400	kbits/sec
Sensor I2C Data Rate		1000	kbits/sec



SENtral M&M Red, Green, & Yellow Mechanical Drawing

Item	Sensors	Part #
White M&M	None (SENtral Only)	13734
Green M&M	LSM330(accel/gyro) + AK8963(mag)	13736
Yellow M&M	LSM9DS0(accel/gyro/mag)	13738
Blue M&M	LSM330 + RM3100(mag)	13759
Red M&M	MPU6500(accel/gyro) + AK8963	13763
Orange M&M	BMI055(accel/gyro) + AK8963	13771
Purple M&M	BMI160(accel/gyro) + BMM150(mag) +BMP280(pressure)	13807
Pink M&M	LSM6DS3(accel/gyro) + AK9911(mag) +LPS25H(pressure)	13813

## About PNI

**PNI Sensor Corporation** develops the world's highest-performance software and hardware solutions for extracting user context, activity and location awareness from the mass-produced sensors found in smartphones, wearables and other consumer products. The company's software IP is the direct result of leveraging 30 years of geomagnetic sensing, motion measurement and sensor fusion experience. Its sensor-fusion IP features best-of-breed algorithms available via software and hardware delivery mechanisms, including SENtral Motion Coprocessor. To learn more, please visit [www.pnicorp.com](http://www.pnicorp.com).

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