

# METAMOTIONS

A wearable device that offers **real-time and continuous monitoring of motion and environmental sensor data.**

DURABLE. WEARABLE.  
RECHARGEABLE. POWERFUL

VIEW DATASHEET

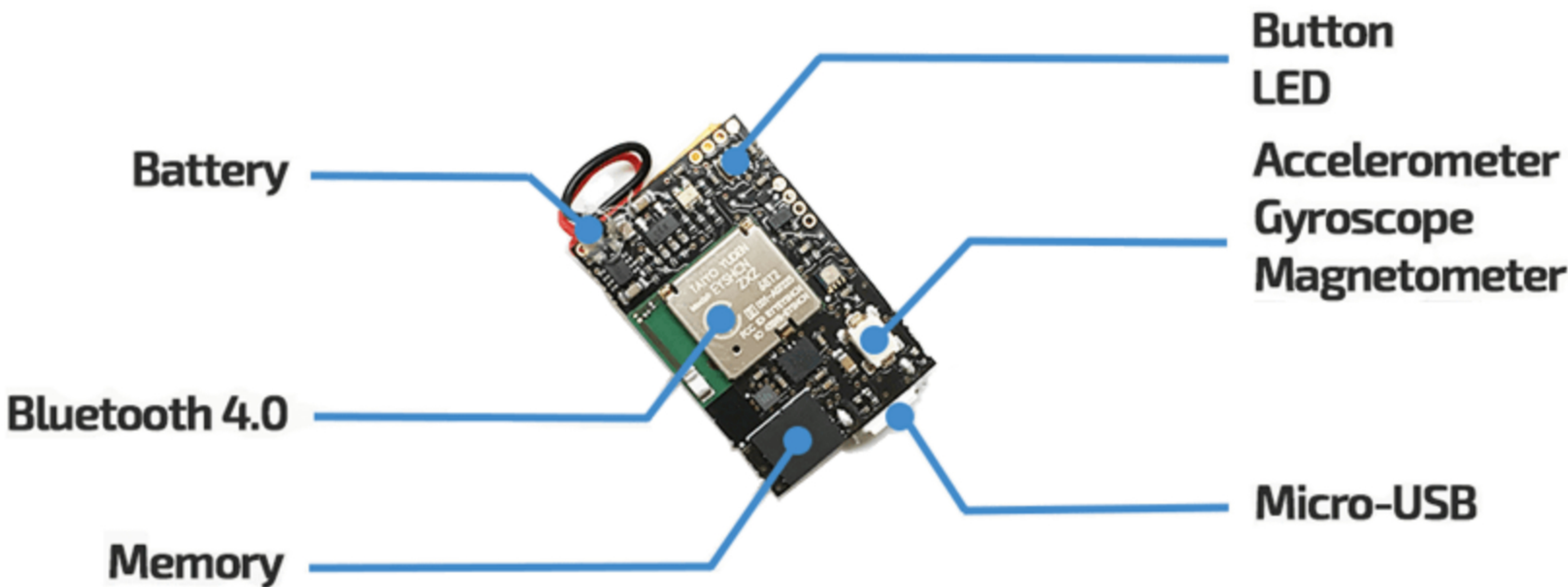


MMS – 10-Axis IMU and Environment Monitoring Sensor

- Gyroscope, accelerometer, magnetometer and sensor fusion.
- Barometric pressure and ambient light sensor.
- Real-time communication is achieved via BluetoothLE.
- Download sensor data fast with USB.
- Data may also be logged in the 512MB NAND Flash memory.
- A water-resistant case can be added to bands and more.
- Use for motion applications and scientific research.
- Free, open-source APIs and Apps for fast data acquisition.

## 10-AXIS IMU + BOSCH KALMAN FILTER SENSOR FUSION

Sensor fusion algorithm combines inertial and magnetic measurements to provide drift-free orientation.



## TECHNICAL SPECIFICATIONS

Unobtrusive monitoring and clinical quality observation.  
Record in the lab or at home with no hassle. Obtain accurate and precise sensor data.

✓**WEIGHT:**

Ultra lightweight at just 0.2oz

✓**SYNCHRONIZED TIMESTAMPS:**

All data is timestamped for synchronization purposes

✓**LIPO BATTERY:**

70-100mAH micro-USB rechargeable.  
Charging time: 2h

✓**SPLASH RESISTANT:**

IP40 plastic case snaps together

✓**REGULATORY COMPLIANCE:**

CE, FCC, IC, RoHS

✓**PROGRAMMABLE:**

Swift, C++, Java, Javascript and Python APIs used to communicate with the device

**MINIATURE FORM FACTOR:**

27mm × 27mm x 4mm in case

**USAGE MODES:**

Streaming mode: 24h-48h  
Recording mode: 24h-72h

**LOW POWER CONSUMPTION:**

Sleep mode supports 6 months idle time and 1 week active time.

**DATA TRANSFER:**

Bluetooth Low Energy Smart® v.5.0

**FLASH MEMORY:**

512MB NAND. Up to 100M data entries

**TYPICAL USAGE:**

Monitor patients, motion capture, analyze balance, gait and more.

## SENSOR SPECIFICATION

Ideal for research, clinical studies, prototyping, POCs and products such as indoor navigation, gait analysis, gaming, drones, smart farming, fall prevention, and robotics.  
Works for fast moving objects, humans or animals. Great for scientific and patient studies in clinical settings.

Sensors		
Gyroscope	Range:	± 125, ± 250, ± 500, ± 1000, ± 2000°/s
	Resolution:	16 bit
	Sample Rate:	0.001Hz – 100Hz stream – 800Hz log
Accelerometer	Range:	± 2, ± 4, ± 8, ± 16 g
	Resolution:	16 bit
	Sample Rate:	0.001Hz – 100Hz stream – 800Hz log
Magnetometer	Range:	±1300μT (x,y-axis), ±2500μT (z-axis)
	Resolution:	0.3μT
	Sample Rate:	0.001Hz – 25Hz
Barometer	Range:	300 – 1100 hPa
	Resolution:	0.01 hPa ( < 10 cm)
	Accuracy:	~ ±1 hPa (abs), ± 0.12 hPa (±1 m – rel)
	Sample Rate:	0.001Hz – 50Hz
Sensor Fusion	Outputs:	Quaternion, Euler Angles (Yaw, Pitch, Roll), Linear Acc Earth Acc (Gravity), Robust Heading
	Accuracy:	<1° RMS
	Sample Rate:	100Hz
	Temperature	Range:
Resolution:		16 bit
Sample Rate:		0.001Hz – 50Hz

Sensors		
Ambient Light	Range:	0.01 lux – 64k lux
	Resolution:	16 bit
	Sample Rate:	0.001Hz – 50Hz
IOs		
Channels	2 (with 4 additional SMP IOs under the board)	
Range	0V to 3.1V	
Resolution	10-bit	
Serial		
Available	I2C and SPI	
Voltage	3.0V	
Memory		
On-Board	Programmable Push-button and LED	
Memory	8MB NOR Flash memory – store up to 1M sensor data entries	