Introduction

The DFRobot Gravity: BMM350 3-axis geomagnetic sensor is designed to **measure magnetic fields** across three vertical axes and functions as a compass. Utilizing Bosch's patented FlipCore technology, this sensor provides accurate spatial orientation without the need for calibration. It maintains compatibility with [the previous BMM150 series](#) while delivering enhanced performance, including lower power consumption and improved measurement capabilities. The BMM350 is powered by the groundbreaking **TMR (tunnel magnetoresistance) technology**, coupled with a distinctive field shock recovery feature that fortifies the device against interference from external magnetic fields, guaranteeing consistent high-precision measurements. Notably, the BMM350 introduces **I3C communication**, offering advanced data transmission capabilities that enhance sensor integration and reduce wiring complexity.

Head orientation for 3D Audio   Indoor navigation   Reduced motion sickness in AR/VR   Positioning and speed detection

Field Shock Recovery Function

Powered by TMR (Tunneling Magneto Resistive) technology, the BMM350 features Field Shock Recovery, ensuring stable performance even when exposed to external magnetic field disturbances. This function makes the sensor highly robust, providing reliable and consistent data in dynamic environments.

Improved Sample Rate and I3C Communication

The BMM350 supports a high sample rate of up to 400Hz, delivering real-time data crucial for applications like AR/VR, AGV geomagnetic navigation, and drones. Additionally, its newly added I3C communication protocol enables faster data transmission and allows multiple sensors to be connected on a single bus, reducing wiring complexity and improving overall system efficiency.

High Precision, Low Power Consumption, and Wide Measurement Range

The BMM350 offers a significant improvement in measurement accuracy compared to its predecessor, the BMM150. It operates with an ultra-low current of just 200μA in

normal mode at a 100Hz sample rate, making it ideal for battery-powered devices. With a measurement range of ±2000µT across all three axes, it can handle a broad spectrum of magnetic fields, accommodating both high and low field strengths for various applications.

Comparison Table of BMM150 and BMM350

	BMM150	BMM350
Working Current	0.5mA (Normal Mode)	200µA (Normal mode @100Hz sample rate)
Sample rate	10Hz	400, 200, 100, 50, 25, 25/2, 25/4, 25/8, 25/16 (Optional)
Measurement Range	±1300µT (x,y axis) ±2047µT (z axis)	±2000µT (xyz axis)
Resolution	0.3µT	0.1µT

Applications

AR/VR: Enhances spatial orientation in augmented and virtual reality environments.

E-compass: Offers reliable directional data for navigation devices.

AGV Geomagnetic Navigation: Supports automated guided vehicles with precise positioning.

Drones: Improves stability and navigation accuracy in aerial applications.
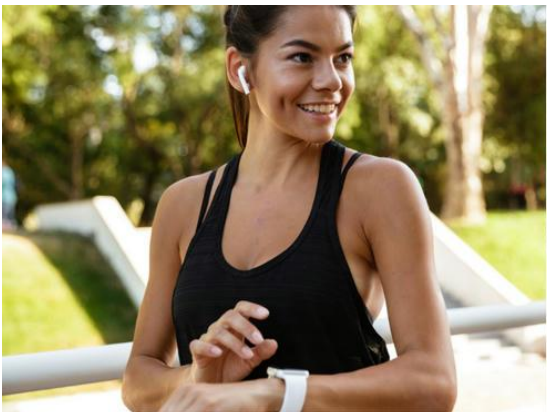
Wearables & hearables

AR & VR

Specification

Working Voltage: 3.3~5V DC

Working Current: 200µA (Normal mode @100Hz sample rate)

Zero-field Offset: ±25μT

Protocol: I2C

Working Temperature: -40~+85℃

Start-up Time: 2.5ms

Documents

[Product Wiki](#)

[BMM350 Datasheet](#)

[Schematic diagram](#)

[Layout](#)

[Dimension](#)

[Pinout](#)

[Tutorial](#)

[API list](#)

Shipping List

Gravity: BMM350 Triple Axis Magnetometer Sensor x1

Gravity UART/I2C sensor cable x1

XH2.54-10pin Header x1