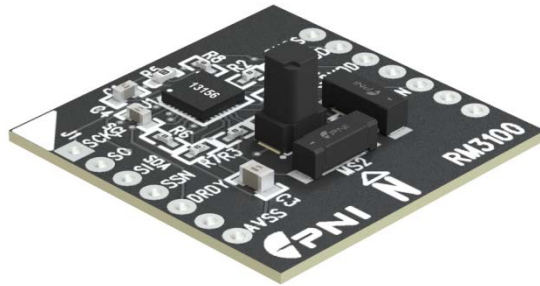


## PNI 3-Axis Magnetometer Breakout Board – RM3100BB

P/N: 14190



Now you can quickly and easily prototype your designs with a high-quality magnetic sensor, flexible interfaces, and a low price. Introducing the PNI 3-Axis Magnetometer Breakout Board, a plug-and-play module that can be used to quickly evaluate and prototype PNI's RM3100 geomagnetic sensor. This breakout board is ideal for developers, hobbyists and makers who want to evaluate a high-quality magnetic sensor without a high cost. It is also the preferred product for developers doing proof-of-concept prototyping.

The Breakout Board includes PNI's RM3100 3-axis geomagnetic sensors and MagI<sup>2</sup>C ASIC controller mounted on a PCB, to provide a complete magnetic-field sensing module. It incorporates both I<sup>2</sup>C and SPI interfaces for system design flexibility. This breakout board easily connects to your Arduino, Raspberry Pi, and other microcontroller boards.

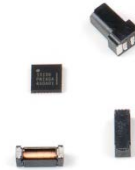
The cornerstone of the PNI 3-Axis Magnetometer Breakout Board is the RM3100 sensor, based on a magneto-inductive technology, where the sensor changes inductances with changing magnetic fields. The RM3100 is the highest performance geomagnetic sensor in its class, with more than 30 times lower noise and over 20 times greater sensitivity than leading Hall Effect, fluxgate, or magneto-resistive (MR) sensors. It combines this with ultra-low-power operation, using 10 times less power than a generic 32-bit processor. This enables it to make precise measurements without using a lot of power. Measurements are stable over temperature and inherently free from offset drift, making it the ideal choice not only for prototyping high-volume solutions, but also for hobbyists and lower-volume applications.

The RM3100 Breakout Board does not include any header pins. Designers requiring header pins should purchase PNI's RM3100 Evaluation Board (P/N 13606).

## Specifications\*

### System

<i>Components</i>	RM3100 Magnetometer
	MagI2C ASIC controller
<i>Dimensions</i>	25.4 x 25.4 x 0.8 mm



### RM3100 Breakout Board Characteristics

<i>Parameter</i>	Cycle Counts		
	50	100	200
<i>Field Measurement Range</i>	-800 $\mu$ T to +800 $\mu$ T		
<i>Noise</i>	30 nT	20 nT	15 nT
<i>Gain @ 3V (LSB/<math>\mu</math>T)</i>	20 $\mu$ T	38 $\mu$ T	75 $\mu$ T
<i>Linearity over <math>\pm</math>200 <math>\mu</math>T</i>	0.5 % (typical)		
<i>Sensitivity</i>	50 nT	26 nT	13 nT
<i>Max 3-Axis Sample Rate</i>	534 Hz	284 Hz	147 Hz
<i>Current Usage @ 8 Hz, 3 Axes</i>	70 $\mu$ A	135 $\mu$ A	260 $\mu$ A
<i>Size (l x w x h)</i>	Sen XY	6.0 x 2.1 x 2.2 mm	
	Sen Z	3.0 x 3.0 x 5.75 mm	
	MagI2C	4.0 x 4.0 x 0.75 mm	

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. PNI's technology is used in consumer electronics and wearables, smart parking, IoT, robotics, automotive, military, and other applications, by customers such as Nintendo, STMicroelectronics, Samsung, iRobot, Sony, General Motors, and Ford.

\*Specifications subject to change. Photos do not represent actual size.  
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