

**Like a pair of glasses, the RM3100 Geomagnetic Sensor enables you to see magnetic fields clearly.**

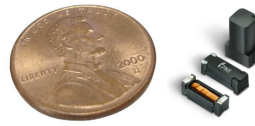
**The RM3100 Geomagnetic Sensor is the highest performance sensor in its class** with **over 10 times better resolution** and **over 20 times lower noise** than the leading Hall Effect sensor. It makes precise magnetic field measurements, which enables accurate calculation of heading and orientation. Based on PNI Sensor's proprietary magneto-inductive technology, our sensors deliver high-performance resolution and repeatability with extremely low noise. They also provide high gain, high sampling, no hysteresis and do not require temperature calibration or current set-and-reset pulses before each measurement.

Geomagnetic sensors are used to measure the earth's magnetic field to provide absolute reference and heading. System components such as batteries, shielding materials, or motors will distort the geomagnetic field near the sensors. Changing magnetic fields that

temporarily distort heading information, such as metal parts in furniture, a passing car, or nearby cell phones and computers, are also a large challenge. Compensating for these and other transient magnetic anomalies requires the geomagnetic sensor to be able to precisely distinguish between sensor noise, or "blur", and **real** changes in the magnetic field. PNI Sensor's geomagnetic sensors lead the field in their ability to reduce blur to establish the true magnetic field, outperforming other magnetic sensors every time.

**PNI Sensor's RM3100 eliminates any "blur" in your magnetic field measurements** making distortion error correction a snap, and ultimately allowing you to easily and accurately calculate absolute orientation and heading.

**A leader in its industry.** The RM3100 Geomagnetic Sensor is the top performer, outperforming Hall Effect sensors by orders of magnitude. It is the latest development in PNI Sensor's proprietary **magneto-inductive technology**.



Parameter	Leading Hall Effect Sensor	PNI Sensor's Magneto Inductive Sensor
Sensitivity (nT)	300 nT	13 nT
Noise (nT)	500 nT	15 nT

### Operating Specifications

Parameter	Cycle Counts		
	50	100	200
<b>Field Measurement Range</b>	-800 $\mu$ T to +800 $\mu$ T		
<b>Noise</b>	30 nT	20 nT	15 nT
<b>Gain @ 3V (LSB/<math>\mu</math>T)</b>	20 $\mu$ T	38 $\mu$ T	75 $\mu$ T
<b>Linearity over <math>\pm</math>200 <math>\mu</math>T</b>	0.5 % (typical)		
<b>Sensitivity</b>	50 nT	26 nT	13 nT
<b>Max 3-Axis Sample Rate</b>	534 Hz	284 Hz	147 Hz
<b>Current Usage @ 8 Hz, 3 Axes</b>	70 mA	135 mA	260 mA
<b>Circuit Oscillation Frequency</b>	180 kHz		
<b>Bias Resistor (R<sub>B</sub>)</b>	121 $\Omega$		
<b>Interface</b>	SPI and I2C		
<b>Operating Temperature Range</b>	-40 C to +85 C		
<b>Size (l x w x h)</b>	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	

### About PNI

PNI Sensor Corporation is the leader in the exacting science of producing pinpoint heading and orientation technology and algorithms for the consumer, military, scientific and oceanography communities. Building on decades of patented sensor development, PNI offers highly accurate magneto inductive sensor systems and 9-axis sensor fusion technology. Its products are used in consumer electronics, robotics, surveying, navigation and automotive applications across the globe. To learn more, please visit [www.pnicorp.com](http://www.pnicorp.com).

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For detailed ordering information and most current specifications, please visit [www.pnicorp.com](http://www.pnicorp.com)