

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

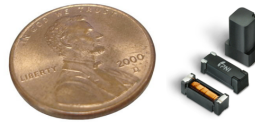
The RM3100 Geomagnetic Sensor is the highest performance sensor in its class with **over 10 times better resolution** and **over 20 times lower noise** than the leading Hall Effect sensor. It makes precise magnetic field measurements, which enables accurate calculation of heading and orientation.

The earth's magnetic field provides absolute reference for heading measurements and accurate motion tracking. Geomagnetic sensors are used to measure the earth's magnetic field; however, in real world conditions, the earth's magnetic field is often distorted by other surrounding fields. System components such as batteries, shielding materials, or motors will distort the geomagnetic field near the sensors. An additional design challenge is the changing

magnetic environment that temporarily distorts the field like metal parts in furniture, a passing car, or nearby cell phones and computers. Geomagnetic sensors must first be able to see the different magnetic fields in order for the designer to separate earth's magnetic fields and compensate for the distortions.

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
Field Measurement Range	-800 μ T to +800 μ T		
Noise	30 nT	20 nT	15 nT
Gain @ 3V (LSB/μT)	20 μ T	38 μ T	75 μ T
Linearity over \pm200 μT	0.5 % (typical)		
Sensitivity	50 nT	26 nT	13 nT
Max 3-Axis Sample Rate	534 Hz	284 Hz	147 Hz
Current Usage @ 8 Hz, 3 Axes	70 μ A	135 μ A	260 μ A
Circuit Oscillation Frequency	180 kHz		
Bias Resistor (R_B)	121 Ω		
Interface	SPI and I2C		
Operating Temperature Range	-40 C to +85 C		
Size (l x w x h)	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	