

PRIME

3-Axis Digital Compass

General Description

PNI Sensor Corporation's Prime 3-axis digital compass combines PNI's patented magneto-inductive sensors with a 3-axis MEMS accelerometer in a low-cost compass that provides accurate heading and tilt readings, even at very high and low latitudes.

PNI's advanced hard and soft iron correction algorithms allow for compensation of magnetic distortions inherent in the user's system, resulting in reliable and consistent readings.

The Prime excels in low power consumption by combining PNI's inherently low power consumption magneto-inductive sensors with intelligent electronics that result in current consumption of typically 18 mA when sampling and <1 mA when not sampling.

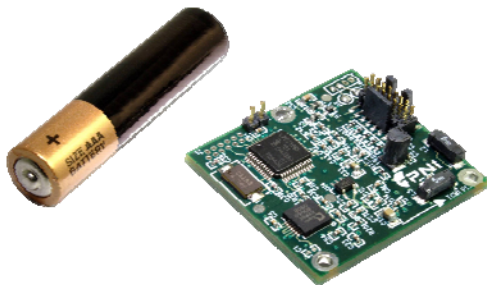
The Prime represents a tremendous value by combining a low price with the Prime's heading accuracy (even at low and high latitudes), low power consumption, and PNI's advanced magnetic distortion correction algorithms. The Prime is an ideal component for cost-sensitive products that historically could not afford to incorporate such a well-featured digital compass

Features

- <2° heading accuracy
- Hard & soft iron magnetic distortion correction
- Allowable dip angle (inclination) up to 85°
- Low power consumption
- Binary RS232 interface
- RoHS compliant

Applications

- Sonobuoys
- Laser range finders
- Wind sensing equipment
- Seismic monitoring systems
- Downhole directional drilling equipment
- Acoustic Doppler current profilers (ADCPs)
- Optical location and tracking equipment
- Small unmanned vehicles
- Robotic systems



Parameter		Value ¹
Performance Specifications		
Heading	Range	360°
	Accuracy (tilt ≤45°)	<2° rms
	Resolution	0.1°
	Repeatability	±0.05°
Tilt (Pitch & Roll)	Range	±90° of pitch, ±180° of roll
	Accuracy	<1° rms
	Resolution	0.1°
	Repeatability	0.05°
Maximum Dip Angle		85°
Magnetometers	Usable Field Range	±100 µT
	Resolution	±0.05 µT
	Repeatability	±0.1 µT
I/O Characteristics		
Start-Up Time ²	Initial power up	<210 ms
	Sleep mode recovery	<100 ms
Maximum Sample Rate		10 samples/sec
Communication Rate		300 to 115,200 baud
Communication Interface		Binary RS232
Mechanical Characteristics		
Dimensions (l x w x h)		3.3 x 3.1 x 1.3 cm
Weight		5 gm
Mounting Options		Screw mount / standoff, horizontal or vertical
Connector		16 pin ribbon or 9 pin Molex (Same functionality: use only one.)
Power Requirements		
DC Supply Voltage		3.6 - 5 V (unregulated)
Average Current Draw @ 10 Hz sample rate ³		18 mA
Sleep Mode		0.6 mA
Environmental Requirements		
Operating Temperature		-20C to +70C
Storage Temperature		-40C to +85C

Notes:

1. Product specifications subject to change.
2. FIR Taps set to 0.
3. Tested at 3.6V