The **Vector 2X** is a low-cost solution for direction or magnetic sensing requirements. The Vector 2X consumes less power, is smaller in size, and is much less expensive than traditional compasses or magnetic sensors. It is a complete compass or magnetic sensor module that integrates easily into any system.

Magneto-Inductive Magnetic Sensor Technology

The Vector 2X uses two Magneto-Inductive sensors to sense magnetic fields. Magneto-Inductive sensors change inductance with different applied magnetic field strengths. This variable inductance property has been used to create very sensitive magnetic sensors that are low in cost and power. These advantages have made Magneto-Inductive sensors the choice for use as compasses in a wide variety of applications.

Applications

The Vector 2X is designed for applications that require an accurate but inexpensive compass or magnetic sensor. Compass applications for the Vector 2X include car navigation, backup azimuth for GPS, vehicle tracking, and vehicle location. The module can also be used as a magnetic sensor for vehicle detection, seismic surveying, and metal detection.

Accurate in Any Environment

Ferrous metals in host systems often magnetize over time, misdirecting magnetic compass readings. The Vector 2X has a built-in hard iron calibration algorithm that compensates for the magnetic fields generated by a host system. The simple calibration process makes it possible to accurately use the Vector 2X in environments with nearby metal or electronics.

Outputs

The Vector 2X is a 2-axis magnetometer that outputs either compass heading or uncalibrated magnetic field data. This information is output via a 3-wire serial formal (compatible with Motorola SPI and National Microwire) at either 2.5 or 5 times per second. The modules are pin selectable between BCD and Binary output format.

Differences Between the Vector 2X and 2XG

The Vector 2X uses two strapped-down magnetic sensors and is designed for use as a compass in level environments or as a magnetic sensor in any environment. The Vector 2XG has two mechanically gimbaled magnetic sensors, allowing it to be used as a compass in environments that are not always level. The mechanical gimbals increase the headroom on the Vector 2XG, but the footprint is the same matchbook size as the Vector 2X.

Performance Characteristics

Heading Information

Accuracy	±2º RMS
Resolution	1º
Repeatability	±2º RMS

Uncalibrated Magnetic Field Information

Resolution	25 counts per µT
Repeatability	±15 counts
Dynamic Range	±200 µT

Tilt Range

None

Magnetic Field Information after Typical Calibration

Dynamic Range	±90 µT
Accuracy	±1 µT
Dynamic Range	±200 µT
Accuracy	±5 µT

Physical and Environmental Characteristics

Dimensions	1.50" x 1.43" x 0.39"
Weight	0.4 oz.

Temperature

Operating:	-20º to 70ºC
Storage:	-30º to 90ºC

Power Requirements

Power Supply

Single 5 volt supply; 2.5 volt for power down

Power Draw

Master Mode	6.0 mA operating
	110 µA power down
Slave Mode	4 mA operating
	30 µA power down