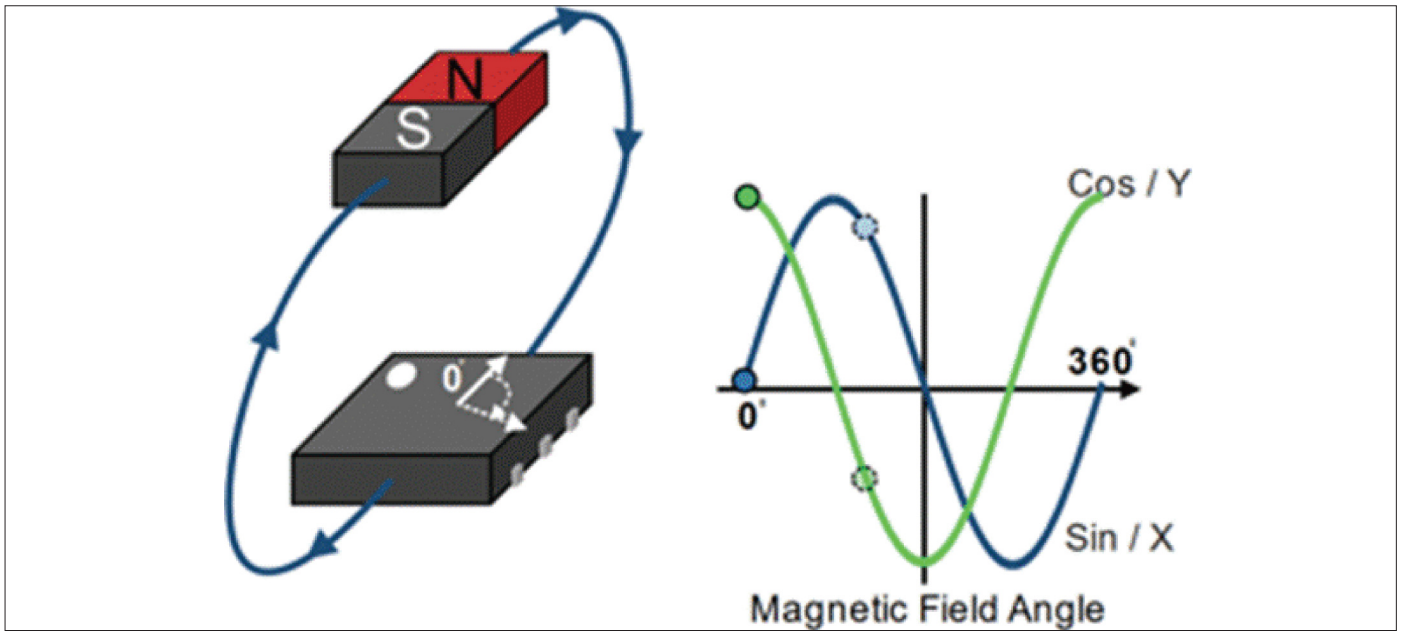
Ultraminiature Magnetometer Rotation & Proximity Sensing from NVE



Dual-axis TMR rotation sensor from NVE is the most sensitive device of its type, says NVE.

Tunneling magnetoresistance analog magnetic sensors are revolutionizing sensing capability for product developers. Two new ultraminiature TMR devices from NVE can sense rotation and proximetry with unprecedented precision. One is a dual-axis sensor for sensitive rotation sensing, the other a proximetry sensor that can detect smaller objects at greater distances with more precision than ever before. They expand NVE's line of ALT-Series TMR analog magnetometers.

The ALT521-10E, a TMR dual-axis rotation sensor, is the world's most sensitive device of its type, says the company. It has two independent sensing axes, each with a high-sensitivity 140 mV/V/mT output. The sensor can detect rotating magnetic fields as small as 0.1 µT and can detect orientation in Earth's 50 µT magnetic field without external amplifiers. The devices are built as Wheatstone bridges with a typical resistance of two megohms, meaning they draw less than one microamp from a single-cell battery making them well suited for high-speed, continuous-duty operation from low-voltage batteries.

At just 2.5 x 2.5 x 08 millimeters, they enable further miniaturization of wearable, battery-powered instruments. Other typical applications can be for flowmeters, earth magnetic field detection, speed detection, nondestructive testing, ferromagnetic material detection, freepitch encoders and joysticks.

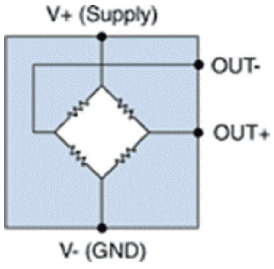
With the ALT002-14E proximetry sensors, there are two proximetry sensing configurations, enabling the device to be used for proximity detection of either permanent magnets or ferromagnetic objects like steel gears or pistons using a back biasing technique.

Two proximity sensing configurations -- magnet detection at left, and back-biased configuration at right, enable detection of either permanent magnets or ferromagnetic objects.

In the magnet detection mode, the sensor detects the increasing field as a magnet approaches. With the back-biased configuration, a stationary magnet creates a bias field on the sensor. The field at the sensor increases as a ferromagnetic target approaches the sensor.

The ALT002-14E has a remarkable sensitivity of 200 mV/V/mT providing a typical output of 250 millivolts at 0.25 millitesla with a five-volt supply and no amplification. At just 1.1 mm x 1.1 mm, the ALT002-14E is the world's smallest high-sensitivity magnetometer while its small size means unmatched spatial sensitivity and precision, says NVE.

A leader in the practical commercialization of spintronics, a nanotechnology that relies on electron spin rather than electron charge to acquire, store and transmit information, NVE manufactures spintronic products including sensors and couplers that are used to acquire and transmit data. Headquarters are in Eden Prairie, Minnesota.



The interface is simple. The sensors have just four connections, two for the output and two for power. The outputs can be connected directly to ADC or microcontroller analog inputs, or simple amplifiers if necessary.

For more info, see www.nve.com.