NVE CORPORATION

Sensor and Isolator NEWS

September 10, 2024 *Electrifying News From NVE*

In This Issue

Quick Links

Sensor Selector Guide

Isolator Cross Reference

Online Store

Contact Us

Twitter

YouTube

New on YouTube

Two Magnetic Proximity Sensing Configurations

Metal Distance Sensing with a New Ultrahigh-Sensitivity Magnetic Sensor

Precision Proximity Sensing with a New TMR Sensor

World's Fastest Isolators—Newly Upgraded to 7 kV Isolation

Tuning a harp with TMR

Smart Magnetometer Music Box

Recent Papers

"Real-time biomolecule detection using GMR chip-based sensor" (an AAL024 sensor combined with an Arduino is used to detect blood proteins.) *Sensors and Actuators A: Physical*, Sept. 1, 2024.

Link to Paper »

Upcoming Webinars

"The Future of Advanced xMR Sensors" (in cooperation with Angst+Pfister) September 19, 2024

Link to Webinar »

Magnetometer Proximity Sensing

TMR analog magnetic sensors are revolutionizing proximity sensing. New high-sensitivity devices like the **ALT002-14E** detect smaller objects at greater distances with more precision than ever before.

Two Proximity Sensing Configurations
The ALT002 can be used for proximity detection of either permanent magnets or ferromagnetic objects like steel gears or pistons using a back biasing technique:

Magnet Detection — Back-Biased Configuration

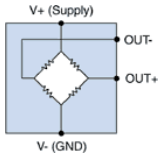
In the magnet detection mode, the sensor detects the increasing field as a magnet approaches. With the back-biased configuration, a stationary magnet creates a bias field on the sensor. The field at the sensor increases as a ferromagnetic target approaches the sensor.

High Sensitivity
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.

Ultraminiature for Spatial Sensitivity
At just 1.1 mm x 1.1 mm, the ALT002-14E is the world's smallest high-sensitivity magnetometer. The small size means unmatched spatial sensitivity and precision.

Simple Interface
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.



Breakout Board
A 0.8 x 0.4 inch (21 x 10 mm) breakout board has pre-soldered sensors, 0.1" headers, and a 1 mm-pitch card-edge connector.

Demonstration Video
This video shows two modes of proximity sensing with an ultrahigh-sensitivity magnetic sensor:

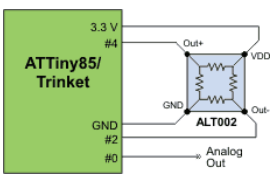
In Stock
The new sensors and breakout boards are in stock for immediate delivery.

Buy Online $9.95 shipping

Download the Datasheet »

Direct Microprocessor Interface to ALT-Series Sensors

ALT-Series sensor outputs can be connected directly to microcontroller analog inputs:



It takes just one line of code to read the sensor:

```
sensor=analogRead(2)-analogRead(1); // Pin #4=2; pin #2=1
```

A microcontroller analog output provides an amplified, single-ended, PWM version of the sensor value:

```
analogWrite(0,sensor); // 4x amplified output
```

The gain of four is because the microcontroller has a 10-bit ADC and an 8-bit DAC, so full scale is shifted by two bits.