

**In This Issue**

- [Year in Review](#)
- [CAN Isolation](#)
- [High-Resolution Sensors](#)

**Quick Links**

- [Sensor Selector Guide](#)
- [Isolator Selector Guide](#)
- [Online Store](#)
- [Contact Us](#)

**2009 Back Issues**

**Sensor and Isolator NEWS**  
Thrilling news, hilarious sidebars, and ingenious applications.

Catch up on what you missed with the 2009 [Sensor and Isolator News archives](#).

**Website Updates**

A [Chinese-language version](#) of NVE's popular IsoLoop Website has debuted in cooperation with distributor Shanghai Channel.

Like the [English site](#), the Chinese site has a wealth of product information, selector guides, and applications information.

**In the News**

IsoLoop isolators are featured in a story on bus isolation in the December issue of the German trade magazine *Elektronik Praxis*.

**GMR technology dependably isolates interfaces**

The article was written by Wolf-Dieter Roth of NVE distributor HY-LINE Power Components.

[<Link to Article>](#)

**Fun Formulas**

**Sn – CaN**

Tin Can

**Voicemail Playlist**



"CAN CAN" from Orpheus in the Underworld is playing as our phone system background music

IsoLoop Isolators are ideal for CAN networks (see this issue's Isolator Application Corner).

To hear the music, call (952) 996-1639, option 9.

**2009 Year in Review**

We wish our readers a successful and prosperous 2010.



Looking back, 2009 was a remarkable year for NVE with new products, new distributors, prestigious awards, and important certifications.

**New Products**

- AAT001-10E Angle Sensors**  
Tunneling Magnetoresistance technology, large signal, wide airgap tolerance, and extremely low power.
- AAV003-10E Current Sensors**  
Typical sensitivity up to a remarkable 2 mV/mA with no amplification.
- ADL-Series ULLGA GMR Digital Switches**  
NVE began sampling its smallest packaged parts—just 1.1 x 1.1 x 0.45 mm.

**New Distributors**

- Masters Sp., Central and Eastern Europe
- Shanghai Electric Channel Science, China

**Awards and Accolades**

- **Top 10 Small Companies In America**, named by *Forbes*.
- **America's Fastest-Growing Companies** according to *Fortune Small Business*.
- **Top 20 Product** for the AAV003-10E current sensor, according to *eepr*.
- **EDN Hot 100 Product** award for IsoLoop IL500-Series isolators.

**Certifications**

- **Certified** under the new ISO 9001:2008 standard.

**New Year Isolator Application Corner**

**You CAN (and Should) Isolate CAN**

By [Sandy "Can Can" Templeton](#)

Director, Isolator Product Development and Applications

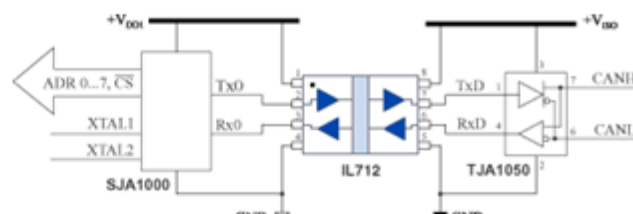
New Year's is a good time to resolve to add isolation to your CAN designs.

You know you should.

Isolating CAN allows higher bus speed and more reliable operation by eliminating ground loops and reducing susceptibility to noise and EMI.

IL712 bidirectional isolators are perfect for isolating CAN.

This simple circuit works with any CAN transceiver with a TxD dominant timeout, which includes all of the current-generation transceivers, such as the ubiquitous Philips/NXP TJA1050:



Isolated CAN

Best-in-class typical propagation delay of 10 ns minimizes CAN loop delay and maximizes data rate over any given bus length.

IL712 Isolators come in SOIC-8s, PDIPs, and unique MSOP-8 packages to minimize board space. 100°C and 125°C versions are available, and all variants are [in stock for immediate delivery](#).

[<Download IL712 Product Datasheet \(.pdf\)>](#)

**Buy Online**  
\$9.95 shipping

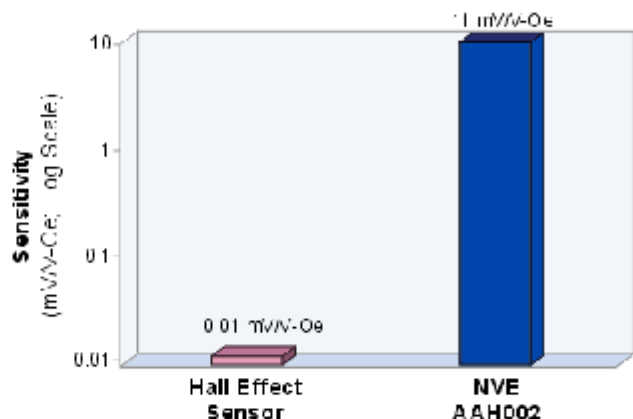
**New Year Sensor Application Corner**

**New Year Sensor Resolution: More Resolution**

By ["Sensitive" Jay Brown](#)

Vice President, Sensors

If you have a New Year's resolution to get more more resolution (and who doesn't), we have the solution. AAH-Series high-sensitivity magnetic sensors have a minimum sensitivity of an amazing 11 mV/V-Oe—more than one thousand times better than a typical Hall-effect sensor.



**Hall Effect Limitations**

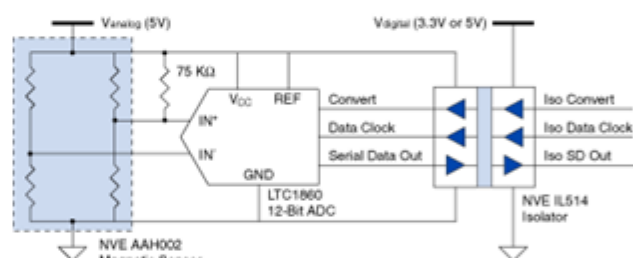
Hall sensor limitations can't be amplified away since amplifiers and higher-resolution ADCs also amplify the higher temperature variation and drift of Hall sensors.

**High-Resolution Applications**

Current measurement, magnetic currency signature detection, and vehicle detection.

**Look Ma, No Amplifier!**

The AAH002's high sensitivity makes for a simple, precise ADC circuit



Simple ADC Circuit

Since the AAH002 is omnipolar (a positive output regardless of field polarity), an inexpensive unipolar ADC is fine. The 75 kilohm bridge ensures the bridge output is always positive, overcoming the bridge's ±5 mV/V maximum offset.

With a 5 volt analog supply and reference, the AAH002 sensitivity is 55 mV/Oe minimum with no amplification, so just a 12-bit ADC provides 0.02 Oe resolution. For even more resolution, a two-resistor divider setting the ADC reference to 1 volt yields 0.004 Oe/bit resolution.

**AC Coupling**

These types of analog magnetic sensors are often AC coupled, but a simple discrete-time high-pass filter can be implemented in software to eliminate the need for additional components.

**Isolation Reduces System Noise**

Adding isolation reduces noise by allowing separate digital and analog ground current paths. The IL514 three-channel isolator is specifically designed for this type of three-wire SPI interface.

The isolator can also level shift between 3.3 volt digital and 5 volt analog supplies, and IsoLoop Isolators' low EMC footprint avoids additional noise.

So resolve to be more sensitive this year with [AAH-Series sensors](#).

**Buy Online**  
\$9.95 shipping