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**NVE In the News**



The advantages of NVE IsoLoop isolators compared to optocouplers were summarized in a full-page article in the February issue of the Danish magazine *Aktuel Elektronik*. The article was written by Rolf Pedersen of Rhopoint Nordic Aps. [<Links to this and other articles about NVE>](#)

**NVE 20th Anniversary**

NVE celebrates 20 years of leadership this month. The company was founded March 8, 1989 as Nonvolatile Electronics by spintronics pioneer Dr. James M. Daughton. The company's name was formally changed to NVE Corporation when it became public in 2000. [<NVE's Historical Highlights>](#)

**Spring Forward**

Daylight Saving Time begins Sunday, March 8. Set your clocks forward an hour.

**Featured Product Line**

**Magnetic Gradiometers**

Many engineers are familiar with magnetometer magnetic sensors, which determine magnetic field strength. Magnetic gradiometers are less well known but every bit as useful.

NVE gradiometers use arrays of four Giant Magnetoresistance (GMR) sensors to sense field gradients between the sensor elements. The elements are electrically configured as a Wheatstone bridge.

Gradiometers can be used to detect magnetic or ferrous targets. A biasing magnet is used for detecting proximity to a moving ferrous target. The gradiometer's output can be also shaped with external flux shaping devices (flux guides).

Three gradiometer part types are in standard stock for immediate delivery:

Part Number	Linear Range (lOeI)		Saturation (lOeI)	Element Spacing (mm)	Typical Resistance (Ohms)	Package
	Min.	Max.				
AB001-02	20	200	250	0.5	2.5 K	SOIC8
AB001-00	20	200	250	0.5	2.5 K	MSOP8
ABH001-00	5.0	40	70	0.5	1.2 K	MSOP8

Parts are available in either lead (Pb) or RoHS versions (as with all NVE parts, RoHS is specified with an "E" suffix).

An [evaluation kit](#) with an assortment of gradiometers, magnetometers, and magnets is also available.

[<Links to Gradiometer Data Sheets>](#)

**Application Corner**

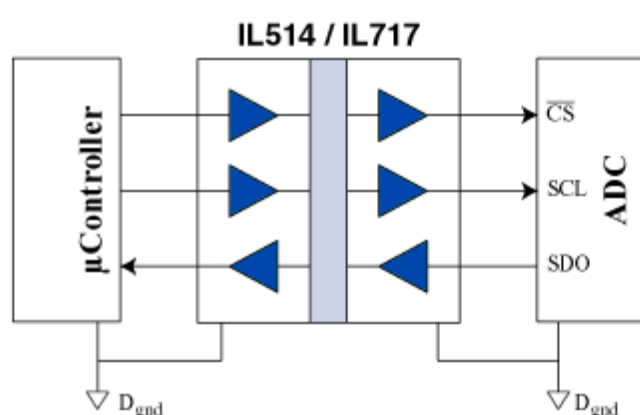
**Isolated ADC Using an IL514**



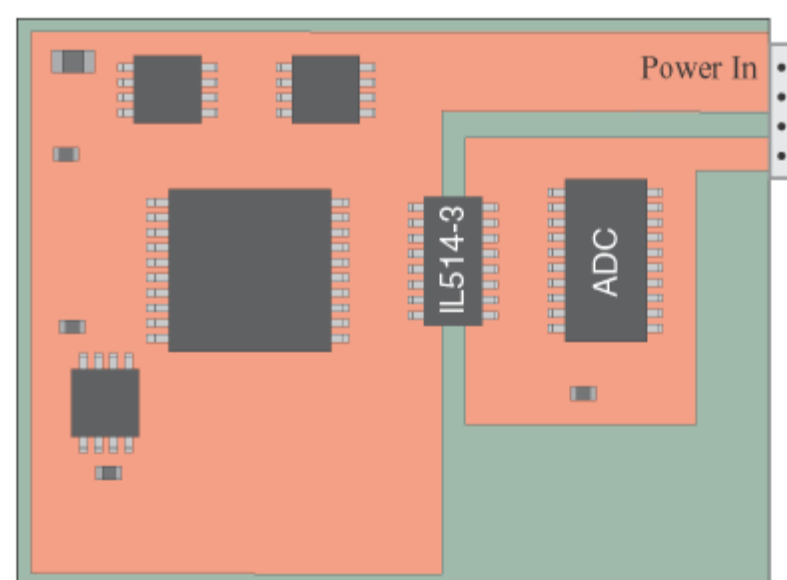
By [Sandy Templeton](#)  
*Director, Isolator Product Development and Applications*

Isolating grounds is critical to minimizing noise in Analog to Digital Converters.

Optocouplers aren't used for high speed current routing in converter circuits because their parasitic capacitance adds more distortion and noise than the original circuit. Most non-optical isolators have high EMI, making them an unwelcome source of additional noise. IsoLoop isolators change all that and allow the designer to effectively segregate digital and analog ground current paths without additional noise:



A typical board layout using the a new IL514 three-channel isolator is shown below (an IL700-Series isolator can be used instead if extremely low pulse-width distortion is needed):



The isolated ground of the IsoLoop isolator is connected to the analog reference ground of the circuit board, and all digital currents into and out of the ADC are from ADC digital I/O activity and are synchronized to the conversion clock or data clock. Unlike non-isolated circuits, there is no asynchronous noise injected into the ADC ground from the rest of the digital circuits on the board.

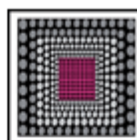
For more information on isolating data convertors, see [Application Bulletin No. 14 \(.pdf\)](#).

[<More Isolator Applications>](#)

**Presentations**

**Sensors and Magnetic Systems Symposium**

NVE Vice President Jay Brown and HYLIN Sensor-Tec President Christoph Kleye are coauthors of a paper to be presented at the *Magnetoresistive Sensors and Magnetic Systems Symposium* in Wetzlar, Germany, March 31 through April 1.



The paper will be titled "Different GMR/TMR Devices and Integration Advancements."

According to the Symposium organizers, authors are "a hand-picked selection of experts from around the world..." Peter Grünberg, a recipient of the 2007 Nobel Prize for Physics, is also on the program.

[<Registration Information>](#)

[<More NVE Papers and Presentations>](#)