

In This Issue

[TDFN Analog Sensor](#)

[Recent Conferences and Exhibitions](#)

[Upcoming Conferences and Exhibitions](#)

[Analog Sensor Amplifier](#)

Quick Links

[Sensor Selector Guide](#)

[Isolator Selector Guide](#)

[Online Store](#)

[Contact Us](#)

[Twitter](#)

[YouTube](#)

Document Updates

[Sensor Catalog](#)

Updates; added new AAL004

[Analog sensor datasheet](#)

Added AAL004 (see story at right)

[AAT00x angle sensor datasheet](#)

More detailed accuracy specifications

[ADL-Series Nanopower digital sensor datasheet](#)

Updates; new reference circuits

New YouTube Videos

[Magnet distance Web application](#)

[Current sensing Web application](#)

[ADT-Series TMR Rotation Sensors](#)



NVE will be closed
May 29
for Memorial Day.

World's Smallest Analog Sensor

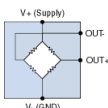
NVE's industry-standard analog magnetometer sensors just got smaller with a new TDFN6 version, the AAL004-10E. The new part is the world's smallest high-performance analog sensor IC.



The new AAL004-10E is our smallest analog sensor.

The magnetometers provide a precise output proportional to the applied magnetic field. Second-generation GMR materials provide extremely low hysteresis and excellent temperature stability.

The sensors are configured as inherently temperature-compensating Wheatstone bridges:



A Wheatstone bridge configuration for inherent temperature compensation.

The AAL-subtype uses second-generation GMR technology for exceptional temperature stability and low hysteresis, making it ideal for low-field sensing.

Key AAL004-10 features include:

- Low fields: linear down to 1.5 Oe
- High sensitivity: 3.5 mV/V/Oe typical
- Low hysteresis: <2%
- Omnipolar output
- -40 to 125°C operating temperature
- Ultraminiature: 2.5 x 2.5 x 0.8 mm TDFN6 package

NVE's low-field analog sensors are summarized in the following table:

| Low-Field Magnetometer Sensors | | | | | | |
|---|-------------------------------------|--|------------------|------------------|---------|--|
| Part Number <small>(click for details)</small> | Linear Range <small>(Oe)</small> | Typ. Sensitivity <small>(mV/V/Oe)</small> | Max. Hyster-esis | Typ. Resist-ance | Package | |
| AAH002-02 | 0.6–3.0 | 15 | 15% | 2 kΩ | SOIC8 | |
| AAH004-00 | 1.5–7.5 | 4 | 15% | 2 kΩ | MSOP8 | |
| AAL002-02 | 1.5–10.5 | 3.5 | 2% | 5.5 kΩ | SOIC8 | |
| ***NEW*** AAL004-10 | 1.5–10.5 | 3.5 | 2% | 2.2 kΩ | TDFN6 | |

[Download datasheet >](#)

All four low-field part types are in stock and available for immediate delivery.

Buy Online
\$9.95 shipping

Recent Conferences

INTERMAG 2017
24th-28th April 2017

NVE researchers presented two invited papers at the prestigious Intermag Conference in Ireland:

["Bio-Applications of Giant Magnetoresistance and Tunneling Magnetoresistance Phenomena: In-Flow Magnetic Biomarker Detection"](#)

AND:

["Spintronic Sensors in Transportation"](#)

Upcoming Conferences

Power Conversion and Intelligent Motion (PCIM),
May 16 to 18, Nürnberg, Germany



NVE distributors Hy-Line (stand 9-525) and IS-Power (stand 7-601) will display our products. Unique featured products will include six-kilovolt isolators.

[Download Free Registration Coupon Courtesy HY-LINE Power >](#)



Sensor+Test 2017,
May 30 to June 1, Nürnberg, Germany

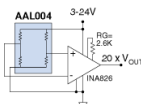
NVE sensors will be on display in cooperation with distributor IS-LINE (stand 5-146).

Application Corner

Analog Sensor Amplifier

Although NVE analog sensors such as the [new AAL004-10E](#) have large output signals, preamplifiers are used in some applications. Instrumentation amplifiers such as the INA826 are popular because they have a low component count and excellent common-mode rejection ratios without needing to match resistors.

The reference circuit below has a gain of 20 to provide a full-scale output over the sensor's linear range:



A single-ended analog sensor instrumentation amplifier circuit.

Note that the instrumentation amplifier has a minimum output of 0.1 volt, so to detect very low fields on a single supply, an offset can be provided by using a non-zero amplifier V_{REF} .