

Evaluation Kits

In order for our customers to evaluate GMR sensors in their application NVE makes available several evaluation kits, at nominal cost, so that customers can try the actual parts in their application. These kits are described below:

AG001-01 - Analog Sensor Evaluation Kit

This kit features several types of NVE's AA and AB-Series parts, a selection of permanent magnets for activation or bias purposes, and circuit boards to mount the parts for testing purposes. Also included is a copy of NVE's catalog and application notes on CD ROM.

AG003-01 - Current Sensor Evaluation Kit

This kit features a specially designed circuit board with traces running under the sensor elements. The customer can try different current levels to see the output from the sensor. Also included is a copy of NVE's catalog and application notes on CD ROM and a copy of NVE's Current Calculator spreadsheet.

AG910-07, AG911-07 - GMR Switch Evaluation Kits

These kits include several GMR Switch parts with different magnetic operate points and different output options such as current sink and current source. In addition, magnets and circuit boards for mounting the parts in the application are included along with a copy of NVE's catalog and application notes on CD ROM. In the AG910-07 kit, a socket for easy testing of the MSOP-8L package is also included.

AG920-07 - GT Sensor Evaluation Kit

NVE's newest evaluation kit includes analog and digital versions of the GT sensor product line plus our DD001-12 stand-alone signal processing IC. A variety of PCB configurations are provided so that the parts can be tested in different housing and barrel sizes including the M8 housing. Magnets for biasing are also included along with NVE's catalog and application notes on CD ROM.

Evaluation kits may be ordered direct from NVE's web site or from our authorized distributors. See NVE's web site for the list of authorized distributors.

AG001-01 Analog Sensor Evaluation Kit

The NVE GMR Engineering Evaluation Kit (PN AG001-01) was created as an aid to the technical user of GMR sensors to facilitate laboratory experimentation and development. The kit consists of an assortment of NVE sensors, printed circuit boards and permanent magnets sufficient to demonstrate sensor functionality in the laboratory. The kit consists of the following:

| <u>Part Number</u> | <u>Quantity</u> | <u>Description</u> |
|--------------------|-----------------|---|
| AA002-02 | 2 | 15 Oe/5 kΩ Field Sensor |
| AAH002-02 | 1 | 6 Oe/2 kΩ Field Sensor |
| AAL002-02 | 1 | 15 Oe/5 kΩ Field Low Hysteresis Sensor |
| AA003-02 | 2 | 20 Oe/5 kΩ Field Sensor |
| AA004-02 | 2 | 50 Oe/5 kΩ Field Sensor |
| AA005-02 | 2 | 100 Oe/5 kΩ Field Sensor |
| AA006-02 | 2 | 50 Oe/30 kΩ Field Sensor |
| AB001-02 | 2 | 250 Oe/5 kΩ Field Gradient Sensor |
| AG004-06 | 2 | Long PCB- 3.0" x 0.3" |
| AG005-06 | 2 | Square PCB- 0.5" x 0.5" |
| SN 12031 | 2 | Ceramic 5- Disc Magnets |
| SN 12030 | 2 | Ferrite Rectangular magnets |
| | 1 | Catalog and Application Notes on CD ROM |



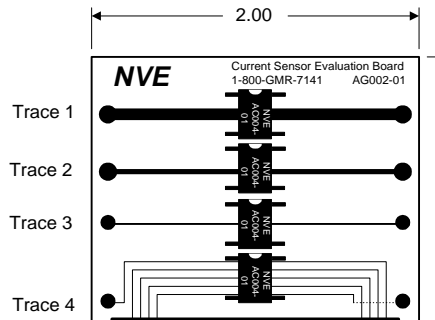
AG003-01 Current Sensor Evaluation Kit

The NVE GMR Current Sensor Evaluation Assembly (P/N AG003-01) was created to facilitate laboratory experimentation and development using GMR current sensors. The kit consists of (4) four NVE current sensors (P/N AA003-02) assembled to a printed circuit board (P/N AG002-01). Please note that the AA003-02 was selected for inclusion in this kit because it is a good medium sensitivity current sensor. In fact, any of NVE’s AA sensor products can be used in this application for more or less sensitivity to the magnetic field generated by the current. The PCB included in the kit has (4) four trace geometries to simulate various PCB current ranges. The details are as follows:

| Trace no. | Trace Width (inches) | Maximum ¹ Trace Input Current (A) | Nominal Sensitivity (mV/V _{out} /A _{in}) |
|-----------|----------------------|--|---|
| 1 | 0.090 | ±9.0 | 3.5 |
| 2 | 0.060 | ±6.0 | 3.7 |
| 3 | 0.010 | ±0.25 | 4.0 |
| 4 | 7 x 0.010 | ±0.25 | 20.0 |

Notes:

1. The maximum current is based on the rated current carrying capability of each trace geometry.
2. The minimum current the assembly can sense is arbitrary. The absolute value is dependent on many system design parameters and must be determined by the user.
3. For functional characteristics of the AA003-02 current sensor refer to the AA Sensors section of this catalog.
4. Refer to NVE’s Engineering & Application Notes, Appendix APP 003, “GMR Current Sensing” for additional technical details.
5. The AG003-01 assembly can be subdivided into (4) four separate sub-assemblies. All connections to each input trace and current sensor are isolated on each sub-section.



AG910-07 and AG911-07 GMR Switch Evaluation Kits

These kits were created to facilitate laboratory experimentation and development using NVE's GMR Switch Digital Output Sensors. The kits consist of sixteen distinct NVE GMR Switches that span the magnetic field range and output types available in the AD-Series sensors. All sensors in this kit are packaged in the MSOP8 miniature surface mount package. The kits also include a ceramic bar magnet and printed circuit boards (PCBs) for testing in the actual application. In addition, the AG910-07 kit includes a high temperature (175°C) MSOP8 ZIF socket with Kelvin contacts.



GMR Switch Digital Evaluation Kits Parts List

| Part Designator | Part Marking | Output type | Description |
|-----------------|--------------|----------------------|--|
| AD004-00 | BBH | Single Current Sink | See GMR Switch Section of This Catalog |
| AD005-00 | BBG | | |
| AD006-00 | BBJ | | |
| AD020-00 | BBK | | |
| AD021-00 | BBB | | |
| AD022-00 | BBC | | |
| AD023-00 | BBD | | |
| AD024-00 | BBF | | |
| ADH025-00 | MBL | | |
| AD105-00 | DBG | | |
| AD122-00 | DBC | " | |
| AD824-00 | MBF | Dual Output with SCP | |
| AD924-00 | NBF | | |
| AD320-00 | GBK | Sink/Sink | |
| AD324-00 | GBF | " | |
| AD624-00 | KBF | Sink/Source/Vreg | |
| AD724-00 | LBF | Sink/Sink/Vreg | |
| AG910-06 | N/A | N/A | 1"x2" PCB Board (AG910-07 Kit Only) |
| AG918-06 | N/A | N/A | .25" X 2" PCB Board |
| AG919-06 | N/A | N/A | .25" X 2" PCB Board |
| | N/A | N/A | CD ROM Catalog/App Notes |
| SN 12100 | N/A | N/A | MSOP8 ZIF Socket (AG910-07 Kit Only) |
| SN 12032 | N/A | N/A | Ceramic Magnet, 1"x0.25"x0.39" |

AG920-07 GT Sensor Evaluation Kit

This kit was created to facilitate laboratory experimentation and development using NVE's GT Sensor products. Because of the wide variety of mechanical orientations where these sensors can be used, this kit contains a large variety of circuit boards to simplify the customer's fixturing and testing of the parts. Included in the kit are one of each type of NVE's GT Sensor products, both analog and digital, plus two of the DD001-12 signal processing ICs to convert the analog output of the ABL sensors digital. Also included is a small container of solder paste with instructions on soldering to the TDFN-SO8 package. The contents are listed below:



| Quantity | Part Number | Marking | Description |
|----------|-------------|---------|---|
| 1 | ABL004-00 | FDB | Single Differential Sensor, 1.0mm Element Spacing |
| 1 | ABL005-00 | FDC | Single Differential Sensor, 0.5mm Element Spacing |
| 1 | ABL014-00 | FDD | Dual Differential Sensor, 1.0mm Element Spacing, 0.5mm Phase Shift |
| 1 | ABL015-00 | FDF | Dual Differential Sensor, 0.5mm Element Spacing, 0.25mm Phase Shift |
| 1 | AKL001-12 | P/N | Digital Output Differential Sensor, 1.0mm Element Spacing |
| 1 | AKL002-12 | P/N | Digital Output Differential Sensor, 0.5mm Element Spacing |
| 2 | DD001-12 | P/N | Digital Output Signal Processing IC for ABL Sensors |
| 2 | AG915-06 | N/A | M8 Round PCB, for mounting ABL Sensor |
| 2 | AG914-06 | N/A | M10 Round PCB, for mounting AKL Sensor |
| 1 | AG918-06 | N/A | Long, Narrow PCB for Mounting ABL Sensor Parallel to Long axis |
| 1 | AG919-06 | N/A | Long, Narrow PCB for Mounting ABL Sensor Perpendicular to Long axis |
| 1 | AG913-06 | N/A | PCB for Mounting 2 DD001-12 ICs |
| 1 | AG916-06 | N/A | Long, Narrow PCB for Mounting AKL Sensor Perpendicular to Long axis |
| 1 | AG917-06 | N/A | Long, Narrow PCB for Mounting AKL Sensor Parallel to Long axis |
| 1 | AG911-06 | N/A | Long, Narrow PCB for Mounting ABL Sensors Parallel to Long axis, and 1 or 2 DD001-12 ICs |
| 1 | AG912-06 | N/A | Long, Narrow PCB for Mounting ABL Sensors Perpendicular to Long axis, and 1 or 2 DD001-12 ICs |
| 5 | 12216 | N/A | 6mm Diameter X 4mm Thick Round Ferrite Magnets |
| 5 | 12217 | N/A | 3.5mm Diameter X 4mm Thick Round Ferrite Magnets |
| 1 | N/A | N/A | Catalog and Application Notes on CD ROM |
| 1 | N/A | N/A | Small container of solder paste |
| 1 | N/A | N/A | Soldering Instruction Sheet and PCB Documentation |