

Circuit Board Sensor Products

AG21x-07 Cylinder Position Sensors

PCB Assemblies for Pneumatic Cylinder Applications

Features:

- Precision Magnetic Operate Point
- Three-Wire Current Source or Current Sink Output
- Wide Operating Temperature Range
- Short Circuit, Transient, and ESD Protected
- Conforms to EN 60947-5-2 Standards for Switchgear

Applications:

- Pneumatic Cylinder Position Sensing
- General Magnet Position Sensing

Description:

The AG211-07 and AG212-07 PCB assemblies are small, sensitive magnetic sensors for use in pneumatic cylinder position sensing and other position sensing applications. They are designed to be potted or injection molded by the customer to make a complete magnetic sensor assembly with a cable attached and enclosed in a plastic housing. The PCB assemblies include an NVE AD9xx magnetic sensor, a DB001 signal processing IC, plus surrounding signal processing and filtering components. These parts provide a precise, temperature stable magnetic operate point and will source up to 200 mA of output current. They also feature reverse battery protection and short circuit protection as well as immunity to transients as specified in US and European standards such as EN60947-5-2.

The assemblies have a yellow LED to indicate the presence of the magnetic field, and are sized to fit into small package housings. Output from the parts are open-collector PNP transistors in current-sourcing configuration. The customer is required to limit the output current to the desirable level, from 5 mA to 200 mA, with an external load resistor.

AG211-07 Photo



Top View



Bottom View

AG212-07 Photo



Top View



Bottom View

General Electrical Characteristics				
Parameter	Min	Typical	Max	Unit
Input Voltage Range	4.5		30	V
Temperature Range ²	-20		85	°C
Magnetic Operate Point ¹	21	28	34	Oe
Magnetic Release Point ¹	5		14	Oe
Reverse Battery Protection			-30	V
LED		Yellow		
$V_{CC} - V_{OH}$ (Maximum Output Voltage Drop Across Part)			2	V
Output Current	5		200	mA
Supply Current	2.5		4.5	mA
Short Circuit Protection Limit			350	mA

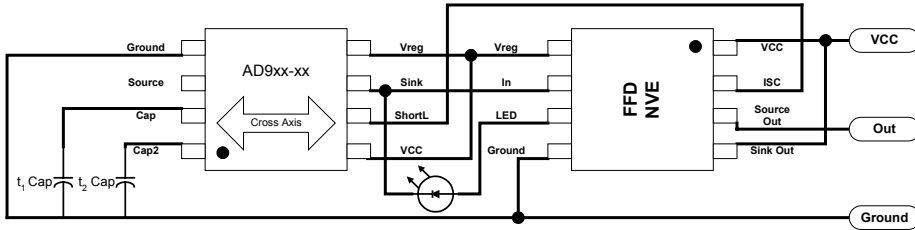
Notes:

1. See AD924-00 data in GMR Switch section of this catalog.
2. These parts are assembled with high temperature solder; overmolding at temperatures up to 210°C for 10 seconds is approved.

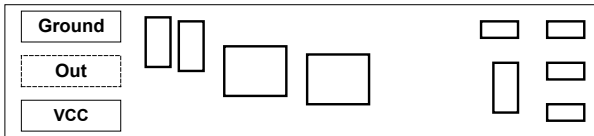
PCB Assembly Dimensions:

Part Number	Length, inches (mm)	Width, inches (mm)	Height, inches (mm)
AG211-07	0.755 (19.2)	0.165 (4.2)	0.100 (2.55)
AG212-07	0.540 (13.7)	0.115 (2.9)	0.085 (2.16)

Functional Block Diagram for AG211 and AG212:



Wiring Diagram:



Note: the dotted line pad is on the backside of the PCB.

AG-Series Currency Detection Sensors Sensor Arrays for Currency / Magnetic Media Detection

Features:

- Arrays of Sensor Elements for Broad Area Coverage
- No Contact with Media Required
- Capable of Detecting Very Low Magnetic Fields

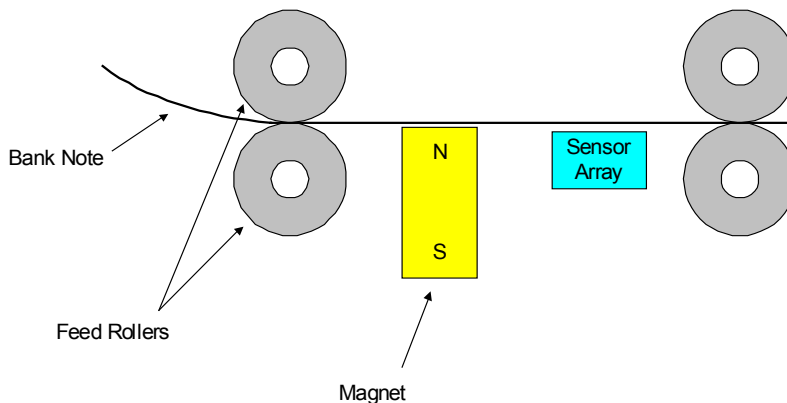
Applications:

- Currency Detection and Validation
- Other Magnetic Media Applications (Checks, Credit Cards, etc.)
- General Area Sensing for Low Magnetic Fields

Description:

These products are custom-built PCB assemblies for customer specific applications. They typically contain 20 to 60 analog GMR sensor elements, most often the AA002, AAH002, or AAL002 sensors. These sensors are mounted on a PCB, most often using Chip-On-Board (COB) assembly techniques, so that the sensor elements can be placed very close together. In addition, a coil on the PCB is provided on many of these designs, so that a current can be fed through the coil to provide a magnetic bias field at the sensors.

In a typical currency detection application, this PCB assembly is positioned approximately 1 mm from the currency path. The bank note is typically magnetized with a permanent magnet before it reaches the sensor array. The residual magnetization in the magnetic ink or stripe of the currency is detected by the sensor array. This information is then analyzed to determine if the currency is genuine. See the figure below:



Since every application is different in terms of circuit board and sensor configuration, NVE does not offer a standard product for this application. However, NVE is prepared to rapidly prototype these assemblies for customer evaluation at a nominal cost. Please contact NVE for details.

