

Programmable linear Hall-effect sensor ICs

Allegro MicroSystems Europe has introduced a new range of high-precision programmable linear Hall effect sensor ICs which are ideally suited to replacing contact potentiometers in automotive and industrial linear position-sensing applications.

The new A1373 and A1374 are sensitive, temperature-stable, linear devices, each of which incorporates a linear Hall sensor along with a chopper-stabilised amplifier, a voltage regulator, programming logic, and an output amplifier on a single IC.

The chopper-stabilisation circuitry forms the basis of a patented dynamic offset cancellation technique which provides extremely low offset and minimal temperature drift, with a high-frequency clock used for chopping and signal processing. The on-chip regulator provides over- and undervoltage protection and robustness against electromagnetic interference effects.

Programming via the output pin allows device parameters to be optimised for specific applications. Parameters that can be programmed include coarse and fine gain and quiescent output voltage for unipolar or bipolar operation, temperature coefficient of sensitivity, output clamp voltage level, including 'no clamp' rail-to-rail and output polarity.

For programming, the device is set up in a magnetic circuit and programmed with a train of serial pulses via the output pin. Once the right combination of gain, quiescent output voltage, and temperature coefficient has been selected, the codes can be locked for one-time programming. As a result, manufacturing tolerances can be reduced and the assembly process can be simplified.

In the automotive environment, the A1373 and A1374 offer increased reliability and accuracy over conventional potentiometer solutions in applications such as the sensing of throttle position, pedal position and suspension height.

These devices are available in a 3-pin single-inline package (designated KB), and include a lead (Pb) free version with a 100% matt tin-plated leadframe.
