

Magnetic Current Sensor Is Optimized For Accuracy

[Allegro MicroSystems'](#) ACS37017 Hall-effect current sensor is said to offer the industry benchmark for accuracy. The factory-calibrated sensor IC integrates high-voltage isolation with an advanced sensing architecture to achieve an industry-leading 0.55% typical sensitivity error over lifetime and temperature, according to the vendor. It adds that this level of accuracy delivers the high-fidelity feedback required to stabilize high-voltage power conversion systems.

With the launch of the ACS37017, Allegro completes a strategic expansion of its high-performance portfolio that now includes what the company describes as the definitive, market-leading solutions for the three critical challenges in modern power electronics: speed (ACS37100), power density (ACS37200), and accuracy (ACS37017).

Beyond raw accuracy, the ACS37017 simplifies system architecture by integrating a stable, non-ratiometric voltage reference that eliminates the need for external precision voltage reference components on the PCB. This not only reduces the bill of materials and saves board space but also removes a major source of system-level noise and error, allowing the sensor to deliver a pristine signal directly to the microcontroller.

Conventional sensors often suffer from drift, a degradation of accuracy as temperatures change or the component ages. The ACS37017 offers highly stable performance thanks to Allegro's proprietary compensation architecture. This technology actively maintains precise measurements, ensuring that control loops remain stable and efficient over the entire life of the vehicle or power supply.

Offered in a compact standard footprint, the ACS37017 also features robust reinforced isolation to ensure safety in high-voltage xEV and industrial systems (see the figure). To request the preliminary datasheet and engineering samples, see the ACS37017 product [page](#).



Figure. The ACS37017 Hall-effect current sensor achieves 0.55% typical sensitivity error over temperature and lifetime for tighter control loops and higher system efficiency. It also offers the ultra-low drift and precise signal conditioning required for demanding control loops in high-voltage power conversion.