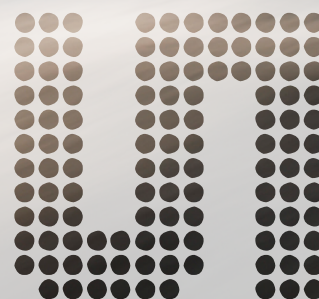


Product Document

DAEC™ Dynamic Angle Error Compensation

www.ams.com/AS5147



AS5147 – Magnetic Rotary Position Sensor

- DAEC™ Dynamic Angle Error Compensation
- AEC-Q100 grade 0 automotive qualified
- 14-bit resolution
- 11-bit binary incremental pulse count
- Programmable zero position

We provide innovative analog solutions to the most challenging applications in sensor and sensor interfaces, power management, and wireless.

General Description

The AS5147 is a high-resolution rotary position sensor for fast absolute angle measurement over a full 360-degree range. This new position sensor is equipped with a revolutionary integrated dynamic angle error compensation (DAEC™) with almost 0 latency. The robust design of the device suppresses the influence of any homogenous external stray magnetic field. A standard 4-wire SPI serial interface allows a host microcontroller to read 14-bit absolute angle position data from the AS5147 and to program non-

volatile settings without a dedicated programmer. The resolution of the ABI signal is programmable to 2048 steps / 512 pulses per revolution or 1024 steps / 256 pulses per revolution. The AS5147 has also a programmable UVW output and supports embedded self-diagnostics features. The Dynamic Angle Error on the AS5147 device is accurate from $\pm 0.08^\circ$ at 7,000rpm to $\pm 0.17^\circ$ at 14,500rpm. It comes in a 14 pin TSSOP package.

Benefits

- Easy to use – saving costs on DSP
- High resolution for motor & position control
- Versatile choice of the interface
- No programmer needed (via SPI command)
- Supports safety challenging applications
- Lower system costs (no shielding)

Features

- DAEC™ Dynamic angle error compensation
- 14-bit core resolution
- Independent output interfaces: SPI, ABI, UVW, PWM
- Zero position, configuration programmable
- Self-Diagnostics
- Immune to external stray field

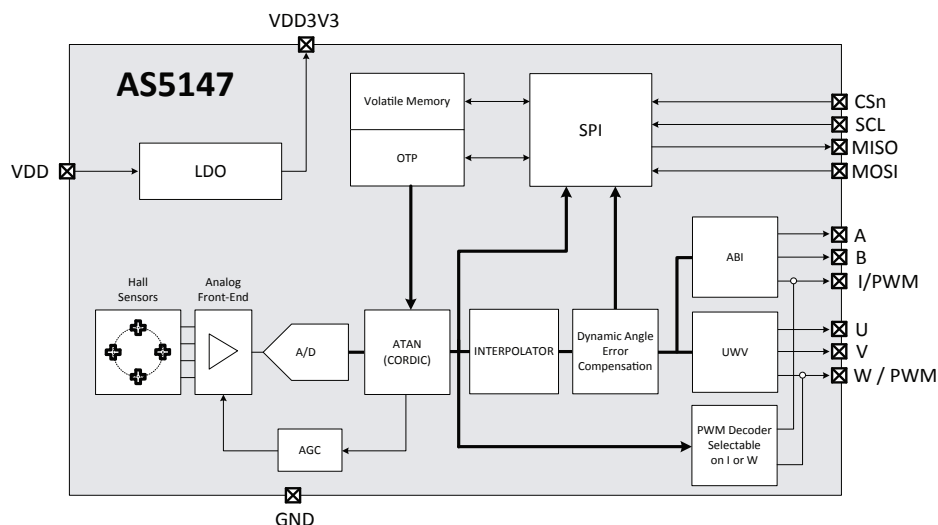
DAEC™ Latency Comparison



Applications

- Brushless DC motor commutation
- Electric power steering (EPS)
- Transmission (gearbox, actuator)
- Pump
- Brake (actuator)
- Starter & alternator

AS5147 Block Diagram



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