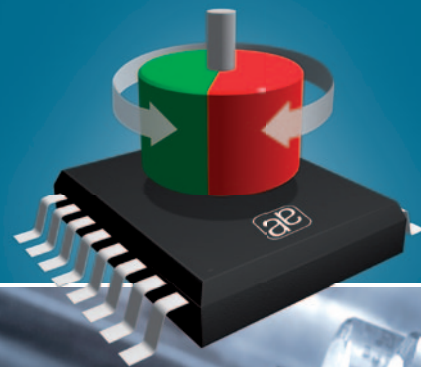
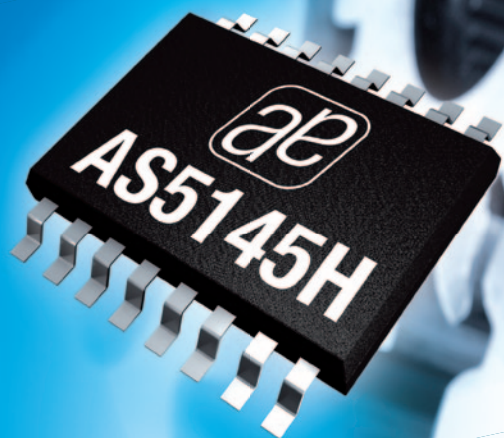


Boost the Precision of your Rotation



AS5145H



- ▶ 12-bit SSI and PWM outputs
- ▶ Incremental output
- ▶ Synchronous mode
- ▶ Fully automotive AEC-Q100 qualified
- ▶ 150°C ambient temperature



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General Description

The AS5145H is a contact less magnetic rotary encoder for accurate angular measurement over a full turn of 360 degrees. It is a system-on-chip, combining integrated Hall elements, analog front end and digital signal processing in a single device. To measure the angle, only a simple two-pole magnet, rotating over the center of the chip, is required. The magnet may be placed above or below the IC. The absolute angle measurement provides instant indication of the magnet's angular position with a resolution of $0.0879^\circ = 4096$ positions per revolution. This digital data is available as a serial bit stream and as a PWM signal. An internal voltage regulator allows the AS5145H to operate at either 3.3V or 5V supplies.

AS5145A: 12-bit magnetic rotary encoder with a 10-bit pre-programmed incremental output

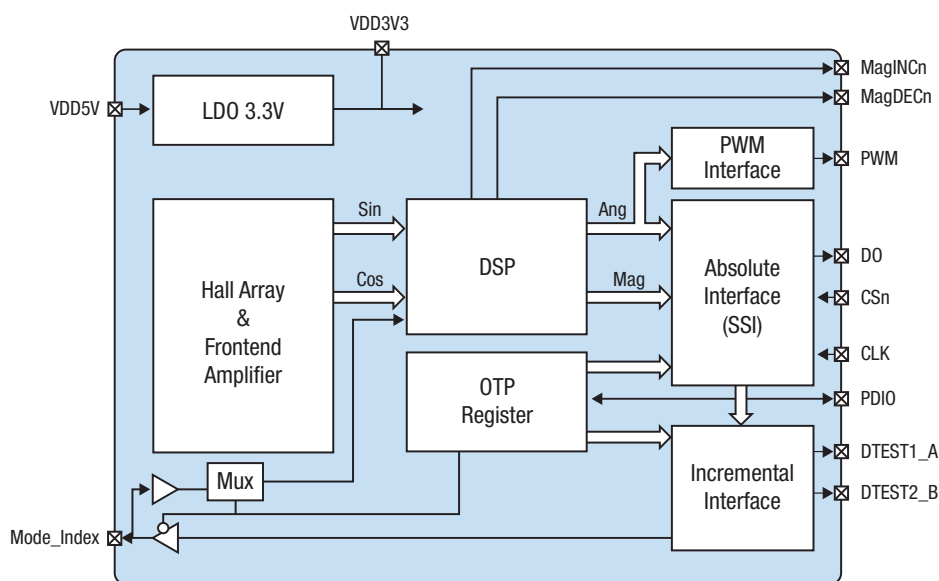
AS5145B: 12-bit magnetic rotary encoder with a 12-bit pre-programmed incremental output

Key Features

- Contact less high resolution rotational position encoding over a full turn of 360 degrees
- Two digital 12 bit absolute outputs:
 - Serial interface
 - Pulse width modulated (PWM) output
- Three incremental outputs
- Quadrature A/B (10 or 12 bit) and Index output signal (preprogrammed versions available: AS5145A for 10 bit and AS5145B for 12 bit)
- User programmable zero position
- Failure detection mode for magnet placement, monitoring, and loss of power supply
- Red-Yellow-Green indicators display placement of magnet in Z-axis
- Serial read-out of multiple interconnected AS5145H devices using Daisy Chain mode
- Tolerant to magnet misalignment and gap variations
- Wide temperature range: -40°C to $+150^\circ\text{C}$
- Fully automotive qualified to AEC-Q100, grade 0
- Small Pb-free package: SSOP-16 ($5.3\text{mm} \times 6.2\text{mm}$)

Applications

The device is ideal for industrial applications like contactless rotary position sensing and robotics; automotive applications like steering wheel position sensing, transmission gearbox encoder, head light position control, torque sensing, valve position sensing and replacement of high end potentiometers.



**150° ambient
temperature qualified**