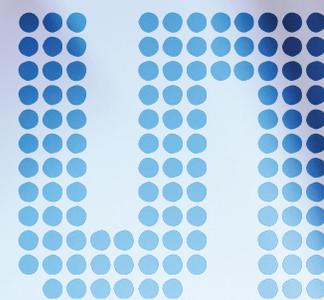


# Product Document

# All-Rounder

[www.ams.com/AS5040](http://www.ams.com/AS5040)



## AS5040 – Magnetic Rotary Position Sensor

- 10-bit resolution
- Absolute angle position measurement via SSI interface
- Incremental output signals (ABI, UVW)
- PWM output signal
- 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 AS5040 is an all-round on axis magnetic rotary position sensor. It provides the absolute angular position and incremental output signals of a magnet which is placed above or below the device. The AS5040 can be configured to specific customer requirements by programming the OTP (one time programmable) register. An internal voltage regulator allows to operate the AS5040 device at either 3.3V or 5V power supplies.

### Applications

- Robotics and industrial automation
- Motor position and motion control
- Brushless DC motor commutation
- Power tools
- Office equipment: printers, scanners, copiers
- Weather stations

### Features/Benefits

- Flexible due to user programmable incremental output modes:
- 10, 9, 8 or 7-bit user programmable resolution per 360 degrees
- Incremental AB and index output signal
- UVW commutation signals for brushless DC motors
- Absolute angular position output on SSI interface
- Pulse width modulated (PWM) output
- User programmable zero position
- Failure detection mode for magnet placement monitoring
- Rotation speeds up to 30.000 rpm (incremental output)
- Push button functionality detects movement of magnet in Z-axis
- Operating temperature -40°C to +125°C
- High reliability due to contactless sensing
- Insensitive to external magnetic stray fields
- 3.3V or 5V compliant
- 16-pin SSOP package

### AS5040 Block Diagram

