

Easy-to-use magnetic position sensor offers durable, contactless replacement for potentiometers

Simple ratiometric output, high resolution, low power consumption and attractive price/performance ratio make new AS5600 attractive to designers of industrial and consumer equipment

Unterpremstaetten, Austria (8 September, 2014), ams AG (SIX: AMS), a leading provider of high performance analog ICs and sensors, today introduced the AS5600, a magnetic rotary position sensor which makes it easier than ever before to replace a traditional potentiometer with a more reliable contactless alternative.

To appeal to manufacturers and users of potentiometers, the AS5600 features a ratiometric output, mirroring the output of a potentiometer (which is a variable resistor). This means that users of a potentiometer do not need to change the application code running on their microcontroller when they replace it with a design based on an AS5600. Offering precise 12-bit resolution over a full 0-360° rotation, the AS5600 can measure angular displacement in any application currently using a potentiometer, including rotary knobs and dials.

By pairing the AS5600 with a low-cost two-pole magnet, design engineers can implement an angle-measurement system at a similar cost to that of a mid-range potentiometer, benefiting from the attractive price/performance ratio of the device.

The magnetic rotary position sensor AS5600 extends ams's broad portfolio of magnetic position sensors, which all include proprietary differential sensing technology, providing high immunity from stray magnetic fields. The contactless sensing method also offers superior reliability to a potentiometer's contacting method. Unlike a potentiometer, in which a mechanical wiper slides along a conductive armature, a magnetic position sensor senses rotary motion by measuring changes in the magnetic field generated by the paired magnet.

This field-sensing method is unaffected by dust, dirt, humidity, moisture or vibration – phenomena which all tend to distort or disable a potentiometer's measurement operations.

While offering better performance and reliability than a potentiometer, the AS5600 has also introduced new power-saving modes which enable it to rival the low power consumption of a potentiometer. It implements four power-saving modes, and automatically switches to the lowest power mode after one minute of inactivity. In this mode, it scans for movement ten times a second. On detecting movement, it instantly switches to a user-selected power mode, operating at a higher sampling frequency. In lowest power mode, the AS5600 draws just 1.5mA (maximum).



Press Release
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The high accuracy of the measurements captured by the AS5600 is due to its on-chip Hall elements, a high-performance functional block found in all magnetic position sensors made by ams. Non-linearity over a full 360° rotation, over the device's entire temperature range, is just $\pm 0.28\%$ at the digital output. Maximum noise is $0.015^{\circ}_{\text{rms}}$.

'Potentiometers are known to be vulnerable to early failure in industrial and consumer applications because of contamination by dirt or humidity,' said Alfred Binder, business line manager for position sensors at ams. 'With the introduction of the AS5600, it is now simple to replace a potentiometer with a reliable contactless alternative that offers high resolution, low power consumption and immunity to contamination.'

A demonstration board for the AS5600 is available online from ams.

For further information on the magnetic rotary position sensor AS5600 and to request samples, please visit www.ams.com/Magnetic-Rotary-Position-Sensor/AS5600.

about ams

ams develops and manufactures high performance analog semiconductors that solve its customers' most challenging problems with innovative solutions. ams' products are aimed at applications which require extreme precision, accuracy, dynamic range, sensitivity, and ultra-low power consumption. ams' product range includes sensors, sensor interfaces, power management ICs and wireless ICs for customers in the consumer, industrial, medical, mobile communications and automotive markets.

With headquarters in Austria and 9 design centers world wide ams employs over 1,500 people globally and serves more than 7,800 customers around the globe. ams is listed on the SIX Swiss stock exchange (ticker symbol: AMS). More information about ams can be found at www.ams.com.

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