

Unparalleled accuracy over full temperature range at high speed in latest version of ams' 47 series magnetic position sensor

New AS5047P with incremental ABI output is an ideal replacement for optical encoders and resolvers in motor and motion control systems that enables dramatically lower system costs while still providing high accuracy performance

Unterpremstaetten, Austria (17 March, 2015), ams AG (SIX: AMS), a leading provider of high performance sensors and analog ICs, today launched a new version of its 47 series of magnetic rotary position sensors for motor and motion control applications, featuring higher rotation speeds and higher-resolution incremental outputs.

Like other members of the 47 series, the new AS5047P features ams' DAEC™ (dynamic angle error compensation) technology, which produces outstanding angle measurement accuracy even at very high rotation speeds. The 47 series magnetic sensors' high-speed performance and ABI incremental outputs make them ideal as robust replacements for optical encoders. The total system cost of a design based on the 47 series is also normally far lower than the cost of an equivalent optical encoder or resolver.

In the new AS5047P sensor, the maximum rated measurement speed has been increased from 14,500rpm to 28,000rpm, thus enabling it to support many high speed rotating shaft applications that previously could only be addressed with optical encoders.

ams has also increased the number of steps per revolution in the device's incremental ABI outputs. The 47 series' ABI outputs are equivalent to the outputs of a standard optical encoder, so motor control system designers can easily replace an optical encoder with an ams magnetic position sensor measurement system without any change to their control software or interface. In the AS5047P, the maximum resolution of the ABI output is raised to 4,000 steps/1,000 pulses per revolution in decimal mode, and 4,096 steps/1,024 pulses per revolution in binary mode, which means that a wider range of optical encoders can now be replaced by a like-for-like magnetic position sensor.

In addition, the AS5047P's standard four-wire SPI serial interface allows a host microcontroller to read 14-bit absolute angle position data from the AS5047P, as well as to program non-volatile settings without the need for a dedicated programmer. The device also simultaneously provides a standard UVW commutation interface for use in brushless DC motors, eliminating the need for discrete Hall sensor switches, and providing a single IC to support both motor position and control applications. The absolute angle position may be provided as a PWM-encoded output signal.



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New AS5047P magnetic position sensor for
motor control systems

Like all magnetic position sensors from ams, the AS5047P is highly immune to interference from stray magnetic fields, and is also unaffected by the dirt, dust, grease, humidity and other contaminants that commonly impair the performance of optical encoders.

The DAEC technology in the AS5047P provides compensation for the dynamic angle error caused by the propagation delay as the sensor processes raw measurements of magnetic field strength. DAEC thus eliminates the need for system designers to implement discrete error-correction circuitry in an external DSP or MCU. With DAEC, the AS5047P achieves very high accuracy, rated at a maximum 0.34° at a constant rotation speed of 28,000rpm (excluding integral non-linearity).

'Unlike optical encoder solutions, the AS5047P position sensor provides lower system costs, immunity to harsh environments along with tolerance to axial and radial variations and an ultra-small footprint,' said Heinz Oyrer, senior marketing manager at ams' position sensor business line.

The AS5047P is available now for volume production.

An evaluation board for the AS5047P is available online from ams. For samples and technical information, go to www.ams.com/magnetic-position-sensor/AS5047P.

Video demos and more of ams' world of Magnetic Position Sensors you can find at www.ams.com/magnetic-position-sensors.

About ams

ams is a global leader in the design and manufacture of advanced sensor solutions and analog ICs. Our mission is to shape the world with sensor solutions by providing a seamless interface between humans and technology. ams' high-performance analog products drive applications requiring extreme precision, dynamic range, sensitivity, and ultra-low power consumption. Products include sensors, sensor interfaces, power management and wireless ICs for consumer, communications, industrial, medical, and automotive markets.

With headquarters in Austria, ams employs over 1,700 people globally and serves more than 8,000 customers worldwide. 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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