

# Product Document

# Contactless Magnetic Position Sensing for Motor Control

[www.ams.com/Position-Sensors](http://www.ams.com/Position-Sensors)



## Contactless high-resolution angle sensing for electric motor control

- High-speed applications
- Magnetic stray field immunity
- Easy system integration

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



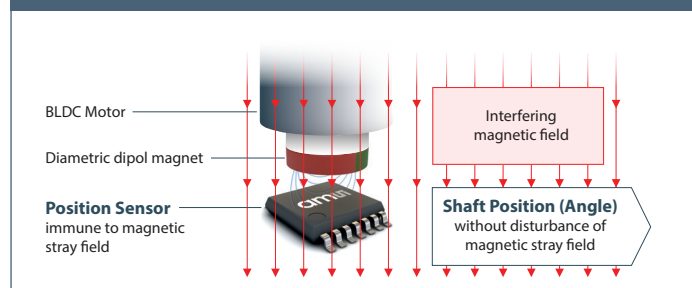
## General Description

ams' position sensors used in electronically commutated motors improve the adjustment control of torque at start-up and in high-speed operation. Effective torque control provides more efficient motor operation, and eliminates vibration and other interfering mechanical effects caused by torque ripple.

ams' position sensors for motor control have special features that make them ideal for motor applications. The revolutionary integrated dynamic

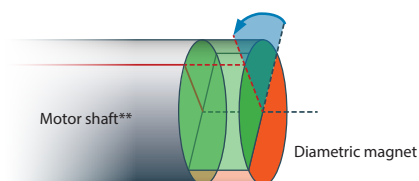
angle error compensation (DAEC™) yields almost zero output latency and ultra-fast refresh rates. With its robust suite of interfaces, including SPI, PWM, UVW and ABI, ams' position sensors uniquely enable a single sensor device to provide absolute motor position, sensor diagnostics and motor commutation feedback. For much easier system integration of the target magnet on the motor shaft, ams' position sensor provides an intelligent configuration setup that includes a "zero position" programming feature.

### Stray Field Immunity Feature



### Zero Position Programming Feature

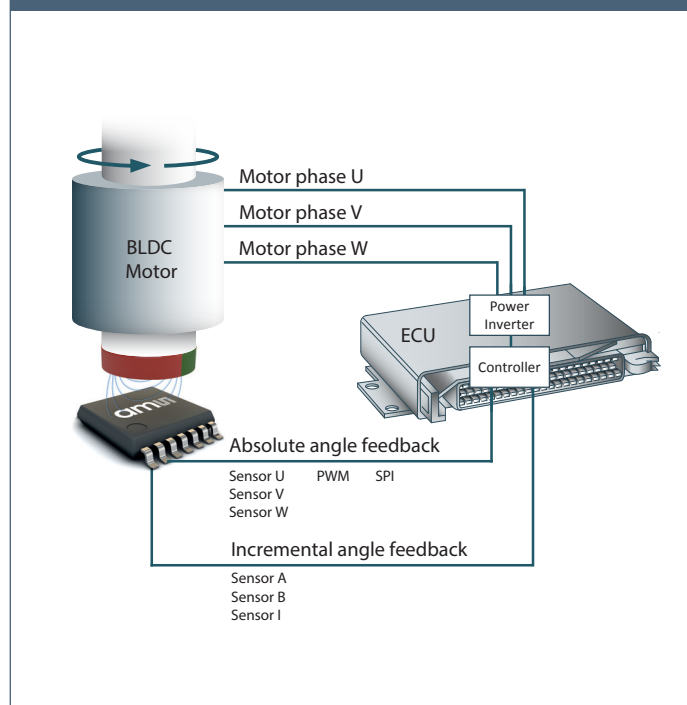
**Motor Angle** = Magnet Angle ± extracted correction\*



\* The extracted correction is the difference to rotor zero position.  
The zero position can be permanently programmed.

\*\* The motor shaft is non-magnetic.

### Application Example



### Sensor Portfolio

	Max. Speed [rpm]	Redundant	Automotive qualified	Resolution [bit]	Interface	Output	Package
AS5047P*	28.000	-	-	14	SPI	Digital Angle (Interface) / ABI / UVW / PWM	TSSOP-14
AS5147P*	28.000	-	•	14	SPI	Digital Angle (Interface) / ABI / UVW / PWM	TSSOP-14
AS5247*	14.500	•	•	14	SPI	Digital Angle (Interface) / ABI / UVW / PWM	MLF-40
AS5115	30.000	-	•	analog	SSI	Sin/Cos	SSOP-16
AS5215	30.000	•	•	analog	SSI	Sin/Cos	MLF-32

\* The AS5x47y series is equipped with integrated dynamic angle error compensation (DAEC™)

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