Magnetic Position Sensors

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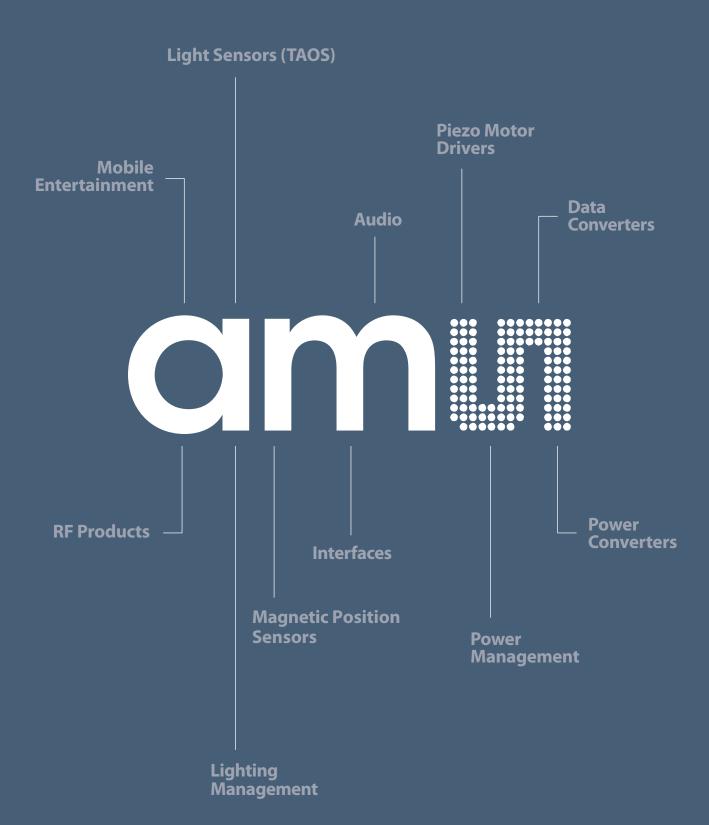
Hall-based Magnetic Position Sensors

ams offers the broadest range of high performance Magnetic Position Sensors suitable for Industrial, Medical, Robotics, Automotive and Consumer applications. ams patented technology makes all Magnetic Position Sensors immune to external stray field yielding to higher robustness and lower system cost (no magnetic shield needed).

Magnetic Rotary Position Sensors

The Magnetic Rotary Position Sensor product family detects the absolute angular orientation of an on-axis 2-pole magnet rotating over the center of the IC. The absolute angular position can be displayed on different outputs as PWM, ABI, UVW or directly read through the interface.
According to the application's requirements different resolutions from 8-bit up to 14-bit are available.
This technology can be employed in high accuracy angle position detection, high speed rotation systems and motor control (BLDC motors).
All Rotary Magnetic Position Sensors can replace both absolute and incremental optical sensors, other magnetic and inductive technologies, potentiometers and magnetic switches.

Magnetic Linear Incremental Position Sensors

The Linear Incremental Magnetic Position Sensor product family detects the linear movement of a multi-pole magnetic strip. Circular multi-pole magnetic rings can also be used in rotary incremental rotation off-axis application. This high precision product family allows to detect linear movement with a resolution as good as 0.5µm.
Linear Incremental Magnetic Position Sensors can be used in a variety of motion sensing applications found in medical, industrial and consumer products.

3D Absolute Position Sensors

The new 3D Absolute Position Sensor product family is capable to detect absolute linear position of a 2-pole magnet as well as absolute angular orientation in on- and off-axis systems. High level of flexibility and precision can be achieved through the linearization in the specific application.
The superior stroke and input magnetic field make these ICs suitable for countless applications in the Industrial and Automotive markets.

EasyPoint™ (Joystick Position Sensor)

EasyPoint™ is a mini-joystick which consists of a mechanical stack incorporating a navigation knob with a magnet and a two-dimensional Magnetic Position Sensor Hall IC. Its simple construction and the contactless sensing technique implemented by the 2-D Magnetic Position Sensor means that the module offers very high mechanical reliability.
With EasyPoint™ module technology, ams is providing a highly reliable mini-joystick module for use in a variety of portable devices. Besides its high reliability, this solution also offers a high degree of usability. Read more about EasyPoint™ on our blog site blog.easypoint.com

Magnetic Position Sensors

Magnetic Rotary Position Sensors

Part No.	Description	Resolution	Interfaces	Output	Max Speed	Overvoltage Protection	Redundant	Supply Voltage	Temperature Range	Package	AUT Qualified
					rpm			V	°C		
AS5030	8-bit Rotary Position Sensor with Digital Angle (Interface) and PWM output	8-bit	SSI	Digital Angle (Interface) / PWM	30000	-	-	5.0	-40 to +125	TSSOP-16	-
AS5035	8-bit Rotary Position Sensor with ABI output	8-bit	-	ABI	30000	-	-	3.3 or 5.0	-40 to +125	SSOP-16	-
AS5040	10-bit Rotary Position Sensor with Digital Angle (Interface), ABI, UVW and PWM output	10-bit	SSI	Digital Angle (Interface) / ABI / UVW / PWM	30000	-	-	3.3 or 5.0	-40 to +125	SSOP-16	-
AS5043	10-bit Rotary Position Sensor with Digital Angle (Interface) and Linear analog output	10-bit	SSI	Digital Angle (Interface) / Linear analog	30000	-	-	3.3 or 5.0	-40 to +125	SSOP-16	-
AS5045	12-bit Rotary Position Sensor with Digital Angle (Interface) and PWM output	12-bit	SSI	Digital Angle (Interface) / PWM	-	-	-	3.3 or 5.0	-40 to +125	SSOP-16	-
NEW ▶ AS5048A	14-bit Rotary Position Sensor with Digital (Interface) and PWM output	14-bit	SPI	Digital Angle (Interface) / PWM	-	-	-	3.3 or 5.0	-40 to +150	TSSOP-14	-
NEW ▶ AS5048B	14-bit Rotary Position Sensor with Digital (Interface) and PWM output	14-bit	I²C	Digital Angle (Interface) / PWM	-	-	-	3.3 or 5.0	-40 to +150	TSSOP-14	-
AS5050	10-bit Rotary Position Sensor with Digital Angle (Interface) output	10-bit	SPI	Digital Angle (Interface)	-	-	-	3.3	-40 to +85	QFN-16	-
AS5055	12-bit Rotary Position Sensor with Digital Angle (Interface) output	12-bit	SPI	Digital Angle (Interface)	-	-	-	3.3	-40 to +85	QFN-16	-
AS5115	Rotary Position Sensor with Sin/Cos signal output	-	SSI	sin/cos	-	-	-	5.0	-40 to +150	SSOP-16	●
AS5215	Redundant Rotary Position Sensor with Sin/Cos output	-	SSI	sin/cos	-	-	●	5.0	-40 to +150	MLF-32	●
AS5130	8-bit Rotary Position Sensor with Digital Angle (Interface) and PWM output	8-bit	SSI	Digital Angle (Interface) / PWM	30000	-	-	5.0	-40 to +125	SSOP-16	●
NEW ▶ AS5132	8.5-bit Rotary Position Sensor with Digital Angle (Interface), ABI, UVW (up to 6 Pole Pairs) and PWM output	8.5-bit	SSI	Digital Angle (Interface) / ABI / UVW (up to 6 Pole Pairs) / PWM	72900	-	-	5.0	-40 to +150	SSOP-20	●
AS5134	8.5-bit Rotary Position Sensor with Digital Angle (Interface), ABI, UVW (up to 6 Pole pairs) and PWM output	8.5-bit	SSI	Digital Angle (Interface) / ABI / UVW (up to 6 Pole Pairs) / PWM	82000	-	-	5.0	-40 to +140	SSOP-20	●
AS5140H	10-bit Rotary Position Sensor with Digital Angle (Interface) Output, ABI and PWM output	10-bit	SSI	Digital Angle (Interface) / ABI / PWM	10000	-	-	3.3 or 5.0	-40 to +150	SSOP-16	●
AS5145A/B	12-bit Rotary Position Sensor with Digital Angle (Interface), PWM and ABI output	12-bit	SSI	Digital Angle (Interface) / ABI / PWM	-	-	-	3.3 or 5.0	-40 to +150	SSOP-16	●
AS5245	Redundandt 12-bit Rotary Position Sensor with Digital Angle (Interface) and ABI output	12-bit	SSI	Digital Angle (Interface) / ABI / PWM	-	-	●	3.3 or 5.0	-40 to +150	QFN-32	●
AS5145H	12-bit Rotary Position Sensor with Digital Angle (Interface) and PWM output	12-bit	SSI	Digital Angle (Interface) / PWM	-	-	-	3.3 or 5.0	-40 to +150	SSOP-16	●
AS5163	12-bit Rotary Position Sensor with Linear analog or PWM output and Overvoltage Protection	12-bit	-	Linear analog / PWM	-	●	-	5.0	-40 to +150	TSSOP-14	●

Magnetic Rotary Position Sensors

Part No.	Description	Resolution	Interfaces	Output	Max Speed	Overvoltage Protection	Redundant	Supply Voltage	Temperature Range	Package	AUT Qualified
					rpm			V	°C		
AS5263	Redundant 12-bit Rotary Position Sensor with Linear analog or PWM output and Overvoltage Protection	12-bit	-	Linear analog / PWM	-	•	•	5.0	-40 to +150	MLF-32	•
NEW ▶ AS5162	12-bit Rotary Position Sensor with Linear analog output and overvoltage protection	12-bit	-	Linear analog	-	•	-	5.0	-40 to +150	SOIC-8	•
NEW ▶ AS5262	Redundant 12-bit Rotary Position Sensor with Linear analog output and overvoltage protection	12-bit	-	Linear analog	-	•	•	5.0	-40 to +150	MLF-16	•
NEW ▶ AS5161	12-bit Rotary Position Sensor with PWM output and overvoltage protection	12-bit	-	PWM	-	•	-	5.0	-40 to +150	SOIC-8	•
NEW ▶ AS5261	Redundant 12-bit Rotary Position Sensor with PWM output and overvoltage protection	12-bit	-	PWM	-	•	•	5.0	-40 to +150	MLF-16	•

Magnetic Linear Incremental Position Sensors

Part No.	Description	Resolution	Minium Pole Pair Length	Interfaces	Output	Max Speed	Overvoltage Protection	Redundant	Supply Voltage	Temperature Range	Package	AUT qualified
						rpm			V	°C		
AS5304A/B	160-step Linear Incremental Position Sensor with ABI output	160 step	4 mm	-	ABI	20 m/s	-	-	5.0	-40 to +125	TSSOP-20	-
AS5306A/B	160-step Linear Incremental Position Sensor with ABI output	160 step	2.4 mm	-	ABI	12 m/s	-	-	5.0	-40 to +125	TSSOP-20	-
AS5311	12-bit Linear Incremental Position Sensor with Digital Interface and PWM output	12-bit	2 mm	SSI	PWM	0.65 m/s	-	-	3.3 or 5.0	-40 to +125	TSSOP-20	-
NSE-5310	12-bit Linear Incremental Position Sensor with Digital Interface and PWM output	12-bit	2 mm	I²C	PWM	0.65 m/s	-	-	3.3 or 5.0	-40 to +125	TSSOP-20	-
AS5510	10-bit Linear Absolute Field Sensor with Digital position (Interface) output	10-bit	-	I²C	Digital position (Interface) output	-	-	-	2.5 - 3.6	-30 to +85	WL-CSP	-

Magnetic Position Sensors

3D Absolute Position Sensors

Part No.	Description	Resolution	Interfaces	Output	Redundant	Supply Voltage V	Temperature Range °C	Package	AUT Qualified
AS5410 NEW ▶	14-bit Linear Absolute Position Sensor with Digital (Interface) and PWM output	14-bit	SPI, PWM	Digital (Interface) / PWM	-	3.3	-40 to +105	TSSOP-16	-

EasyPoint™ Joystick Position Sensor

Part No.	Description	Resolution	Interfaces	Output	Overvoltage Protection	Redundant	Supply Voltage V	Temperature Range °C	Package	AUT Qualified
AS5013	Two-dimensional Magnetic Position Sensor with Digital Coordinates output	8-bit (X and Y)	I²C	Digital Coordinates (interface)	-	-	3.0	-20 to +80	QFN-16	-

AEC-Q100 Automotive Qualification

The "Safe Launch Program" makes ams a competent partner for autmotive qualified products. It is part of ams' "Zero-Defect-Strategy" and includes next to the AEC-Q100 automotive qualification essential additional customer's requirements, as well as a "Burn-In" and a "Three-Temperature" testing procedure.
Burn-In stands for an artificial, accelerated aging process. The three-temperature test gives us further information about the reliability at lowest, highest and at room temperature regarding to the temperature specification limits of respective devices. Together with improved and extended screening procedures, this program will be done for the first, minimum 100,000 parts during the ramp-up phase of an automotive project to guarantee "zero defects" and consequently the best quality for automotive customers.

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dc = design center
tc = test center
so = sales office

United Kingdom
Stockport **so**

Switzerland
Rapperswil **so/dc**

Germany
Munich **so**

Sweden
Sollentuna **so**

Finland
Helsinki **so**

China
Hong Kong **so**
Shenzhen **so**
Shanghai **so**

Korea
Seoul **so**

Japan
Tokyo **so**

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