Anisotropic Magneto-Resistive (AMR) Sensor Components

Measurement Specialties **AMR** sensors allow non-contact measurement of changes in the angle of a magnetic field as seen by the sensor. This effect enables design of devices that can detect disturbance in extremely weak fields, as found in traffic detection sensors, as well as precision encoders using strong fields (i.e. from a magnet).

	MS32	**KMT32B**	**KMT36H**	**KMA36**	**MR174B, KMY, KMZ**	**MLS**
Description	Low Field Switching Sensor	Absolute Angle Sensor	Absolute Angle Sensor	Angular or Linear Sensor	Linear Low Field Sensor	Linear Position Sensor
Type	AMR Magneto-Resistive	AMR Magneto-Resistive	AMR Magneto-Resistive	AMR System	AMR Magneto-Resistive	AMR Magneto-Resistive
Range	1 to 3kA/m magnetic switching field	180° angle	360° angle	360° angle	-2 to +2kA/m magnetic field	Absolute within pole pitch, or incremental
Supply voltage	5 to 30VDC	5 to 10VDC	5 to 12VDC	2.9 to 6.0VDC	5 to 10VDC	5 to 10VDC
Output	Ratiometric 10mV/V	Sine/Cosine 20mV/V	3x120° shifted 20mV/V	PWM and I^2C	Ratiometric 20mV/V	Sine/Cosine 20mV/V
Accuracy	0.1 KA/m	0.1 to 1°	0.1 to 1°	0.3°	1% of range	0.1 to 1% of pole pitch
Resolution	0.1 KA/m	0.01 to 0.1°	0.01 to 0.1°	0.1°	0.1% of range	0.01 to 0.1% of pole pitch
Speed		Up to 30,000 RPM		24-720Hz update rate		
Operating Temperature	-25°C to +85°C	-40°C to +150°C	-40°C to +125°C	-25°C to +85°C	-40°C to +150°C	-40°C to +85°C
Package	TDFN 2.5 x 2.5	TDFN 2.5 x 2.5; SO-8	TDFN 2.5 x 2.5	TSSOP20	SOT-223, E-line 4 pin	Die or Hybrid
Size, mm	2.5x2.5x0.8	TDFN: 2.5x2.5x 0.8 SO-8: 5 x 4 x 1.75	2.5 x 2.5 x 0.8	6.5 x 6.4 x 1.2	SOT: 6.6x7.0x.1.6 E-line: 16x4.2x2.4	Die: 5.2x1.2x0.5 HK: 7.6x5.3x1.4 HS: 18 x 8 x 2
Features	Linearized output Temperature-compensated switching point Low power consumption Wheatstone bridge type Linear field response	High accuracy High resolution High temperature 175°C on request Low power consumption Self diagnosis RoHS compliant	High accuracy High resolution 360° full turn	Absolute and incremental Linear mode Low power mode Sleep mode Auto wake-up (I^2C) Programmable parameters	High sensitivity Very low hysteresis Linear to uniaxial field strength Available with internal magnet High temperature Full or half bridge	Pole pitch 1 to 5mm available Very high precision Insensitive to air gap fluctuations
Typical applications	Piston position switch Reed switch replacement Notebook cover position Door, window position	Steering position Flowmeters Tachometers Rotary encoders Motor motion control Camera positioning Medical applications Torque (automotive) Robotics	Steering position Gauge readings Rotary encoders Potentiometer replacement Camera positioning Robotics Motor motion control	Knobs, potentiometers Small robots Angular & linear position encoders Battery powered applications Handling machines Motor motion control	Non-destructive material testing Dish washer spray arm detection Magnetic imaging Brake pedal position Gear revolutions Contactless switch Displacement sensors Detection of low magnetic fields	Roller conveyors Circular saws Bending machines Velocity measurements

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