

Generic Magneto Resistive Angular Sensor



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Our innovative sensors are helping customers to meet increasing global requirements for safer and reliable systems. To fit these specifications the trend is to replace the potentiometric position sensors by contactless ones; this ensures longer lifetime and secure the applications.

Product introduction

We have developed a contactless angular position sensor which, by design, is mechanically robust, highly reliable and extremely accurate. The sensor based on Magneto Resistive principle ensures very good accuracy and reliability over a large temperature range (-40°C to 160°C).

Product benefits

This sensor is stand alone and includes the magnet in front of the MR bridge. The design is quite similar to a potentiometer which makes the interfacing on existing mechanical environment easier. A metallic bearing is designed for millions angular strokes durability. The mechanical design is dedicated for each customer interface.

The electrical output could be analogue or digital SPI by choosing the best adapted magneto resistive chip to implement inside the sensor.

The electronic, the magnet and the mechanics are designed for 160°C continuous operations and therefore the sensor can be also used in the engine compartment.

In the same way the sensor is perfectly tight and the electronic compartment is completely separated from the bearing room to ensure very harsh environment conditions.

The angular range of the sensor could be programmed to deliver the full dynamic to the dedicated customer angular stroke. Out of this range the signal is clamped.

The programming facilities allow the setting of gain, offset, temperature compensation and diagnosis.

For accuracy improvement, this programming could also be done after assembly of the sensor on the customer system in order to compensate the mechanical and assembly tolerances.

The generic Magneto Resistive angular sensor could be used to measure all the angular displacements for a range of 10° to 180° angle. The sensor allows a free 360° rotation with any mechanical stop.

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Product application

It can easily replace existing potentiometers for many applications. It could be advantageously used for chassis height measurement or attitude level, and will be in this case delivered with the adapter lever for a direct interfacing on the shock absorber.

Inside the engine compartment the sensor can also be interfaced, for example, on Exhaust Gas Recirculation valves, on Electrical Throttle control, on Turbo valves....

On Transmission, it can be used for the position control of transfer cases, Automatic Manual Transmission gearboxes or clutches. For cockpit it could be integrated on pedals or on open roof management system for example.

This list is far to be exhaustive since there are more and more safety applications requirements for reliable and accurate sensors.

Product features

- I Non-Contacting
- I Stand alone (includes the magnet)
- I Magneto Resistive technology
- I High Accuracy
- I Programmable for calibration
- I Compatible with potentiometer interface
- I Tight & dedicated to engine environment

Product technical specifications

	KMA199	KMA200
I Angular measuring range:	10°C ↔ 180°C	10°C ↔ 180°C
I Temperature range:	-40°C ↔ 150°C	-40°C ↔ 160°C
I Supply voltage:	5VDC	5VDC
I Supply current:	< 10 mA	< 12 mA
I Linearity:	< 0.3% FS	< 0.3% FS
I Temperature drift:		
-25°C ↔ 125°C	< 0.35% FS	< 0.35% FS
-40°C ↔ -25°C & 125°C ↔ 160°C	< 0.7% FS	< 0.7% FS
I Hysteresis:	< 0.1% FS	< 0.1% FS
I Total error:	± 1.1% FS	± 1.1% FS
I Resolution:	12 bit	12.5 bit
I Output data rate:	2 kHz	4 kHz
I Output :	1 Analogue	2 Analogue or 1 Analogue & 1 Digital SPI
I Internal diagnosis:	No	Yes
I Over & reverse voltage :	-0.3V ↔ 5.7V	-16.5V ↔ 26.5V

Rotary position programming in analogue mode

