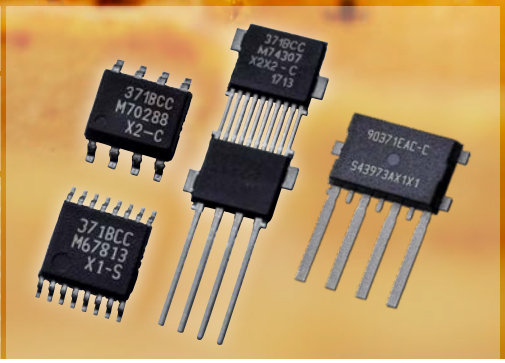
Melexis
INSPIRED ENGINEERING

Thanks to its magnetic compass the fascinating honey bee has the ability to perceive the omnipresent magnetic field (MF) of the Earth. This magnetic field sensitivity matches this wonderful creature with our Triaxis® magnetic sensors.

## MLX90371

## TRIAXIS® PERFORMANCE

# MAGNETIC POSITION SENSOR




The MLX90371 brings stray field immunity to the Triaxis® family. Featuring an analog or PWM output signal the MLX90371 supports a wide variety of automotive position sensing applications from powertrain actuators to human machine interfaces.

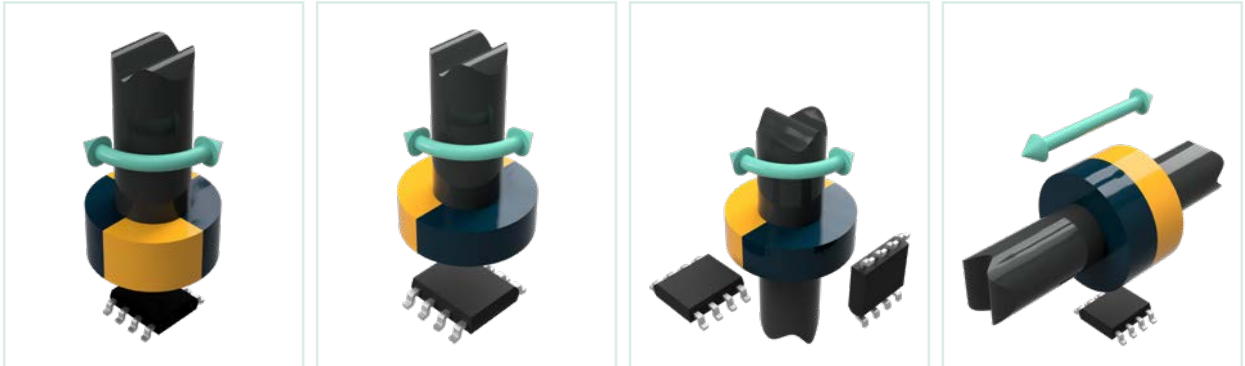
### MLX90371

Triaxis®

Building upon the long legacy of the Triaxis® sensors the MLX90371 brings substantial improvements over the previous generation. The new stray field immune mode drastically reduces or eliminates the effect of stray fields from other magnets or current carrying conductors found in electrified vehicles and supports both on-axis rotary or linear motion with a four-pole or two-pole magnet, respectively. For customers not requiring stray field compatibility, or those requiring off-axis sensing, the MLX90371 is also backwards compatible in both pinout and magnetic design to the MLX90364 and MLX90365 that utilize a two-pole magnet.

Additionally many aspects of the sensor are improved including EMC capability, higher temperature operation (up to 160°C ambient), and thermal drift performance.

Finally with its ASIL-B (SEooC) readiness, and fully-redundant dual-die package option, the MLX90371 is well placed to support the majority of automotive sensing applications.



- Highly flexible and robust position sensor
- Stray field immune (up to 4kA/m) mode of operation
- Analog or PWM output
- EMC capable to automotive OEM requirements
- ASIL-B (SEooC) component
- SOIC-8, single-die package
- TSSOP-16, redundant dual-die package
- DMP-4, single-die PCB-less package
- SMP-4, dual-die PCB-less package
- In-application programmable
- Ta = -40 ... 160°C

## AUTOMOTIVE SENSING APPLICATIONS

The MLX90371 lends itself to a wide variety of automotive position sensing applications from powertrain actuators to HMI like shifters. The new stray field immune mode reduces design constraints especially in electrified vehicles and meets OEM requirements for stray fields up to 4kA/m. Additionally, the 160°C temperature capability allows for use in actuators exposed to hot environments like a turbocharger wastegate while the enhanced linearization capability minimizes accuracy errors caused by tolerances in the mechanical assembly.

### MULTIPLE DIFFERENT SENSING MODES:

| | Motion | | | | |
|---|---|---|---|---|---|
| | On-Axis Rotary | | Off-Axis Rotary | Linear | |
| Stray Field Immune | Yes | No | No | Yes | No |
| Magnet Poles | 4 | 2 | 2 | 2 | 2 |
| Range | 180 deg | 360 deg | 360 deg | 15mm+ | 25mm+ |

## MAIN APPLICATIONS

1. Automotive Powertrain
   - Electric throttle body sensor
   - Coolant valve sensor
   - Turbo wastegate sensor
2. Human-Machine Interfaces
   - Shifters (rotary knob and lever type)
   - Selection (menu, volume) knobs
3. Automotive Transmission
   - Clutch and fork position sensing
   - Lever/slide switch linear stroke
4. Automotive Chassis & Safety
   - Ride-height sensor
   - Fuel level sensor
   - Accelerator, brake, and clutch sensor

## BLOCK DIAGRAM