

## HALL BASED SOLUTION AUTOMATIC GEAR SHIFTER

### COMFORT OF AUTOMATIC SHIFTER

Nowadays, more and more vehicles go for an automatic shifter instead of a manual shifter. Especially in urban areas with myriad traffic jams and lights, people suffer from switching shifter frequently, thus losing their driving enjoyment.

#### LINEAR VERSUS ROTARY

For automatic shifters, there are two types of selections: a linear shifter with PRNDL or PRND M+/- (including manually select) and a rotary PRNDL shifter.



The connection between the shifter and the transmission in an automatic system is using a contactless way of sensing through electric signal (shift by wire).

In order to sense the shifter position in a gear box, we recommend the use of a Hall sensor. It not only detects the position but also gives a signal to the transmission for gear selection. This signal is used by the Transmission Control Unit (TCU) for further control.

Depending on the mechanical design, either a Hall switch or a Triaxis® Hall sensor is used to detect all PRNDL positions.

Melexis offers an optimal solution for both designs.

## SOLUTIONS

### MLX92231: PRE-PROGRAMMABLE HALL SWITCH

- ✓ Wide range of pre-programmable thresholds (+/- 1.5mT to +/- 66mT)
- ✓ Flexible configuration with active pole (South or North)
- ✓ Inverted or direct output
- ✓ Pre-programmed TC coefficient to compensate magnet degradation due to increased operation temperature
- ✓ Dual die option available for redundancy

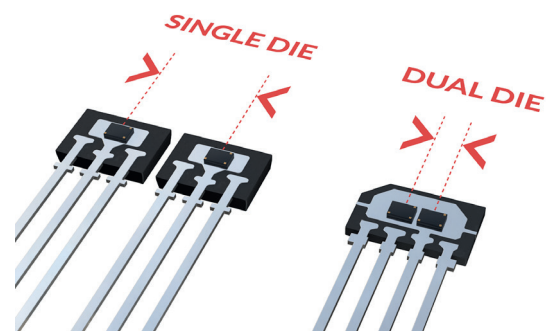
Thanks to its flexibility, customer mechanical designs will become simpler and cost-efficient: more freedom for mechanical designs using low-cost magnets.

### US5881LSE/ US5781LSE/ US5782LSE: UNIPOLAR HALL SWITCH

- ✓ Fixed switching thresholds to meet markets where costs are sensitive

### MLX92291: PRE-PROGRAMMED HALL SWITCH - ASIL-B (ISO26262)

- ✓ Wide range of pre-programmable thresholds (+/- 90 mT)
- ✓ Flexible configuration with active pole (South or North)
- ✓ Inverted or direct output
- ✓ Programmable TC coefficient
- ✓ Micro-power option available for wake-up functionality
- ✓ Dual die option available for redundancy
- ✓ Developed according to ISO26262 as safety HW element out of context with ASIL-B level



### MLX90363: 3D HALL SENSOR

- ✓ 0 - 360 degree angle detection
- ✓ SPI protocol with real angle position (X/Y/Z) directly to customer MCU

This solution is ideal for rotary shifter detection. And it can also be used for linear position detection.

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