3D MAGNETOMETERS

MLX9039x

Our 3D magnetometer captures raw magnetic field components (B_X, B_Y, B_Z) and streams digital measurement data directly to a host MCU, giving system designers total freedom for custom angle calculations, kinematics, and multi-axis motion tracking. Whether integrated into automotive controls, consumer electronics, or industrial motor positioning systems, this versatile series enables compact, low power, precise, contactless 3D position sensing using small, cost-effective magnets.



Rotary, Linear or Joystick



Rotary end of shaft

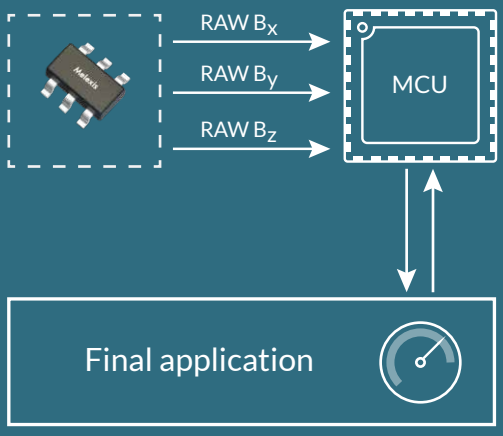
Rotary through or side shaft

Linear

Joystick

Key features

- Rotary, linear or joystick applications
- Flexible digital interface:
  - Fast I2C
  - SPI with prog. addresses and interrupt pins
- Ultra-Low power consumption
- High-resolution ADC up to 16-bit
- Configurability:
  - wake-up on change
  - interupt
  - digital filter
  - selectable magnetic range from 5 to 500 mT



Highlights

	Market	Key highlight	Package
MLX90391	Auto, Consumer, Industrial	**Ultra low-cost** 5 nA sleep current ±520 mT option	TSOT-23 (2.9x1.6mm²)
MLX90393	Consumer, Industrial	**Market reference** High configurability	QFN-16 (3x3mm²) UTDFN-8 (2.5x2mm²)
MLX90394	High-end consumer, Industrial	**Ultra small footprint** Low noise	UTDFN-6 (2x1.5mm²)
MLX90395	Auto, Industrial	**AECQ100** Wider temperature	QFN-16 (3x3mm²) SOIC-8 (single die) TSSOP-16 (dual die)
MLX90396	Auto, Industrial	**Stray Field Immunity** Multipixel platform Joystick with twist	QFN-16 (3x3mm²)

Applications

Automotive
HMI & control: shifters, stalks, knobs
Thermal management: valves, pumps
Body closures: charge ports, door handles

Industrial & robotics
E-meter antitamper, cylinders. liquid levels
Humanoid hands

Gaming & drones
Controller, mouse scrolling, trigger...



www.melexis.com/MLX9039x

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The datasheet spcification prevails

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