

V3/09-06-2022



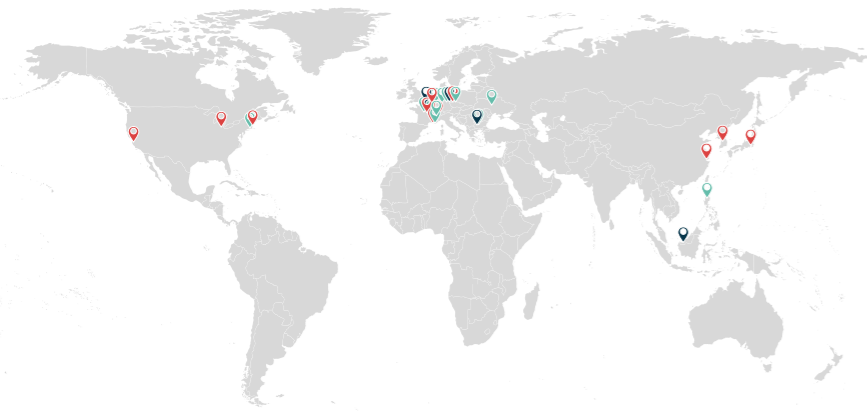
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SELECTION GUIDE

TRIAxis® POSITION SENSORS

FOR E-MOBILITY SMART APPLIANCE,
HOME, INDUSTRIAL AND MEDICAL

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.

We are a pioneer in programmable angular and linear Hall sensors for rotary, linear, and joystick motion. Our devices offer improved manufacturability of sensor assemblies and modules. Our technology and innovations support a broad range of applications in automotive markets and beyond.

| Triaxis® 2D Angular Sensor (2D position sensor) - For rotary or linear displacement | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------|--------|---------|----------|----------|--------|--|-----------------|------------|----------|------------|-----------------------|--------|-----|-----|-----|------|---------|------------------|----------------------------|--------------------|-----------------|------------------------|---------|----------|-------|---------|
| 2D | IC part number | Status | Motion | | | | Magnetic Range min - max B_{xy} [mT] | Data Rate [kHz] | Supply [V] | Idd [mA] | ISO11452-8 | (ASIL) [SIL] | Output | | | | | | Resolution [bit] | Operating Temperature [°C] | Angular processing | Angular Mapping | Additional data output | Package | | | |
| | | | On-axis | Off-axis | Joystick | Linear | | | | | | | Analog | PWM | SPI | I2C | SENT | Sin/Cos | | | | | | SOIC-8 | TSSOP-16 | DMP-4 | UTDFN-8 |
| | MLX90340 | prod | ✓ | ✓ | | ✓ | 20 - 70 | 2.5 | 5 | 13.5 | | | ✓ | ✓ | | | | 12 | -40..150 | on | XY / XZ / YZ | | ✓ | ✓ | | | |
| | MLX90365 | prod | ✓ | ✓ | | ✓ | 20 - 70 | 3.4 | 5 | 6 | | (B ¹) [2] | ✓ | ✓ | | | | 12 | -40..150 | on | XY / XZ / YZ | | ✓ | ✓ | | | |
| | MLX90363 | prod | ✓ | ✓ | | ✓ | 20 - 70 | 1 | 3.3 / 5 | 12.5 | | (B ¹) [2] | | | ✓ | | | 12 | -40..150 | on / off | XY / XZ / YZ | Gain + XYZ | ✓ | ✓ | | | |
| | MLX90371 | prod | ✓ | ✓ | | ✓ | 10 - 70 | 2.3 | 5 | 10 | 5mT | (B ¹) [2] | ✓ | ✓ | | | | 12 | -40..160 | on | XY / XZ / YZ | | ✓ | ✓ | ✓ | | |
| | MLX90372 | prod | ✓ | ✓ | | ✓ | 10 - 70 | 1 | 5 / 12 | 10 | 5mT | (C) [3] | | ✓ | | | | 12 | -40..160 | on | XY / XZ / YZ | Temp. | ✓ | ✓ | ✓ | | |

| Motor position sensors - Hi-speed rotor position / Servo motor | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|----------------|--------|---------|----------|----------|--------|-------------------------------|------------------|------------|----------|------------|-----------------------|--------|-----|-----|-----|------|---------|------------------|----------------------------|--------------------|-----------------|------------------------|---------|----------|---------|---------|
| 2D | IC part number | Status | Motion | | | | Magnetic Range min - max [mT] | Data Rate [kRPM] | Supply [V] | Idd [mA] | ISO11452-8 | (ASIL) [SIL] | Output | | | | | | Resolution [bit] | Operating Temperature [°C] | Angular processing | Angular Mapping | Additional data output | Package | | | |
| | | | On-axis | Off-axis | Joystick | Linear | | | | | | | Analog | PWM | SPI | I2C | SENT | Sin/Cos | | | | | | SOIC-8 | TSSOP-16 | TSOT-3L | TO92-3L |
| | MLX90290 | prod | | planar | | ✓ | 18 - 100mV/mT | 50 | 3.3 / 5 | 5 | | | ✓ | | | | | n/a | -40..150 | off | B _z | | | | ✓ | ✓ | |
| | MLX90380 | prod | ✓ | ✓ | | | 10 - 70 | 25 | 3.3 / 5 | 7 | | (B ¹) [2] | | | | | | n/a | -40..150 | off | XY/YZ/XZ | | ✓ | ✓ | | | |

| Triaxis® 3D Magnetometer (3D field sensing) - micro-power and cost-effective | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|----------------|--------|---------|----------|----------|--------|-------------------------------|-------------------------|-------------|-------------------------|----------------|--------------|--------|-----|-----|-----|------|---------|------------------|----------------------------|---|---------------|------------------------|---------|----------|--------|---------|
| 3D | IC part number | Status | Motion | | | | Magnetic Range min - max [mT] | Data Rate [Hz] | Supply [V] | Idd ⁽²⁾ [mA] | Noise [nT/√Hz] | (ASIL) [SIL] | Output | | | | | | Resolution [bit] | Operating Temperature [°C] | Angular processing | Field Mapping | Additional data output | Package | | | |
| | | | On-axis | Off-axis | Joystick | Linear | | | | | | | Analog | PWM | SPI | I2C | SENT | Sin/Cos | | | | | | SOIC-8 | TSSOP-16 | QFN-16 | UTDFN-8 |
| | MLX90392 | prod | ✓ | ✓ | ✓ | ✓ | ±5 / ±50 | 10 - 700 ⁽⁵⁾ | 1.65 - 1.95 | 0.091 | 500 | | | | | ✓ | | 16 | -40..85 | off | B _x / B _y / B _z ⁽³⁾ | Temp. | | | | ✓ | |
| | MLX90393 | prod | ✓ | ✓ | ✓ | ✓ | ±50 | 4.5 - 490 | 2.2 - 3.6 | 0.100 | 200 | | | | ✓ | ✓ | | 16 | -40..85 | off | B _x / B _y / B _z | Temp. | | | ✓ | ✓ | |
| | MLX90397 | prod | ✓ | ✓ | ✓ | ✓ | ±50 / ±200 ⁽⁴⁾ | 10 - 1400 | 1.7 - 3.6 | 0.150 | 95 | | | | | ✓ | | 16 | -40..105 | off | B _x / B _y / B _z | Temp. | | | | ✓ | |

| Triaxis® 3D Angular Sensor (3D position sensor / Joystick) - 2 angular information in one sensor | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|----------------|--------|---------|----------|----------|--------|--|-----------------|------------|------------|------------|-----------------------|--------|-----|-----|-----|------|---------|------------------|----------------------------|--------------------|-----------------|------------------------|---------|----------|-------|---------|
| 3D | IC part number | Status | Motion | | | | Magnetic Range [mT] min - max B_{xy} - max B_z | Data Rate [kHz] | Supply [V] | Idd [mA] | ISO11452-8 | (ASIL) [SIL] | Output | | | | | | Resolution [bit] | Operating Temperature [°C] | Angular processing | Angular Mapping | Additional data output | Package | | | |
| | | | On-axis | Off-axis | Joystick | Linear | | | | | | | Analog | PWM | SPI | I2C | SENT | Sin/Cos | | | | | | SOIC-8 | TSSOP-16 | DMP-4 | UTDFN-8 |
| | MLX90333 | prod | | | ✓ | | 20 - 70 - 140 | 5 | 3.3 / 5 | 8.5 / 13.5 | | | ✓ | ✓ | ✓ | | | 12 | -40..150 | on | XY / XZ / YZ | | ✓ | ✓ | | | |
| | MLX90363 | prod | | | ✓ | | 20 - 70 - 126 | 1 | 3.3 / 5 | 12.5 | | (B ¹) [2] | | | ✓ | | | 12 | -40..150 | on | XY / XZ / YZ | Bx, By, Bz | ✓ | ✓ | | | |
| | MLX90378 | prod | | | ✓ | | 10 - 70 - 100 | 1 | 5 | 9 | | (C) [3] | | ✓ | | ✓ | | 12 | -40..160 | on | XY / XZ / YZ | Temp., Switch | ✓ | ✓ | | | |

(1) Safety applications supported by safety analysis report and safety manual via HW evaluation under clause 13 or via proven in use under Clause 14 of ISO26262
(2) XYZ measurement @ODR 10 Hz - current consumption optimized - no temperature compensation
(3) Axis cannot be selected
(4) Adaptive range on Bz
(5) or 1.4 kHz without thermal compensation (TC)

