

V4/12-2023



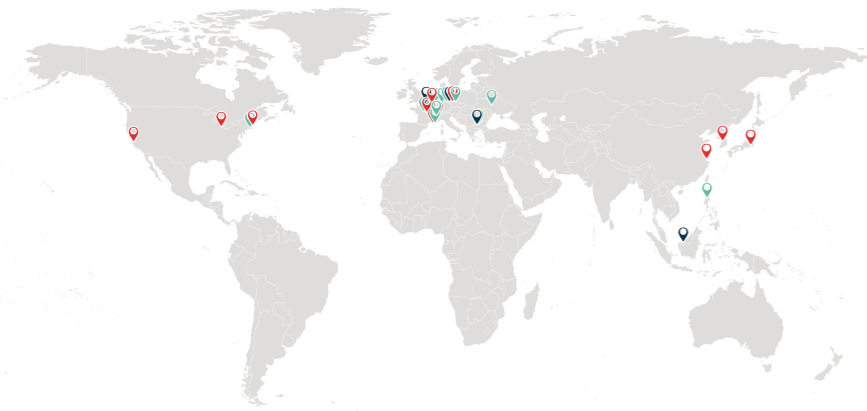
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SELECTION GUIDE

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 ⁽⁶⁾ [µT]	(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	QFN-16	UTDFN-6	UTDFN-8
	MLX90392	prod	✓	✓	✓	✓	±5 / ±50	10 - 700 ⁽⁵⁾	1.65 - 1.95	0.013	35					✓		16	-40..85	off	B _x / B _y / B _z ⁽³⁾	Temp.				✓	
	MLX90393	prod	✓	✓	✓	✓	±50	4.5 - 490	2.2 - 3.6	0.045	7				✓	✓		16	-40..85	off	B _x / B _y / B _z	Temp.		✓		✓	
	MLX90394	prod	✓	✓	✓	✓	±5/ ±50 / ±200	5 - 1400	1.7 - 3.6	0.015	9					✓		16	-40..105	off	B _x / B _y / B _z	Temp.			✓		
	MLX90397	prod	✓	✓	✓	✓	±50 / ±200 ⁽⁴⁾	10 - 1400	1.7 - 3.6	0.019	10					✓		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 single 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)
 (6) for 50mT range

