

V11/02.2023



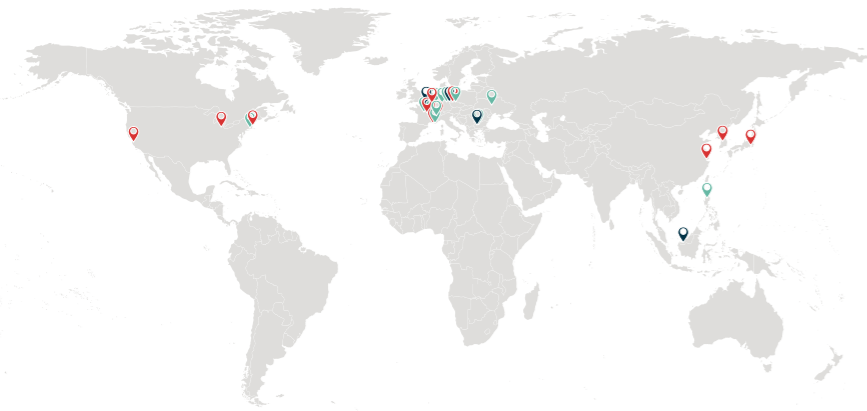
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PCB-less solutions	SMD solutions
 SMP-3 (VE)	 SOIC-8 (DC)
 SMP-4 (VD)	 TSSOP-16 (GO)
 DMP-4 (VS)	 QFN-16 (LW)
	 DFN-6 (LW)
	 UTDFN-8 (LQ)

SELECTION GUIDE

TRIAxis® POSITION SENSOR FOR AUTOMOTIVE AND INDUSTRIAL APPLICATIONS

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.

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.

Triaxis® Value Optimied Sensing - for embedded applications using an external microcontroller																																
Triaxis® Value Optimized	IC part number	Status	Motion				Magnetic Range		Data Rate [kHz]	Supply [V]	Idd [mA]	Output					Operating Temperature [°C]					Angular processing	Field Mapping	Package				(A)SIL ready	Strayfield immunity ISO11452-8	AEC-Q100		
			On-axis	Off-axis	Joystick (3D)	Linear	min - max [mT]	min. field [mT/mm] ⁴				Ratiometric Analog	PWM	SENT	SPI	I ² C	Resolution [bit]	S: -20..85	E: -40..85	K: -40..125	L: -40..150			G: -40..160	SMD SOIC-8	SMD TSSOP-16 ²	SMD QFN-16				SMD UTDFN-8	
	MLX90395	prod	✓	✓	✓	✓	5 - 50 / 10 - 120		2	2.6 to 3.6	0.234				✓	✓	16							off	B _x / B _y / B _z	✓	✓	✓				✓

Triaxis® Mainstream Sensing - for optimum applications with typical features																																	
Triaxis® Mainstream Sensing	IC part number	Status	Motion				Magnetic Range		Data Rate [kHz]	Supply [V]	Idd [mA]	Output					Operating Temperature [°C]					Angular processing	Field Mapping	Package					(A)SIL ready	Strayfield immunity ISO11452-8	AEC-Q100		
			On-axis	Off-axis	Joystick (3D)	Linear	min - max B _{xy} [mT]	min. field [mT/mm]				Ratiometric Analog	PWM	SENT	SPI	I ² C	Resolution [bit]	S: -20..85	E: -40..85	K: -40..125	L: -40..150			G: -40..160	SMD SOIC-8	SMD TSSOP-16 ²	PCBless ¹ DMP-4	PCBless ¹ SMP-3				PCBless ¹ SMP-4	
	MLX90316	prod	✓				20 - 70		2 / 5 ³	5	8.5 / 13.5 ³	✓	✓		✓	12	✓	✓	✓	✓			on	XY	✓	✓							✓
	MLX90324	prod	✓				20 - 70		3.4	5	7 / 12.5 ³	✓	✓	✓		12				✓			on	XY	✓	✓							✓
	MLX90333	prod		✓	✓	✓	20 - 70		1	5	8.5 / 13.5 ³	✓	✓		✓	12			✓	✓			on	XZ / YZ	✓	✓							✓
	MLX90340	prod	✓	✓		✓	20 - 70		3.4	5	13.5	✓	✓			12	✓		✓	✓			on	XY / XZ / YZ	✓	✓							✓
	MLX90363	prod	✓	✓	✓	✓	20 - 70		1	3.3 / 5	12.5				✓	12			✓	✓			on/off	XY / XZ / YZ	✓	✓					B ⁷		✓
	MLX90364	prod	✓	✓		✓	20 - 70		3.4	5	6	✓	✓			12				✓			on	XY / XZ / YZ			✓				B ⁶		✓
	MLX90365	prod	✓	✓		✓	20 - 70		3.4	5	6	✓	✓			12				✓			on	XY / XZ / YZ	✓	✓					B ⁶		✓
	MLX90366	prod	✓	✓		✓	20 - 70		1.1	5	6				✓	12				✓			on	XY / XZ / YZ			✓				B ⁶		✓
	MLX90367	prod	✓	✓		✓	20 - 70		1.1	5	6				✓	12				✓			on	XY / XZ / YZ	✓	✓					B ⁶		✓
	MLX90421	prod	✓	✓		✓	10 - 70		2.2	5	8.5	✓	✓			12				✓			on	XY / XZ / YZ	✓	✓	✓	✓	✓		B		✓
	MLX90422	prod	✓	✓		✓	10 - 70		1.1	5	8.5				✓	12				✓			on	XY / XZ / YZ	✓	✓	✓	✓	✓		B		✓
	MLX90423	sample				✓	10 - 70	1.5 - 6	4.7	5 / 12 ⁵	9 / 11	✓	✓	✓		12				✓			on	XY / XZ / YZ	✓	✓		✓	✓		B	5mT	✓
	MLX90425	prod	✓					10	1.9	5	10	✓	✓			12				✓			on	XY / XZ / YZ	✓	(✓) ⁽⁸⁾		✓	(✓) ⁽⁸⁾		B	5mT	✓
	MLX90426	prod	✓					10	1.1	5	10				✓	12				✓			on	XY / XZ / YZ	✓	(✓) ⁽⁸⁾		✓	(✓) ⁽⁸⁾		B	5mT	✓

Triaxis® Performance Sensing - for demanding applications																																	
Triaxis® Performance Sensing	IC part number	Status	Motion				Magnetic Range		Data Rate [kHz]	Supply [V]	Idd [mA]	Output					Operating Temperature [°C]					Angular processing	Field Mapping	Package					(A)SIL ready	Strayfield immunity ISO11452-8	AEC-Q100		
			On-axis	Off-axis	Joystick (3D)	Linear	min - max B _{xy} [mT]	min. field [mT/mm]				Ratiometric Analog	PWM	SENT	SPC	PSI5	Resolution [bit]	S: -20..85	E: -40..85	K: -40..125	L: -40..150			G: -40..160	SMD SOIC-8	SMD TSSOP-16 ²	PCBless ¹ DMP-4	PCBless ¹ SMP-3				PCBless ¹ SMP-4	
	MLX90371	prod	✓	✓		✓	10 - 70	3.8 - 10	2.3	5	10	✓	✓			12				✓			on	XY / XZ / YZ	✓	✓	✓		✓		B	5mT	✓
	MLX90372	prod	✓	✓		✓	10 - 70	3 - 10	1	5 / 12 ⁵	10		✓	✓		12				✓			on	XY / XZ / YZ	✓	✓	✓				C	5mT	✓
	MLX90373	prod	✓	✓		✓	10 - 70	4.1 - 10	1	5 / 12 ⁵	11				✓	12				✓			on	XY / XZ / YZ		✓	✓				C	5mT	✓
	MLX90374	prod	✓	✓		✓	10 - 70	3 - 10	1	5 / 12 ⁵	10		dual	✓		12				✓			on	XY / XZ / YZ	✓	✓	✓				C	5mT	✓
	MLX90376	prod	✓	✓		✓	10 - 70	3 - 10	0.5 / 2.5	5 / 12 ⁵	9 / 13.5 ³	✓	✓	✓	✓	12 - 14				✓			on	XY / XZ / YZ	✓	✓ (stacked)			✓ (stacked)		C	5mT	✓
	MLX90377	prod	✓	✓		✓	10 - 70	3 - 10	0.5 / 2.5	5 / 12 ⁵	9 / 13.5 ³	✓	✓	✓	✓	12 - 14				✓			on	XY / XZ / YZ	✓	✓	✓	✓		C	5mT	✓	
	MLX90378	prod			✓		10 - 70		1	5 / 12 ⁵	9		dual	✓		12				✓			on	XY / XZ / YZ	✓	✓	✓				C		✓

Triaxis® Motor position sensing - for motor commutation solution with magnetic resolver																																	
Triaxis® Resolver	IC part number	Status	Motion				Magnetic Range		Max. e-rpm ⁹	Supply [V]	Idd [mA]	Output					Operating Temperature [°C]					Angular processing	Field Mapping	Package					(A)SIL ready	Strayfield immunity ISO11452-8	AEC-Q100		
			On-axis	Off-axis	Joystick (3D)	Linear	min - max B _{xy} [mT]	min. field [mT/mm]				Sine / Cosine			Resolution [bit]	S: -20..85	E: -40..85	K: -40..125	L: -40..150	G: -40..160	SMD SOIC-8			SMD TSSOP-16 ²	SMD DFN-6	PCBless ¹ SMP-3	PCBless ¹ SMP-4						
	MLX90380	prod	✓	✓			10 - 70		25'000	3.3 / 5	7 / 8		✓			sin/cos				✓			off	XY / XZ / YZ	✓	✓					B ⁶		✓
	MLX90381	prod	✓	✓			10 - 70 / 40 - 160		50'000	3.3	4.2		✓			sin/cos				✓			off	XY / XZ / YZ			✓				B		✓

Linear Hall position sensing - for short range linear motion																																	
Linear Hall	IC part number	Status	Motion				Magnetic Range		Data Rate [kHz]	Supply [V]	Idd [mA]	Output					Operating Temperature [°C]					Linear processing	Field Mapping	Package					(A)SIL ready	Strayfield immunity ISO11452-8	AEC-Q100		
			On-axis	Off-axis	Joystick (3D)	Linear	min - max B _z [mT]	min. field [mT/mm]				Ratiometric Analog	PWM	SENT	SPC	PSI5	Resolution [bit]	S: -20..85	E: -40..85	K: -40..125	L: -40..150			G: -40..160	SMD TSOT-23	SMD SOIC-8	SMD TSSOP-16 ²	SIP UA-3				SIP VA-4	
	MLX90290	prod				✓	±20 to ±125		900	3.3 / 5	5	✓					-				✓		on	B _z	✓			✓					✓
	MLX91377	prod				✓	±10 to ±100		0.2 / 50	5	11	✓	✓	✓	✓	12				✓			on	B _z			✓				B or C		✓

(1) Dual Mold Package (DMP) & Single Mold Package (SMP). PCBless packages are intended to be used without a PCB and with electrical connections made directly to a leadframe.
(2) TSSOP-16 package include two dies with individual electrical connections, where full redundancy is needed.

(3) Slow mode / Fast mode
(4) Stray field robust mode utilizes a gradient field (mT/mm) while the traditional mode uses a homogenous field (mT).
(5) Extended mode (6-18V) selectable via EEPROM programming.

(6) Safety applications supported by safety analysis report and safety manual via HW Evaluation under Clause 13 of ISO26262
(7) Safety applications supported by safety analysis report and safety manual via Proven In Use process under Clause 14 of ISO26262
(8) Sample stage
(9) Electrical at Hall plates

