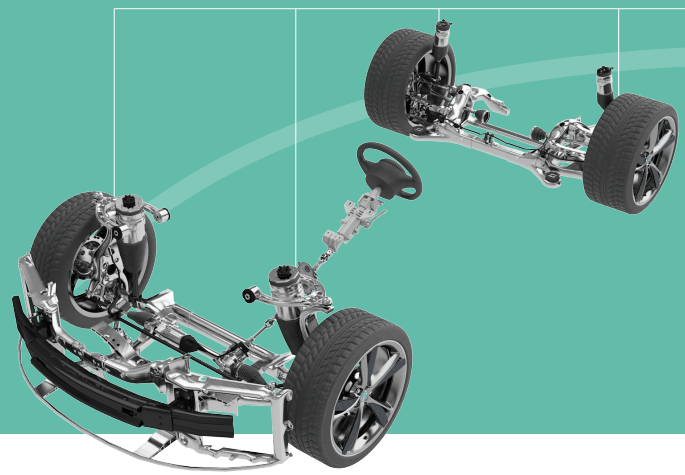
AUTOMOTIVE CHASSIS RIDE HEIGHT AND ACTIVE SUSPENSION SYSTEMS

The chassis ride height sensors give input to smart suspension systems to change the way the suspension reacts to changing road conditions or load. On a rough road, it can provide a smoother ride. On some vehicles, the computer lowers the vehicle for better aerodynamics at high speed. On some four-wheel-drive vehicles, the suspension can be raised for increased off-road ground clearance.

Ride height sensors

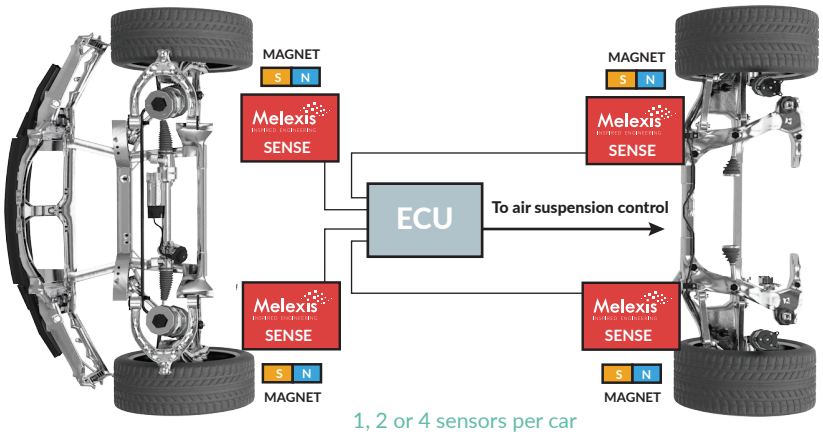


Melexis solutions for ride height suspension systems

The suspension ride height sensor is an electronic device that measures the distance between the road and a particular point on the vehicle's suspension, chassis or body. For vehicles without active chassis control, the ride height sensor serves as an input into systems for stability control and those for headlamp leveling to ensure correct height of the light beam to avoid blinding oncoming drivers and maintain good visiblity for the driver. For vehicles with active chassis control, it serves as an input to determine whether to fill or release air from the air suspension and lower the vehicle for better aerodynamics at high speed.

Load leveling | Dynamic headlamp adjustment | Break-over angle control

Block diagram



1, 2 or 4 sensors per car

Key features

- PCB-less solutions capable of direct welding to the connector's lead frame
- Easy to integrate and simple magnet design
- Programmable saw tooth capable waveform.
- Robust to external stray fields (Gen. III)
- Non-contacting solution
- Multiple output types
- ASIL ready

SENSE&DRIVE
by Melexis

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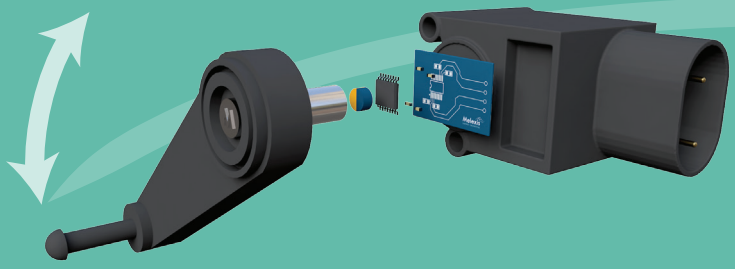
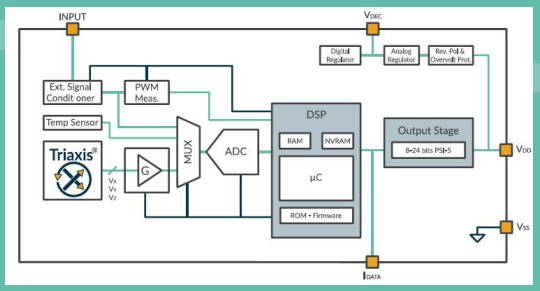
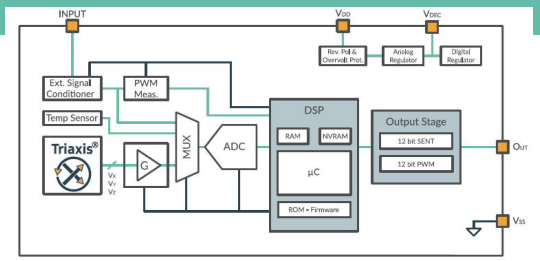
Suggested sensors

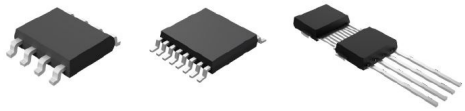


2-wire output (PSI5)



3-wire output





SOIC-8 TSSOP-16 DMP-4

Selection guide

Triaxis® Hall																				
Product	Supported Motion				Output Format				Angle Computation	Magnetic Field Strength [4]		Supply Voltage	Current Consumption	Package			Temperature Option				Safety
	Rotary On-Axis	Rotary Off-Axis	Linear	Joystick (3D)	Ratiometric Analog	PWM	SENT	PSI-5	On-chip	mT [G]	Min. Field (mT/mm)	(V)	mA (Typical)	SOIC-8	TSSOP-16 [2]	DMP-4 (no-PCB) [1]	E: -40-85C	K: -40-125C	L: -40-150C	G: -40-160C	ASIL (ISO26262)
MLX90364	✓	✓	✓		✓	✓			✓	20-70 [200-700]		4.5-5.5	6			✓	✓	✓	✓		B
MLX90365	✓	✓	✓		✓	✓			✓	20-70 [200-700]		4.5-5.5	6	✓	✓		✓	✓	✓		B
MLX90366	✓	✓	✓				✓		✓	20-70 [200-700]		4.5-5.5	6			✓	✓	✓	✓		B
MLX90367	✓	✓	✓				✓		✓	20-70 [200-700]		4.5-5.5	6	✓	✓		✓	✓	✓		B
MLX90371	✓	✓	✓		✓	✓			✓	10-70 [100-700]	6	4.5-5.5	10	✓	✓	✓				✓	B
MLX90372	✓	✓	✓			✓	✓		✓	10-70 [100-700]	6	4.5-5.5 [5] 6-18	10	✓	✓	✓				✓	C
MLX90373	✓	✓	✓					✓	✓	10-70 [100-700]	6	4.1-6 6-18	11		✓	✓		✓			C
MLX90374	✓	✓	✓			dual	✓		✓	10-70 [100-700]	6	4.5-5.5 [5] 6-18	10	✓		✓				✓	C
MLX90378				✓		✓	✓		✓	10-70 [100-700]		4.5-5.5 [5] 6-18	10	✓	✓					✓	C

More about our products and solutions

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