



PRODUCT INFORMATION

OXYGEN SENSORS / LAMBDA SENSORS

- Leading supplier for independent aftermarket
- Applications available for all European, American and Japanese brands
- HELLA lambda sensors impress with their long service life, high reliability and optimal harmonization with the respective engine
- Customers can benefit from lower emissions, improved engine efficiency and optimized performance

PRODUCT FEATURES

HELLA satisfies the increased demands for intelligent vehicle electronics solutions with a wide-ranging, innovative sensor portfolio covering accelerator pedal sensors, position sensors, steering sensors, medium sensors, air-conditioning sensors and rain/light sensors.

Many leading automotive manufacturers have already been trusting HELLA's electronics know-how in automotive original equipment and our longstanding development and product expertise in this area for many years.

HELLA's lambda sensors also meet the highest quality standards and are optimally matched to state-of-the-art engine and exhaust system requirements -- for an optimal fuel mixing ratio, affordable emission values and, not least, the lowest possible emissions.

A lambda sensor (or oxygen sensor) measures the oxygen in exhaust gases to help the engine's computer (ECU) adjust the air-fuel ratio for optimal combustion, improving fuel efficiency and reducing emissions by keeping the mixture near the ideal stoichiometric ratio ($\lambda = 1$) for the catalytic converter to work effectively. It sends a voltage signal to the ECU; a rich mixture (low oxygen) sends a high voltage, while a lean mixture (high oxygen) sends a low voltage, prompting the ECU to add or reduce fuel accordingly.

Key Functions

- Measures Oxygen: Detects unburned oxygen in the exhaust stream.
- Regulates Air-Fuel Ratio: Informs the ECU to fine-tune fuel injection for perfect combustion.
- Optimizes Catalytic Converter: Ensures the converter works at peak efficiency to clean pollutants.
- Monitors Emissions: Helps diagnose catalytic converter health and overall engine performance

HELLA OXYGEN SENSORS

How it Works

Sensing: A ceramic element compares exhaust oxygen to ambient air, generating a voltage signal.

Signaling: The voltage changes (e.g., ~0.9V for rich, ~0.1V for lean).

Adjusting: The ECU interprets the signal and adjusts fuel delivery (rich/lean).

Closed-Loop Control: This continuous feedback loop keeps the engine running efficiently.

Importance

Fuel Economy: Prevents overly rich mixtures, saving fuel.

Performance: Ensures smooth, efficient engine operation.

Emissions: Crucial for meeting strict emission standards.

What happens if a lambda sensor is faulty?

→ What happens if your Lambda Sensor is faulty? If your Lambda Sensor is faulty, your vehicle constantly circulates a rich mixture. This leads to increased fuel consumption and puts other elements of the emission control system at risk



Product features, specifications and availability are subject to change without notice.

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