



EVERY OXYGEN & LAMBDA SENSOR TECHNOLOGY. ONE COMPLETE PROGRAM.

Walker Products covers the complete evolution of oxygen/lambda sensor technology, from early unheated designs to today's advanced wideband and air-fuel ratio sensors.

EARLY & CONVENTIONAL DESIGNS

Unheated

The original oxygen/lambda sensor design relies on exhaust heat to reach operating temperature.

Typical Wires: 1-2

Key Difference: *No internal heater*

✓ **Walker Products Covered**

Heated

An internal heater helps the sensor begin operating sooner and maintain the correct operating temperature.

Typical Wires: 3-4

Key Difference: *Faster and more consistent operation*

✓ **Walker Products Covered**

Thimble

Traditional finger-shaped ceramic sensing-element construction used across millions of vehicle applications.

Typical Wires: 1-4, depending on whether the sensor is heated

Key Difference: *Proven, durable construction*

✓ **Walker Products Covered**

Narrowband / Switching-Type

Provides a switching signal that identifies whether the air-fuel mixture is rich or lean.

Typical Wires: 1-4

Key Difference: *Common rich-or-lean mixture feedback*

✓ **Walker Products Covered**



FAST-ACTING & COMMON DESIGNS

Fast Light-Off

An enhanced heater brings the sensor online quickly after startup.

Typical Wires: Usually 4

Key Difference: *Faster warm-up*

✓ **Walker Products Covered**

Ultra-Fast Light-Off

A higher-performance heater further reduces the time needed to begin measuring exhaust oxygen.

Typical Wires: Usually 4

Key Difference: *Even faster activation and emissions control*

✓ **Walker Products Covered**

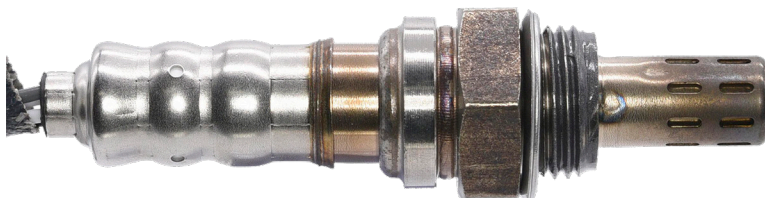
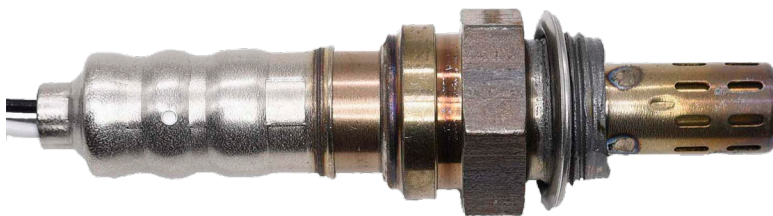
Planar

A thin, layered ceramic element integrates the sensing cell and heater into a compact design.

Typical Wires: Usually 4

Key Difference: *Faster warm-up and response*

✓ **Walker Products Covered**



ALL MAKES. ALL MODELS. ALL TECHNOLOGIES.



ADVANCED & SPECIALIZED DESIGNS

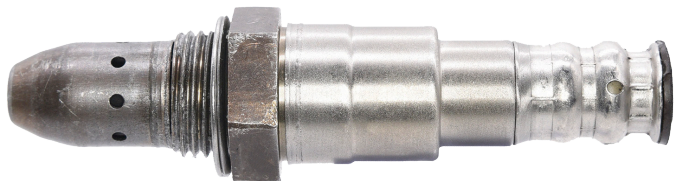
Wideband / Broadband

Measures across a broad operating range, providing detailed air-fuel mixture information. This sensor type includes specific technologies such as LSU 4.2 and LSU 4.9 wideband sensors.

Typical Wires: 5, 5-6 pins

Key Difference: *Measures precisely how rich or lean the mixture is, rather than only indicating a rich or lean condition. Bosch is best known for its advanced wideband sensor technology.*

✓ **Walker Products Covered**



Air-Fuel Ratio

Provides precise mixture feedback across a wider range of operating conditions for modern fuel and emissions management systems.

Typical Wires: Commonly 4-5, depending on the design

Key Difference: *Provides highly accurate fuel-control feedback. DENSO is best known for its advanced air-fuel ratio sensor technology.*

✓ **Walker Products Covered**



Titania

Uses changes in electrical resistance to measure oxygen levels rather than generating a conventional zirconia voltage signal.

Typical Wires: Usually 3-4

Key Difference: *Uses a specialized resistance-based sensing method for specific vehicle applications. NTK is well known for its Titania sensor technology.*

✓ **Walker Products Covered**

FACT...ZIRCONIA: THE FOUNDATION OF MOST SENSOR DESIGNS

Zirconia is the most common sensing material used across many thimble, planar, narrowband, wideband, heated, and unheated oxygen/lambda sensor designs.

Key Difference: *Generates an electrical signal based on differences in oxygen concentration.*

ONE COMPLETE PROGRAM

- Coverage across all major oxygen/lambda sensor technologies
 - Applications for all makes and all models
- Direct-fit connectors for application-specific installation
 - OE-matched form, fit, function, and performance



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