

Lambda sensors diagnosis

Bosch lambda sensors – reliable functionality and a long service life

Being a wearing part, however, they are to be checked regularly and replaced if required.

Three steps to diagnose lambda sensors:

1. Read out the fault memory and check the actual values
2. Check the signal patterns (as specified by ESI[tronic] 2.0)
3. Check wires and connectors for secure connections

Test step

Please note:



Check warning lamp
Important: The engine is to be warm.

A faulty lambda sensor will cause the OBD lamp (on-board diagnosis) to light up.



Read out the fault memory

Use a tester (e.g. Bosch KTS 590).



Perform visual inspection (when fitted)

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Perform a leak test on the intake and exhaust systems

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Defective lambda sensors can have different causes:

Electrical faults
 Mechanical defects
 Poisoning / soiling / clogging
 Thermal overload

Regular checks prevent expensive consequential damage

Car drivers need to know: Lambda sensors are wearing parts.

Their regular inspection provides a series of advantages. Flawless lambda sensors

- contribute to fulfill current emission standards
- prevent expensive damage to the catalytic converter



Lambda sensor condition:
 Green, grainy soiling

Possible cause:
 Leakage of antifreeze agent into the combustion chamber

Remedy:
 Replace the lambda sensor. Check the engine block, cylinder head, intake manifold and cylinder head gasket for wear and tear.



Lambda sensor condition:
 Red or white soiling

Possible cause:
 Fuel additives

Remedy:
 Do not use fuel additives. Replace the lambda sensor.



Lambda sensor condition:
 Black, with oily soiling

Possible cause:
 Excessive oil consumption

Remedy:
 Check the valve guides and seals as they may be worn. Replace the lambda sensor.



Lambda sensor condition:
 Broken cable

Possible cause:
 Tension on the cable was too high

Remedy:
 Replace the lambda sensor. Do not tighten the new cable that much.



Lambda sensor condition:
 Dark brown soiling

Possible cause:
 Fuel/air mixture was too rich

Remedy:
 Check the fuel pressure. Replace the lambda sensor.



Lambda sensor condition:
 Damage on the molded cable tubing

Possible cause:
 Stone chips

Remedy:
 Replace the lambda sensor.