

GENERIC · POWERTRAIN

P0135

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0135

O2 Sensor Heater Circuit Malfunction (Bank 1 Sensor 1)

P0135 means the engine computer has detected a fault in the electrical heater circuit of the upstream oxygen sensor on bank 1, which is the sensor mounted before the catalytic converter on the side of the engine containing cylinder one. The computer commands the heater on and monitors the circuit for expected current flow, and it sets this code when the current stays too low, too high, or absent for longer than the calibrated time.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Low

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering

Symptoms you may notice

- Illumination of the check engine light, often with no other symptoms besides the warning light
- A slight delay in the oxygen sensor reaching operating temperature, which can cause rough running or a stumble during the first minute or two after a cold start
- Slightly higher fuel consumption during warm-up because the engine stays in open loop longer than normal
- In some vehicles, a pending or stored code that returns immediately after clearing even though the engine runs perfectly
- Rarely, a noticeable rich-running condition or black smoke during cold start if the heater fault keeps the sensor from reporting correctly for an extended period

Common causes, most likely first

- 1 Failed oxygen sensor heater element, which is the most common cause and usually means the sensor assembly needs replacement
- 2 Open or corroded wiring or connector pins between the sensor heater and the engine computer, especially at the sensor pigtail
- 3 Blown fuse or faulty relay that supplies battery voltage to the oxygen sensor heater circuit
- 4 Damaged or chafed heater ground wire causing high resistance in the return path
- 5 Engine computer driver failure on the heater control circuit, which is uncommon but possible after a shorted sensor
- 6 Aftermarket or wrong-specification oxygen sensor with a heater resistance that does not match the original equipment



How to diagnose and fix it

- 1 Scan all stored and pending codes and record freeze-frame data to confirm P0135 is the only heater-circuit code and not a companion fault
- 2 Inspect the oxygen sensor connector and pigtail for corrosion, pushed pins, or melted plastic, and check the heater supply fuse and relay
- 3 Measure the heater element resistance across the two heater terminals at the sensor connector and compare it with the manufacturer's specification
- 4 Check for battery voltage on the heater supply wire with the key on and engine off, then check the ground side for excessive voltage drop
- 5 Command the heater on with a scan tool and watch the heater circuit current or voltage parameter to see whether the computer is driving the circuit
- 6 Replace the oxygen sensor if the heater resistance is out of specification or open, using an original-equipment or equivalent sensor
- 7 Clear the code, perform a road test with several cold-start cycles, and verify the monitor runs to completion without the code returning

Heater circuit checks before sensor replacement

- A P0135 does not mean the oxygen sensor is reading the air-fuel mixture incorrectly; the sensor's sensing element can still be accurate while only the heater circuit has failed, so replacing it purely for driveability complaints without checking the heater is a misdiagnosis.
- Technicians often replace the sensor and find the code returns because the real fault is a blown fuse or a corroded connector pin that feeds the heater, so the supply voltage and ground path must be verified before condemning the sensor.
- Some vehicles set P0135 when the heater current is too high rather than too low, which points to a shorted heater element or a pinched wire rather than an open circuit, and the diagnostic direction is completely different.
- A failed heater can keep the upstream sensor from entering closed loop during cold weather, so a car that runs fine in summer may develop a rough idle and poor fuel economy in winter even though the only stored code is P0135.
- Replacing the sensor with a generic universal unit that has the wrong heater resistance is a common cause of a repeat P0135, because the engine computer compares measured heater current against a calibrated expected value.

Can I keep driving with P0135?

The vehicle is safe to drive with P0135 because the fault affects only the sensor heater and not the engine's basic operation, but you should avoid long periods of cold-start short trips and get the circuit checked soon to prevent poor warm-up fuel economy and possible catalytic converter stress. Do not ignore the light indefinitely, because a heater fault that progresses to a shorted circuit can blow the same fuse that powers other engine controls.



Tools that help

- OBD-II scan tool with live data and bidirectional heater control capability
- Digital multimeter with resistance and voltage-drop functions
- Back-probe kit or breakout leads for testing the sensor connector without damage
- Wiring diagram for the oxygen sensor heater circuit
- Oxygen sensor socket and hand tools for sensor replacement

Reading P0135

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 1** Fuel and air metering.
- 35** The exact fault within that area.

Often seen with

P0130 O2 Sensor Circuit Malfunction (Bank 1 Sensor 1) · **P0131** O2 Sensor Circuit Low Voltage (Bank 1 Sensor 1) · **P0132** O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) · **P0133** O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) · **P0141** O2 Sensor Heater Circuit Malfunction (Bank 1 Sensor 2)

See it working

Watch the animated explainer [How a Radiator Fan Relay Circuit Works](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0135/>

