

MAZDA · POWERTRAIN

P1135

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1135 · Mazda

HO2S Bank 1 Sensor 1 Heater Circuit Low Input

P1135 on a Mazda means the powertrain control module (PCM) has detected a low-voltage condition on the heater circuit for the upstream oxygen sensor on bank 1, which is the sensor mounted before the catalytic converter. The PCM commands the heater on to bring the sensor up to operating temperature quickly, and it monitors the circuit for a voltage that stays lower than expected, indicating excessive current draw or a short to ground.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Mazda specific	Medium	Intermediate	Fuel and air metering

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- A slight decrease in fuel economy as the PCM may default to open-loop fuel control.
- Occasional rough idle or hesitation when the engine is cold, because the sensor is slow to respond.
- In some cases, a pending P1135 may set without turning on the light until the fault repeats.
- If the heater circuit is completely shorted, the sensor may not heat at all, causing a longer cold-start enrichment period.

Common causes, most likely first

- 1 Failed oxygen sensor heater element with an internal short to ground.
- 2 Chafed or pinched heater circuit wiring shorting to ground on the engine block or exhaust shield.
- 3 Corroded or water-intruded connector at the oxygen sensor or PCM, causing low resistance to ground.
- 4 Faulty PCM driver for the heater circuit, though this is rare.
- 5 Aftermarket oxygen sensor with incorrect heater resistance.
- 6 Engine coolant or oil contamination wicking into the sensor connector and creating a conductive path.



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data to confirm P1135 is the only heater circuit code and not accompanied by misfire or fuel trim codes.
- 2 Inspect the oxygen sensor connector and wiring for chafing, corrosion, or contamination, and repair any damaged insulation or terminals.
- 3 Measure the resistance of the heater element at the sensor connector; compare to the manufacturer's specification for the specific Mazda engine.
- 4 Check for continuity to ground on the heater control wire with the PCM disconnected; a short to ground indicates a wiring fault.
- 5 Test the heater circuit with a bidirectional scan tool to command the heater on and verify voltage drop across the circuit.
- 6 If the heater resistance is out of specification or shorted, replace the upstream oxygen sensor with an OEM or equivalent part.
- 7 Clear the code and perform a road test with a scan tool monitoring oxygen sensor heater status and fuel trims to confirm the repair.

Why a heater short mimics a dead sensor

- A low-input heater code often means the heater element has partially shorted, drawing too much current, rather than being open; an open heater usually sets a high-input or circuit code instead.
- Water or oil in the connector can create a low-resistance path to ground that mimics a failed sensor, so always inspect the connector before condemning the sensor.
- The PCM may set P1135 only after a cold start, because the heater is commanded on only during warm-up; a warm engine may not trigger the code during a quick test drive.
- A shorted heater can blow the heater fuse or damage the PCM driver if left unrepaired, so diagnosing the root cause promptly prevents a more expensive repair.
- On some Mazda engines, the upstream sensor heater shares a ground with other components, and a poor ground elsewhere can cause a false low-input reading.

Can I keep driving with P1135?

You can usually drive the vehicle short distances to a repair shop, but avoid extended driving because the engine may stay in open-loop fuel control, reducing fuel economy and increasing emissions. If the check engine light flashes or you notice rough running, stop driving and have the vehicle towed.



Tools that help

- OBD-II scan tool with bidirectional control and live data
- Digital multimeter with resistance and continuity functions
- Back probe pins or breakout leads
- Wiring diagram for the specific Mazda model
- Socket set and oxygen sensor wrench

Reading P1135

- P** Powertrain: engine, transmission and emissions.
-
- 1** Manufacturer-specific code (Mazda): its meaning depends on the make.
-
- 1** Fuel and air metering.
-
- 35** The exact fault within that area.

Often seen with

P0130 O2 Sensor Circuit Malfunction (Bank 1 Sensor 1) · **P0135** O2 Sensor Heater Circuit Malfunction (Bank 1 Sensor 1) · **P0141** O2 Sensor Heater Circuit Malfunction (Bank 1 Sensor 2) · **P0171** System Too Lean (Bank 1) · **P0300** Random/Multiple Cylinder Misfire Detected

See it working

Watch the animated explainer [How a Supercharger Works: Roots Blower in X-Ray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/mazda-p1135/>

