

GENERIC · POWERTRAIN

P2240

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2240

O2 Sensor Positive Current Control Circuit/Open (Bank 2 Sensor 1)

P2240 indicates that the powertrain control module has detected an open circuit or abnormal current flow in the positive current control circuit for the upstream oxygen sensor on bank 2, which is the side of the engine that does not contain cylinder number one. The sensor's internal heater or signal circuit is not drawing the current the computer expects, so the module flags the circuit as open.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Fuel and air metering (injector circuits)

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Rough idle or hesitation when the engine is cold, because the affected sensor stays inactive longer
- A slight drop in fuel economy as the computer reverts to default fuel scheduling
- Failed or incomplete readiness monitors for the oxygen sensor and catalyst
- Intermittent check engine light that comes and goes with vibration or moisture
- In rare cases, a rich-running condition with black smoke if the circuit fault biases the sensor signal

Common causes, most likely first

- 1 Broken, chafed, or corroded wiring in the bank 2 sensor 1 positive current control circuit
- 2 A failed oxygen sensor heater element or internal sensor circuit
- 3 Loose or contaminated connector pins at the sensor or at the control module
- 4 Water intrusion into the sensor connector causing corrosion and an open circuit
- 5 A blown fuse or relay that feeds the oxygen sensor heater circuit
- 6 A faulty powertrain control module driver for that circuit, though this is the least common cause



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data to confirm P2240 is the primary fault and not a companion code
- 2 Visually inspect the bank 2 sensor 1 harness and connector for chafing, corrosion, or water intrusion
- 3 Measure resistance across the sensor heater circuit and compare it to the manufacturer's specification
- 4 Check for battery voltage and ground at the sensor connector with the key on, engine off
- 5 Perform a voltage drop test on the positive current control wire from the sensor to the control module
- 6 Repair or replace the damaged section of harness or the connector terminals as needed
- 7 Clear the code and complete a drive cycle to verify the repair and confirm the monitor runs

What the current control circuit really does

- The positive current control circuit is not the same as the sensor signal wire, so a sensor that reads correctly on a scan tool can still set P2240 because the heater or current regulation has failed.
- Bank 2 Sensor 1 is the upstream sensor on the side of the engine opposite cylinder one, and technicians often replace the wrong sensor because they assume bank 1 is the only upstream sensor.
- A corroded connector pin can pass a visual inspection and still create enough resistance to set an open-circuit code, so a voltage drop test is more reliable than a simple continuity check.
- This code can be set by a failing oxygen sensor heater that only opens when cold, which means the fault may not appear during a warm-engine test drive.
- Replacing the sensor without checking the harness is a common misdiagnosis, and the new sensor will set the same code if the open circuit is in the wiring.

Can I keep driving with P2240?

The vehicle is generally safe to drive with P2240 because the engine management system defaults to a safe fuel strategy, but avoid long trips and heavy load until the circuit is repaired. Prolonged driving with a failed upstream sensor can damage the catalytic converter and increase emissions.

Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter with resistance and voltage drop functions
- Wiring diagram for the bank 2 sensor 1 circuit
- Back probe pins or breakout leads
- Sensor socket or wrench for oxygen sensor removal



Reading P2240

- P** Powertrain: engine, transmission and emissions.
- 2** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 2** Fuel and air metering (injector circuits).
- 40** 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) · **P0134** O2 Sensor Circuit No Activity (Bank 1 Sensor 1)

See it working

Watch the animated explainer [Four-Stroke Engine Notebook: The Otto Cycle Explained](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2240/>

