

GENERIC · POWERTRAIN

P2212

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2212

NOx Sensor Heater Sense Circuit Intermittent (Bank 1 Sensor 1)

P2212 means the engine computer has detected an intermittent fault in the heater-sense circuit for the upstream nitrogen-oxide (NOx) sensor on bank 1. The computer monitors the heater element's electrical feedback and sees the signal drop out or jump erratically, so it cannot reliably keep the sensor at operating temperature.

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

- Illuminated check engine light, often with no other noticeable symptoms
- Reduced fuel economy as the engine management system runs less efficient NOx control strategies
- Intermittent rough running or hesitation during regeneration or lean-burn operation
- A pending P2212 that appears and clears on its own before returning
- Possible limp-home mode or reduced power if the fault escalates to a hard failure

Common causes, most likely first

- 1 Damaged or chafed wiring in the NOx sensor heater circuit, especially near the exhaust and connectors
- 2 Corroded, loose, or water-intruded electrical connector at the NOx sensor or engine computer
- 3 Failing NOx sensor heater element with an intermittent open or short
- 4 Poor ground connection for the sensor heater circuit
- 5 Engine computer (ECM/PCM) internal driver fault on the heater-sense circuit
- 6 Exhaust leaks or extreme heat degrading the sensor's internal wiring

How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data to confirm when the intermittent fault occurs
- 2 Inspect the NOx sensor harness and connector for chafing, corrosion, and heat damage
- 3 Measure heater circuit resistance and check for intermittent opens or shorts while wiggling the harness
- 4 Verify ground integrity and voltage drop on the heater circuit under load
- 5 Check for exhaust leaks upstream of the sensor that could cause overheating
- 6 If wiring and grounds are good, substitute a known-good NOx sensor and recheck for the code
- 7 As a last step, test the ECM/PCM driver circuit or reprogram/replace the module if the fault persists



Intermittent NOx heater faults that fool technicians

- A NOx sensor heater circuit can test perfectly when cold but fail only after the exhaust reaches operating temperature, so always test both cold and hot.
- Water intrusion into the connector is a common hidden cause that looks like a sensor failure but is fixed by cleaning and sealing the connector.
- The code can be set by a poor chassis ground that also affects other sensors, so check ground straps before condemning the sensor.
- Some vehicles set P2212 when the heater current draw is slightly out of range even though the sensor still reports plausible NOx values, leading to unnecessary sensor replacement.
- A failing battery or charging system can cause intermittent voltage drops that trigger this code without any fault in the sensor circuit itself.

Can I keep driving with P2212?

You can usually continue driving with P2212 because the fault is intermittent and the engine management system has default strategies, but avoid long periods of heavy load or towing until it is repaired. If the check engine light starts flashing or you notice rough running, stop driving and have it diagnosed promptly.

Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter with min/max recording
- Wiring diagram for the NOx sensor heater circuit
- Backprobe pins and jumper wires
- Heat gun or infrared thermometer to test hot operation

Reading P2212

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).
12	The exact fault within that area.

Often seen with

P2200 NOx Sensor Circuit (Bank 1 Sensor 1) · **P2201** NOx Sensor Circuit Range/Performance (Bank 1 Sensor 1) · **P2211** NOx Sensor Heater Sense Circuit High Input · **P2213** NOx Sensor Circuit (Bank 2 Sensor 1) · **P229E** NOx Sensor Circuit (Bank 1 Sensor 2)



See it working

Watch the animated explainer [Inline-Four Engine X-Ray: Firing Order 1-3-4-2](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2212/>

