

GM · POWERTRAIN

P1130

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1130 · GM

HO2S Circuit Low Variance Bank 1 Sensor 1

P1130 on a GM vehicle means the powertrain control module (PCM) is seeing the upstream oxygen sensor on bank 1 (the side containing cylinder 1) switch voltage far less than expected, so the sensor signal is stuck or lazy rather than actively toggling between rich and lean. The PCM compares the sensor's activity over a calibrated time window and sets this code when the variance falls below the threshold, which usually points to a contaminated or aged sensor, a wiring fault, or an exhaust leak ahead of the sensor.

SYSTEM

Powertrain

CODE TYPE

GM specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering

Symptoms you may notice

- Illuminated check engine light, often with no other symptoms besides the warning light
- Slightly rough idle or a subtle stumble when the engine is cold
- Noticeable drop in fuel economy over several tanks of gas
- Hesitation or sluggish throttle response during acceleration
- Failed emissions test due to high hydrocarbon or carbon monoxide readings
- In rare cases, a rich-running condition with black exhaust smoke if the sensor is stuck lean

Common causes, most likely first

- 1 Aged or contaminated upstream oxygen sensor (bank 1 sensor 1) that no longer switches rapidly
- 2 Exhaust leak between the cylinder head and the sensor, such as a cracked manifold or failed gasket, letting outside air skew the reading
- 3 Chafed, corroded, or oil-soaked sensor wiring or connector pins causing an intermittent low-voltage signal
- 4 A stuck-open or leaking fuel injector on bank 1 that keeps the mixture artificially rich and suppresses sensor switching
- 5 Low fuel pressure or a weak fuel pump that prevents the mixture from cycling normally
- 6 A vacuum leak on bank 1 that leans the mixture and reduces sensor activity
- 7 A PCM calibration issue or a failing PCM driver circuit, though this is far less common than sensor or exhaust faults



How to diagnose and fix it

- 1 Connect a scan tool and review freeze-frame data plus live bank 1 sensor 1 voltage to confirm the signal is lazy or flat rather than switching normally
- 2 Visually inspect the sensor wiring, connector, and exhaust manifold for chafing, corrosion, cracks, or black soot trails that indicate a leak
- 3 Perform a propane or smoke test around the intake and exhaust to rule out vacuum and exhaust leaks before condemning the sensor
- 4 Check fuel pressure and inspect bank 1 spark plugs for rich or lean deposits that point to an injector or pressure problem
- 5 Replace the bank 1 sensor 1 oxygen sensor with the correct GM-spec part if the signal remains flat after wiring and leak checks
- 6 Clear the codes and run a drive cycle that includes steady cruise and deceleration to verify the sensor now switches and the code does not return
- 7 If the code persists, scope the sensor signal at the PCM and check for a faulty PCM driver or a calibration update before replacing the PCM

Before you replace the upstream oxygen sensor

- A lazy upstream sensor is often the victim rather than the cause, so a leaking exhaust manifold gasket or a cracked flex pipe on bank 1 can let in outside air and make a healthy sensor look dead.
- Oil or coolant contamination from a failing head gasket or valve cover leak can coat the sensor tip and suppress switching without setting a misfire code, so check for residue on the old sensor when you remove it.
- A stuck-open injector on bank 1 can hold the mixture rich enough that the oxygen sensor never sees a lean swing, and this code will keep returning until the injector is addressed.
- Some GM platforms require a specific oxygen sensor part number and a PCM relearn after replacement, and using a generic sensor can cause the same low-variance code to reset within a few drive cycles.
- This code does not always mean the sensor is bad; a low fuel pressure condition or a restricted return line can reduce mixture cycling and trigger P1130 without any sensor fault at all.

Can I keep driving with P1130?

You can usually drive short distances to a repair shop, but avoid heavy acceleration, towing, or long highway trips because a lazy upstream sensor can push the engine rich and damage the catalytic converter over time. If the check engine light starts flashing or you notice misfiring, stop driving and have the vehicle towed.



Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter for checking sensor voltage and wiring continuity
- Oxygen sensor socket and breaker bar
- Propane enrichment tool or smoke machine for vacuum and exhaust leak testing
- Fuel pressure gauge
- Basic hand tools and penetrating oil for exhaust fastener removal

Reading P1130

P	Powertrain: engine, transmission and emissions.
1	Manufacturer-specific code (GM): its meaning depends on the make.
1	Fuel and air metering.
30	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) · **P0133** O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) · **P0171** System Too Lean (Bank 1) · **P0172** System Too Rich (Bank 1)

See it working

Watch the animated explainer [Helicopter Flight Simulator: Learn the Three Controls](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/gm-p1130/>

