

GM · POWERTRAIN

P1203

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1203 · GM

Alternative Fuel Gas Mass Sensor Circuit High Frequency

P1203 on a GM vehicle means the powertrain control module (PCM) has detected an abnormally high-frequency signal from the alternative fuel gas mass sensor circuit, which is used on bi-fuel or flexible-fuel vehicles to measure the mass of gaseous fuel entering the engine. The PCM compares the sensor's pulse or frequency output against expected values for the current operating conditions and sets this code when the frequency stays above the calibrated threshold for a set time.

SYSTEM

Powertrain

CODE TYPE

GM specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

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 stumbling when the engine is running on the alternative fuel
- Hesitation or reduced power during acceleration on gas
- Poor fuel economy or unexpected switching between fuel types
- In rare cases, the engine may default to gasoline operation or enter limp mode

Common causes, most likely first

- 1 Damaged or chafed wiring in the gas mass sensor signal circuit, causing a short to voltage or an intermittent high-frequency interference
- 2 Failed alternative fuel gas mass sensor sending an erratic or high-frequency signal
- 3 Poor electrical connection or corrosion at the sensor connector or PCM harness
- 4 Contamination or obstruction in the gas mass sensor sensing element or its sample tube
- 5 Faulty alternative fuel control module or its power/ground supply affecting sensor reference voltage
- 6 PCM software calibration issue or internal driver fault (less common)



How to diagnose and fix it

- 1 Inspect the gas mass sensor connector and wiring for corrosion, chafing, or loose pins, and repair as needed
- 2 Check the sensor's power, ground, and signal circuit with a digital multimeter and oscilloscope to verify frequency output against GM specifications
- 3 Clean the sensor sensing element with the approved electronic cleaner if contamination is suspected, following GM service procedures
- 4 Swap the gas mass sensor with a known-good unit and clear the code to see if it returns
- 5 Verify the alternative fuel control module powers up correctly and has good grounds, and check for related codes in other modules
- 6 If wiring and sensor are good, reprogram the PCM with the latest GM calibration and recheck
- 7 As a last step, replace the PCM only after confirming all other circuits and components are within specification

What the frequency signal really tells you

- A high-frequency code often points to electrical interference from nearby ignition or injector wiring rather than a failed sensor, so inspect routing and shielding before condemning parts.
- The gas mass sensor on GM bi-fuel trucks can set P1203 when the gas pressure regulator or filter is restricted, causing the sensor to report an abnormally high frequency as it tries to compensate.
- Many technicians replace the sensor only to find the real fault is a corroded ground splice shared with the alternative fuel module, which shifts the signal reference voltage.
- P1203 can be stored intermittently by a loose aftermarket gas system connection or a poorly installed conversion, so check for non-factory wiring and connectors first.
- This code does not always mean the sensor is bad; a skewed mass air flow (MAF) sensor or unmetered air leak on the gasoline side can alter fuel trim and indirectly affect the gas mass sensor's calculated frequency.

Can I keep driving with P1203?

You can usually continue driving on gasoline, but avoid sustained high-speed or heavy-load operation on the alternative fuel until the fault is repaired, because the PCM may not control gas delivery accurately and could cause drivability issues or increased emissions.

Tools that help

- OBD-II scan tool with live data and graphing capability
- Digital multimeter with frequency measurement
- Oscilloscope for signal waveform analysis
- GM service information for wiring diagrams and sensor specifications
- Basic hand tools and terminal pick set



Reading P1203

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

Often seen with

P1202 Cylinder 2 Fuel Injector Circuit Electrical Malfunction · **P1204** Cylinder 4 Fuel Injector Circuit Electrical Malfunction · **P1202** Cylinder 2 Misfire · **P1204** Cylinder 4 Misfire · **P1202** Cylinder 2 Injector Circuit Open/Shorted · **P1204** Cylinder 4 Injector Circuit Open/Shorted · **P1202** Cylinder 2 Misfire · **P1204** Cylinder 4 Misfire · **P1202** Alternative Fuel Gas Mass Sensor Circuit Low Frequency · **P1202** (Alternative Fuel) Gas Mass Sensor Circuit Low Frequency · **P0171** System Too Lean (Bank 1) · **P0172** System Too Rich (Bank 1) · **P0300** Random/Multiple Cylinder Misfire Detected

See it working

Watch the animated explainer [How the PCV System Works: Crankcase Ventilation](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/gm-p1203/>

