

GM · POWERTRAIN

P1201

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1201 · GM

Alternative Fuel Gas Mass Sensor Circuit Range Performance

P1201 on a GM vehicle indicates that the powertrain control module (PCM) has detected an out-of-range performance signal from the alternative fuel gas mass sensor circuit, which is used on flexible-fuel vehicles to measure the mass of alternative fuel (such as E85) entering the engine. The PCM compares the sensor's reported gas mass against expected values derived from other sensors and sets this code when the signal falls outside the acceptable range for a calibrated period.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	GM specific	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 stumbling when running on alternative fuel
- Hesitation or poor acceleration under load
- Reduced fuel economy or inconsistent fuel trims
- Difficulty starting, especially in cold weather when alcohol content is high
- In rare cases, the engine may enter limp mode or default to gasoline-only operation

Common causes, most likely first

- 1 Faulty alternative fuel gas mass sensor or its internal circuitry
- 2 Wiring damage (opens, shorts, or chafing) between the sensor and the PCM
- 3 Corroded or loose electrical connectors at the sensor or PCM
- 4 Contaminated or obstructed sensor sensing element due to fuel quality or debris
- 5 PCM software calibration issue or internal PCM fault
- 6 Low fuel pressure or volume affecting sensor readings indirectly
- 7 Aftermarket fuel system modifications or improper fuel mixing



How to diagnose and fix it

- 1 Connect a scan tool and record freeze-frame data and fuel trim values to confirm the code and operating conditions
- 2 Visually inspect the sensor, connectors, and wiring harness for damage, corrosion, or loose pins; repair as needed
- 3 Measure reference voltage and ground at the sensor connector with a digital multimeter; compare to manufacturer specifications
- 4 Check fuel pressure and volume to rule out delivery issues that can skew sensor performance
- 5 Test the sensor signal output with a scan tool or oscilloscope while manipulating the throttle; replace the sensor if the signal is erratic or out of range
- 6 Verify that the PCM has the latest calibration and reflash if required
- 7 Clear codes and perform a drive cycle to confirm the repair; monitor readiness monitors

When the gas mass sensor isn't the culprit

- A common misdiagnosis is replacing the alternative fuel gas mass sensor when the real problem is a contaminated fuel system or incorrect ethanol content, which can mimic sensor failure.
- The code can be set by intermittent wiring faults that only appear under vibration or temperature changes, so a wiggle test of the harness while monitoring live data is essential.
- On some GM flex-fuel vehicles, a weak fuel pump or restricted fuel filter can cause the sensor to report out-of-range values because actual fuel delivery does not match commanded delivery.
- P1201 may be stored alongside misfire or fuel trim codes, and technicians who focus only on the sensor often overlook a root cause in the fuel delivery or EVAP system.
- Aftermarket performance calibrations or improper fuel system modifications frequently trigger this code even when all hardware is functioning correctly.

Can I keep driving with P1201?

You can generally continue driving with P1201, but avoid heavy acceleration, towing, or long trips until the fault is diagnosed, because the engine may run with incorrect fuel mixture and reduced performance. If the check engine light begins flashing or the engine runs very poorly, stop driving and seek service immediately.

Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter (DMM)
- Oscilloscope (optional for signal analysis)
- Fuel pressure gauge
- Basic hand tools and wire repair kit



Reading P1201

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

Often seen with

P1202 Cylinder 2 Fuel Injector Circuit Electrical Malfunction · **P1200** Fuel Pump Relay Circuit · **P1202** Cylinder 2 Misfire · **P1202** Cylinder 2 Injector Circuit Open/Shorted · **P1202** Cylinder 2 Misfire · **P1200** Injector Control Circuit · **P1202** Alternative Fuel Gas Mass Sensor Circuit Low Frequency · **P1200** Injector Control Circuit · **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 a Refrigerator Works: The Cooling Cycle](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/gm-p1201/>

