



P1121 · GM

Throttle Position Sensor Out of Range

P1121 on a GM vehicle means the powertrain control module (PCM) has detected a throttle position sensor (TPS) signal that falls outside the expected voltage range for the current operating conditions. The PCM compares the TPS voltage against a calculated model and sets this code when the signal is too high, too low, or inconsistent with the throttle plate's commanded position.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	GM specific	Medium	Intermediate	Fuel and air metering

Symptoms you may notice

- Illuminated check engine light, often with no other noticeable symptoms
- Reduced engine power or limp mode, limiting acceleration
- Hesitation or stumble when pressing the accelerator
- Erratic or surging idle speed
- Poor fuel economy or rich/lean running conditions
- Transmission shift harshness or delayed shifting due to incorrect throttle input

Common causes, most likely first

- 1 Worn or dirty throttle position sensor internal contacts
- 2 Loose, corroded, or damaged TPS electrical connector
- 3 Chafed or broken wires in the TPS signal or ground circuit
- 4 Throttle body carbon buildup causing the throttle plate to stick or bind
- 5 Faulty accelerator pedal position sensor (on drive-by-wire systems) sending conflicting signals
- 6 PCM software calibration issue or internal fault (rare)

How to diagnose and fix it

- 1 Inspect the TPS connector and wiring for corrosion, looseness, or damage; clean and repair as needed
- 2 Use a scan tool to view live TPS voltage while slowly opening the throttle; look for smooth progression without spikes or dropouts
- 3 Clean the throttle body and throttle plate to remove carbon deposits that can cause binding
- 4 Perform a TPS relearn or idle relearn procedure with a scan tool after cleaning or replacement
- 5 Replace the throttle position sensor if voltage output is erratic or out of specification
- 6 Check the accelerator pedal position sensor signals for consistency with the TPS
- 7 Reprogram or replace the PCM only after all other circuits and components have been verified good



TPS signal faults often misdiagnosed

- A dirty throttle body can cause the TPS signal to exceed expected range without any sensor fault, so cleaning the throttle plate often resolves the code.
- On drive-by-wire GM vehicles, the TPS is part of the throttle body assembly and may not be serviceable separately; replacing the entire throttle body is sometimes required.
- Intermittent TPS codes often stem from a poor ground connection at the engine block or chassis, not the sensor itself.
- A failing accelerator pedal position sensor can set a TPS-related code because the PCM cross-checks both signals for plausibility.
- After replacing a TPS or throttle body, a scan tool relearn is mandatory on many GM models to prevent the code from returning.

Can I keep driving with P1121?

You can usually drive the vehicle to a repair shop, but avoid aggressive acceleration or heavy loads because the PCM may limit power or cause unpredictable throttle response. If the engine enters limp mode or stalls, stop driving and seek professional diagnosis.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Throttle body cleaner and soft brush
- Socket and ratchet set
- Torx or hex bit set (for throttle body fasteners)
- Factory service information or wiring diagram

Reading P1121

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

Often seen with

P0121 Throttle Position Sensor A Circuit Range/Performance · **P0122** Throttle Position Sensor A Circuit Low Input · **P0123** Throttle Position Sensor A Circuit High Input · **P2135** Throttle/Pedal Position Sensor A/B Voltage Correlation · **P2138** Throttle/Pedal Position Sensor D/E Voltage Correlation



See it working

Watch the animated explainer [How Coil-on-Plug Ignition Works: Coil and Spark Plug](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/gm-p1121/>

