



P0121

Throttle Position Sensor A Circuit Range/Performance

P0121 means the engine computer detected that the throttle position sensor (TPS) signal for circuit A is outside the expected range for a given throttle plate angle, or that the signal does not change smoothly as the throttle moves. The computer compares the TPS voltage to the mass airflow and engine speed readings and flags the code when the correlation falls outside calibrated limits.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Fuel and air metering

Symptoms you may notice

- The check engine light illuminates, often with no other noticeable symptoms
- Hesitation or stumble when accelerating from a stop
- A delay or surge in power delivery when pressing the accelerator
- Poor fuel economy or a rich-running smell from the exhaust
- An erratic or hunting idle speed
- The transmission may shift harshly or at the wrong time on automatic cars

Common causes, most likely first

- 1 Worn or dirty tracks inside the throttle position sensor causing a dead spot in the signal
- 2 Loose, corroded, or chafed wiring in the TPS circuit A harness
- 3 A faulty throttle body assembly with a sticking or carbon-fouled throttle plate
- 4 Poor electrical connector contact at the TPS or throttle body
- 5 A failing accelerator pedal position sensor on drive-by-wire systems
- 6 A damaged or misadjusted TPS mounting that changes the base voltage
- 7 Rarely, a faulty engine control module (ECM) driver circuit



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data to see the throttle angle and TPS voltage at the moment the code set
- 2 Inspect the TPS connector and wiring for corrosion, looseness, or chafing, and repair as needed
- 3 Back-probe the TPS signal wire and watch the voltage sweep smoothly from closed to wide-open throttle on a graph
- 4 Clean the throttle body and perform a throttle relearn or idle relearn procedure if the plate is carboned up
- 5 Replace the throttle position sensor or throttle body assembly if the voltage sweep shows dropouts or dead spots
- 6 Check the accelerator pedal position sensor readings on drive-by-wire vehicles and replace if inconsistent
- 7 Clear the code and verify the repair by running a drive cycle that includes several throttle transitions

What a TPS voltage sweep reveals

- A TPS can pass a static resistance test and still set P0121 because the fault only appears as a momentary dropout while the throttle is moving, so a live voltage sweep on a graphing meter is essential.
- Carbon buildup on the throttle plate changes the closed-throttle voltage enough to trigger the range/performance check on many drive-by-wire cars, and a cleaning and relearn often fixes the code without any parts.
- P0121 is frequently misdiagnosed as a transmission problem because a bad TPS signal can cause harsh or delayed shifts, leading to unnecessary transmission work.
- On some vehicles the code is set by a mismatch between the two TPS signals inside the throttle body, so replacing only the external sensor does not fix it.
- A weak battery or poor ground can cause reference voltage fluctuations that mimic a failing TPS, so check charging system health before condemning the sensor.

Can I keep driving with P0121?

You can usually drive the car to a shop, but avoid hard acceleration and towing until the fault is repaired because a faulty throttle signal can cause hesitation or unexpected power loss. If the car enters limp mode or the throttle stops responding, pull over and arrange a tow.

Tools that help

- OBD-II scan tool with live data and graphing capability
- Digital multimeter
- Back-probe pins or breakout leads
- Throttle body cleaner and shop rags
- Basic hand tools and Torx or hex bit set



Reading P0121

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 1** Fuel and air metering.
- 21** The exact fault within that area.

Often seen with

P0120 Throttle Position Sensor A Circuit Malfunction · **P0122** Throttle Position Sensor A Circuit Low Input · **P0123** Throttle Position Sensor A Circuit High Input · **P0507** Idle Control System RPM Higher Than Expected · **P2135** Throttle/Pedal Position Sensor A/B Voltage Correlation

See it working

Watch the animated explainer [How a Six-Speed Manual Gearbox Works](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0121/>

