

GENERIC · POWERTRAIN

P01AD

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P01AD

Alternative Fuel Tank Temperature Sensor Circuit High

P01AD means the powertrain control module (PCM) has detected an abnormally high voltage on the signal circuit of the alternative fuel tank temperature sensor, which is used on vehicles that run on fuels such as compressed natural gas or liquefied petroleum gas. The sensor's resistance rises as fuel temperature drops, so a high-voltage signal tells the PCM the fuel is colder than it actually is, or that the circuit is open or shorted to voltage.

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

Symptoms you may notice

- Illuminated check engine light, often with no other noticeable symptoms
- Rough running or poor driveability when the engine is cold because fuel temperature is misreported
- Hard starting or extended crank times in cold weather
- Reduced fuel economy or power derating on some alternative-fuel vehicles
- Erratic fuel gauge or fuel temperature display readings on vehicles with an instrument cluster readout
- Possible no-start condition if the PCM substitutes an extreme default value that prevents fuel delivery

Common causes, most likely first

- 1 Open circuit in the sensor signal wire, such as a broken wire or unplugged connector
- 2 Corroded, loose, or water-intruded electrical connector at the sensor or PCM
- 3 Sensor signal circuit shorted to voltage, often from chafed wiring against a 12-volt source
- 4 Failed alternative fuel tank temperature sensor with an open internal element
- 5 High resistance in the sensor ground circuit, which the PCM interprets as a high signal voltage
- 6 Faulty PCM driver or internal pull-up resistor on the signal circuit (rare but possible)
- 7 Aftermarket wiring or accessory installation that disturbed the sensor circuit



How to diagnose and fix it

- 1 Connect a scan tool and record the freeze-frame data and live sensor voltage to confirm the high reading matches the code
- 2 Visually inspect the sensor, its connector, and the wiring harness for damage, corrosion, or loose pins
- 3 Disconnect the sensor and measure its resistance with a multimeter, comparing the value to the manufacturer's temperature-resistance chart
- 4 Check the signal circuit for an open or short to voltage by measuring voltage at the sensor connector with the key on and the sensor unplugged
- 5 Perform a voltage drop test on the sensor ground circuit to rule out high resistance in the return path
- 6 If wiring and ground are good, substitute a known-good sensor and clear the code to see whether it returns
- 7 If the code persists with a known-good sensor and verified wiring, test the PCM signal circuit for an internal fault before replacing the module

What the high-voltage reading really means

- A high signal voltage on a temperature sensor almost always points to an open circuit or a bad ground rather than a failed sensor, so resistance-test the wiring before condemning the sensor.
- On many alternative-fuel vehicles the tank temperature sensor shares a ground with other sensors, and a single corroded ground point can set P01AD along with unrelated codes.
- The PCM may default to a fixed fuel temperature when the signal is out of range, which can mask driveability symptoms and make the code appear intermittent.
- Water intrusion into the tank sensor connector is a common cause on vehicles that operate in wet or humid environments, and the corrosion is often hidden inside the connector body.
- A short to voltage on the signal wire can be caused by a chafed harness near the fuel tank or along the frame rail, so inspect the entire run, not just the sensor end.

Can I keep driving with P01AD?

The vehicle is generally safe to drive with P01AD because the PCM substitutes a default fuel temperature, but cold-start and fuel-economy problems can worsen. Avoid extended driving if you notice rough running or a no-start condition, and have the circuit inspected before the fault leaves you stranded.

Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter with resistance and voltage measurement
- Temperature-resistance chart for the alternative fuel tank temperature sensor
- Wiring diagram for the sensor circuit
- Electrical contact cleaner and dielectric grease
- Back-probe kit or breakout leads for connector testing



Reading P01AD

- 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.
- AD** The exact fault within that area.

Often seen with

P0182 Fuel Temperature Sensor A Circuit Low Input · **P0183** Fuel Temperature Sensor A Circuit High Input · **P01AB** Alternative Fuel Tank Temperature Sensor Range/Performance · **P01AC** Alternative Fuel Tank Temperature Sensor Circuit Low · **P01AE** Alternative Fuel Tank Temperature Sensor Circuit Intermitten

See it working

Watch the animated explainer [Inline-Four Engine X-Ray: Firing Order 1-3-4-2](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p01ad/>

