

GENERIC · POWERTRAIN

P01AE

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P01AE

Alternative Fuel Tank Temperature Sensor Circuit Intermittent/Erratic

P01AE indicates that the powertrain control module (PCM) has detected an intermittent or erratic signal from the alternative fuel tank temperature sensor circuit. The PCM expects a stable voltage or resistance value that correlates with the temperature of the alternative fuel tank, but the signal is jumping or dropping out unpredictably.

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

Symptoms you may notice

- Illumination of the malfunction indicator lamp (MIL) on the dashboard.
- Often no symptoms besides the warning light, especially if the fault is intermittent.
- Erratic or inaccurate fuel gauge readings for the alternative fuel tank.
- Poor engine performance or drivability issues when running on alternative fuel.
- Difficulty starting or stalling when the vehicle is operating in alternative fuel mode.
- Possible reduced fuel economy or power if the PCM defaults to a limp-home strategy.

Common causes, most likely first

- 1 Faulty alternative fuel tank temperature sensor.
- 2 Damaged or corroded wiring harness or connector at the sensor.
- 3 Loose or poor electrical connection at the PCM or sensor.
- 4 Open or short circuit in the sensor signal or ground circuit.
- 5 Water intrusion or contamination in the connector or sensor.
- 6 Failed PCM (rare, but possible after other causes are ruled out).



How to diagnose and fix it

- 1 Verify the code with a scan tool and check for any related codes in the alternative fuel system.
- 2 Inspect the sensor and its connector for physical damage, corrosion, or loose pins.
- 3 Measure the sensor resistance with a multimeter and compare to the manufacturer's specification for the current temperature.
- 4 Check the wiring harness for continuity and shorts between the sensor and the PCM, wiggle-testing the harness while monitoring the signal.
- 5 If the sensor is faulty, replace it and clear the codes to see if the fault returns.
- 6 If wiring is damaged, repair or replace the affected section and ensure proper routing away from heat and moving parts.
- 7 After repairs, perform a road test and monitor the sensor signal with a scan tool to confirm the code does not reset.

Intermittent faults often hide in the harness

- A common oversight is replacing the sensor without checking the harness, but intermittent codes are frequently caused by chafed wires or loose connectors that only act up under vibration or temperature changes.
- The alternative fuel tank temperature sensor may share a ground or reference voltage with other sensors, so a fault in a related circuit can cause this code to set even if the sensor itself is good.
- Some vehicles use a fuel temperature sensor that is integrated into a fuel composition sensor or module, making the entire assembly the replacement part rather than a standalone sensor.
- The PCM may set this code only after multiple drive cycles with an erratic signal, so the fault may not be present during a quick inspection; a data logger or oscilloscope can capture intermittent glitches.
- Do not overlook the possibility of a poor connection at the PCM connector, especially if the vehicle has been exposed to moisture or has had recent electrical work.

Can I keep driving with P01AE?

If the vehicle is running normally, you can drive it to a repair shop, but avoid heavy loads or long trips until the fault is diagnosed. If the engine runs poorly or stalls, stop driving and have the vehicle towed to prevent safety risks.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wiring diagram for the specific vehicle
- Oscilloscope (optional for intermittent signal capture)
- Basic hand tools for connector and sensor access



Reading P01AE

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

Often seen with

P01A9 Alternative Fuel Rail/System Pressure - Too High · **P01AA** Alternative Fuel Tank Temperature Sensor Circuit · **P01AB** Alternative Fuel Tank Temperature Sensor Range/Performance · **P01AC** Alternative Fuel Tank Temperature Sensor Circuit Low · **P01AD** Alternative Fuel Tank Temperature Sensor Circuit High

See it working

Watch the animated explainer [How a Coolant Temperature Sensor Works](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p01ae/>

