

GENERIC · POWERTRAIN

P00AE

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P00AE

Intake Air Temperature Sensor 1 Circuit Intermittent Bank 2

P00AE means the engine computer has detected an intermittent fault in the intake air temperature (IAT) sensor circuit for bank 2, which is the sensor that measures the temperature of the air entering that bank of the engine. The computer sets this code when the signal from the sensor drops out or jumps erratically for a fraction of a second, rather than failing completely like a hard circuit fault would.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Low	Intermediate	Fuel and air metering and auxiliary emission controls

Symptoms you may notice

- Often no symptoms besides the warning light, because the fault is intermittent and the computer may substitute a default temperature value.
- A brief stumble or hesitation during acceleration when the intermittent signal disrupts the air-fuel calculation.
- Slightly rough idle or a momentary surge that comes and goes without a pattern.
- A noticeable drop in fuel economy over time if the intermittent fault causes the computer to run a richer mixture more often.
- In rare cases, a brief puff of black smoke from the tailpipe when the signal glitches and the computer over-fuels.
- The warning light may turn itself off after several clean drive cycles, only to return later.

Common causes, most likely first

- A loose, corroded, or partially unseated electrical connector at the bank 2 IAT sensor, which is the most common cause of an intermittent signal.
- A chafed or broken wire in the sensor harness where it rubs against a bracket or passes near a hot exhaust component.
- A failing IAT sensor element that loses contact internally when it heats up or vibrates.
- Water or oil intrusion into the sensor connector, causing resistance to change erratically with engine vibration.
- A poor ground connection shared by the sensor circuit, which makes the signal voltage drift intermittently.
- A failing engine control module (ECM) driver circuit, which is rare but possible after all wiring and sensor checks pass.



How to diagnose and fix it

- 1 Connect a scan tool and record the bank 2 IAT sensor live data while wiggling the sensor connector and harness to see if the temperature reading jumps or drops out.
- 2 Visually inspect the sensor connector for corrosion, moisture, or loose pins, and clean or reseal it as needed.
- 3 Check the sensor's resistance with a multimeter at room temperature and compare it to the manufacturer's specification, then warm the sensor gently to confirm the resistance changes smoothly.
- 4 Perform a voltage drop test on the sensor signal and ground wires while flexing the harness to find an intermittent open or short.
- 5 Repair or replace any damaged section of harness, using solder and heat-shrink tubing rather than crimp connectors for a lasting repair.
- 6 Replace the bank 2 IAT sensor if the wiring and connector are sound but the sensor's resistance is out of specification or erratic when tapped.
- 7 Clear the code and complete several drive cycles, then recheck live data to confirm the intermittent signal is gone before returning the vehicle.

Why an intermittent IAT code fools many shops

- Technicians who only check for a hard fault will often find nothing, because the sensor may test perfectly when the engine is cold and only glitch after heat and vibration set in.
- A common misdiagnosis is replacing the mass airflow sensor (MAF) when the IAT sensor is a separate element on the same housing, so the actual fault is a bad connector on the IAT pigtail.
- The bank 2 IAT sensor on V-configuration engines is often mounted in the intake duct after the air filter, where road splash and engine heat cycle the connector and accelerate corrosion.
- This code does not always mean the sensor is failing, because a loose battery ground or a failing alternator can introduce electrical noise that mimics an intermittent sensor signal.
- Some vehicles share the IAT signal with the manifold absolute pressure (MAP) sensor circuit, so a fault in that shared reference voltage can set P00AE along with other codes.

Can I keep driving with P00AE?

It is generally safe to keep driving with P00AE because the fault is intermittent and the computer substitutes a default temperature value, but avoid heavy towing or aggressive acceleration until the circuit is repaired, since the engine may run richer than normal and waste fuel.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter with resistance and voltage drop functions
- Back probe pins or piercing probes for connector testing
- Heat gun or hair dryer for warming the sensor during testing
- Wire repair kit with solder and heat-shrink tubing



Reading P00AE

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

Often seen with

P00AF Turbocharger/Supercharger Boost Control A Module Performance · **P0101** Mass/Volume Air Flow Circuit Range/Performance · **P0112** Intake Air Temperature Circuit Low Input · **P0113** Intake Air Temperature Circuit High Input · **P0172** System Too Rich (Bank 1)

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/p00ae/>

