

GENERIC · POWERTRAIN

P0096

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0096

Intake Air Temperature Sensor 2 Circuit Range/Performance

P0096 means the engine computer has detected that the second intake air temperature sensor circuit is reporting a value outside its expected range or is not performing as designed. The computer compares the sensor signal against other temperature inputs and its own plausibility models, and it flags this code when the reading is too high, too low, or erratic for the current operating conditions.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Low

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering and auxiliary emission controls

Symptoms you may notice

- Illuminated check engine light, often with no other noticeable symptoms.
- Rough idle or hesitation when the engine is cold, because the computer may substitute a default temperature value.
- Poor fuel economy or rich-running smell if the faulty signal makes the computer add extra fuel.
- Intermittent stalling or surging during warm-up in some vehicles.
- A slight decrease in power or throttle response under certain load conditions.
- Often no symptoms besides the warning light, especially if the sensor is only slightly out of range.

Common causes, most likely first

- 1 Faulty intake air temperature sensor 2 itself, due to age, contamination, or internal failure.
- 2 Damaged or corroded wiring or connector at the sensor, including chafed insulation or loose pins.
- 3 Open or short circuit in the sensor signal or ground circuit.
- 4 Intake air leaks or restrictions that cause the sensor to read an implausible temperature.
- 5 Contamination of the sensor element from oil, dirt, or crankcase vapors.
- 6 A problem with the sensor's reference voltage or ground supplied by the engine computer.
- 7 In rare cases, a software or calibration issue in the engine control module (ECM).



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data to see when the code set and what the sensor reading was at the time.
- 2 Visually inspect sensor 2, its connector, and the wiring harness for damage, corrosion, or loose connections.
- 3 Measure the sensor's resistance with a multimeter and compare it to the manufacturer's temperature-resistance chart.
- 4 Back-probe the sensor signal and ground wires at the ECM to check for opens, shorts, or excessive voltage drop.
- 5 Check for intake air leaks or restrictions upstream of the sensor that could skew its reading.
- 6 If the sensor and wiring test good, verify the ECM is not misinterpreting the signal by checking for software updates or known issues.
- 7 Replace the sensor only after confirming the circuit and sensor are faulty, then clear the code and verify the repair with a test drive.

What P0096 does not always mean

- A P0096 does not automatically mean the sensor is bad; a corroded connector or chafed wire often mimics a failed sensor.
- Some vehicles use intake air temperature sensor 2 to monitor charge-air temperature after a turbocharger or intercooler, so a boost leak can set this code.
- The ECM may substitute a default temperature value when the sensor is out of range, masking driveability symptoms and making the fault seem intermittent.
- Cleaning the sensor element with the wrong solvent can destroy it, so only use electronics-safe cleaner if cleaning is recommended.
- A weak battery or charging system issue can cause erratic sensor readings and set this code without any sensor fault.

Can I keep driving with P0096?

You can usually continue driving with this code because it rarely causes an immediate safety risk, but avoid heavy acceleration or towing until it is diagnosed. Prolonged driving with a faulty intake air temperature signal may reduce fuel economy and increase emissions, so have it checked soon.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Back-probe kit or wiring pin probes
- Manufacturer's temperature-resistance chart for the sensor
- Basic hand tools for connector and sensor access



Reading P0096

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

Often seen with

P0095 Intake Air Temperature Sensor 2 Circuit · **P0097** Intake Air Temperature Sensor 2 Circuit Low · **P0098** Intake Air Temperature Sensor 2 Circuit High · **P0111** Intake Air Temperature Circuit Range/Performance · **P0113** Intake Air Temperature Circuit High Input

See it working

Watch the animated explainer [How an Automatic Transmission Works, Gear by Gear](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0096/>

