

GENERIC · POWERTRAIN

P00EF

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P00EF

Intake Air Temperature Sensor 3 Circuit Low Bank 2

P00EF indicates that the powertrain control module has detected an abnormally low voltage signal on the intake air temperature sensor 3 circuit for bank 2, which typically means the sensor is reporting a hotter intake charge than is physically possible. The computer compares the sensor's return voltage against expected values and flags the circuit when the signal falls below the calibrated threshold for a set time.

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

- Illumination of the check engine light, often with no other noticeable symptoms.
- Rough idle or hesitation when the engine is cold, because the computer may enrich the fuel mixture incorrectly.
- Poor fuel economy as the module substitutes a default intake air temperature value.
- A slight loss of power or sluggish throttle response under light load.
- In rare cases, a no-start condition if the sensor signal is shorted directly to ground.
- Intermittent drivability issues that appear only in damp or hot weather.

Common causes, most likely first

- 1 A short to ground in the intake air temperature sensor 3 signal wire, often from chafed insulation or a pinched harness.
- 2 A failed intake air temperature sensor 3 that has internally shorted and reads a fixed low resistance.
- 3 Corroded, loose, or water-intruded terminals at the sensor connector or the powertrain control module connector.
- 4 A short to ground in the sensor's reference voltage circuit, pulling the signal low.
- 5 A faulty powertrain control module, though this is rare and should be diagnosed last.
- 6 Aftermarket wiring repairs or accessories that have tapped into the sensor circuit incorrectly.



How to diagnose and fix it

- 1 Connect a scan tool and record the freeze-frame data and intake air temperature sensor 3 voltage with the key on and engine off.
- 2 Visually inspect the sensor, its connector, and the harness for chafing, corrosion, or signs of rodent damage.
- 3 Disconnect the sensor and measure resistance across its terminals, comparing the reading to the temperature-resistance chart for the vehicle.
- 4 With the sensor disconnected, measure voltage on the signal wire from the powertrain control module to confirm whether the short is in the harness or the sensor.
- 5 Wiggle-test the harness while watching live data to catch intermittent shorts that only appear under vibration.
- 6 Repair or replace the faulty section of harness, terminals, or the sensor itself, then clear the code and verify the intake air temperature reading matches ambient.
- 7 Perform a road test with the scan tool recording to confirm the code does not return under load and temperature changes.

What the low-voltage reading really means

- A low signal on this circuit almost always means a short to ground, not an open circuit, so replacing the sensor without checking the harness often wastes money.
- The intake air temperature sensor 3 is frequently integrated into a mass airflow sensor or a combined pressure-temperature sensor on many engines, so the repair may involve the whole assembly rather than a stand-alone part.
- Bank 2 designation can confuse technicians on inline engines, where the bank 2 label may refer to a specific intake runner or a sensor mounted after a split in the intake tract.
- Water intrusion into the connector after engine washing or heavy rain is a common cause that leaves no visible damage to the sensor itself.
- A shorted sensor can pull down the shared reference voltage for other sensors on the same circuit, causing multiple unrelated codes that disappear once the short is fixed.

Can I keep driving with P00EF?

The vehicle is generally safe to drive because the computer substitutes a default intake air temperature value, but avoid heavy towing or sustained high-load driving until the fault is repaired. If the engine runs rough or stalls, stop driving and have the circuit diagnosed promptly.

Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter with resistance and voltage measurement
- Wiring diagram for the intake air temperature sensor 3 circuit
- Back probe pins or breakout leads
- Contact cleaner and dielectric grease for connector repairs



Reading P00EF

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

Often seen with

P00EE Intake Air Temperature Sensor 3 Circuit Range/Performance Bank 1 · **P00F0** Intake Air Temperature Sensor 3 Circuit High Bank 2 · **P0102** Mass/Volume Air Flow Circuit Low Input · **P0112** Intake Air Temperature Circuit Low Input · **P0113** Intake Air Temperature Circuit High Input

See it working

Watch the animated explainer [How a Boxer Engine Works: Flat Engine Cutaway](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p00ef/>

