

FORD · POWERTRAIN

P1129

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1129 · Ford

Downstream Heated Oxygen Sensor Signals Reversed

P1129 on Ford vehicles means the powertrain control module (PCM) has detected that the downstream heated oxygen sensor (HO2S) signal is electrically reversed, meaning the sensor's output voltage is moving in the opposite direction from what the PCM expects during closed-loop fuel control. The PCM compares the downstream sensor's switching pattern against the upstream sensor and recognizes that the signal is inverted, which typically points to a wiring fault, a mismatched sensor, or a sensor that has been installed with the wrong connector pinned out.

SYSTEM

Powertrain

CODE TYPE

Ford specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering

Symptoms you may notice

- Often no symptoms besides the warning light, especially if the inversion is intermittent or only occurs under specific conditions.
- A noticeable drop in fuel economy because the PCM cannot trust the downstream oxygen sensor feedback for long-term fuel trim.
- Rough idle or surging during light-throttle cruising as the PCM struggles to maintain the correct air-fuel ratio.
- A failed emissions test due to the check engine light being illuminated and the oxygen sensor monitor not completing.
- Occasional hesitation or stumble on acceleration when the PCM defaults to open-loop fuel control.
- In rare cases, a rotten egg smell from the exhaust if the reversed signal causes the PCM to command an excessively rich mixture.



Common causes, most likely first

- 1 Downstream oxygen sensor wiring harness damaged or chafed, causing the signal and ground circuits to be crossed or shorted together.
- 2 Wrong downstream oxygen sensor installed, such as a universal sensor with the signal and heater wires pinned incorrectly for the Ford application.
- 3 Corroded or pushed-out terminals at the downstream oxygen sensor connector or at the PCM connector, creating an intermittent reversal of the signal.
- 4 A failed downstream heated oxygen sensor whose internal circuitry has degraded and now produces an inverted output.
- 5 Exhaust leaks upstream of the downstream sensor introducing false oxygen readings that the PCM interprets as a reversed signal.
- 6 PCM software calibration issue or internal driver fault, though this is far less common than wiring or sensor problems.
- 7 Aftermarket alarm or remote start wiring tapped into the oxygen sensor circuit, inadvertently reversing the signal polarity.

How to diagnose and fix it

- 1 Connect a scan tool and verify P1129 is the only code stored; check freeze-frame data to see the downstream oxygen sensor voltage behavior when the fault set.
- 2 Visually inspect the downstream oxygen sensor wiring harness for chafing, pinching, or signs of rodent damage, paying close attention to areas near the exhaust and transmission.
- 3 Disconnect the downstream oxygen sensor connector and inspect both halves for corrosion, pushed-out pins, or evidence of a universal sensor with incorrect pinout.
- 4 Measure resistance and voltage on the sensor signal and ground circuits from the sensor connector to the PCM connector to confirm continuity and correct polarity.
- 5 Compare the downstream oxygen sensor signal on a lab scope to the upstream sensor; a reversed pattern confirms the fault is real and not a phantom code.
- 6 If wiring and connectors check out, replace the downstream heated oxygen sensor with the correct Ford-specified part, avoiding universal sensors unless the pinout is verified.
- 7 Clear the codes and perform a road test with the scan tool monitoring downstream oxygen sensor voltage to confirm the signal now switches in the correct direction and the monitor completes.



Why a reversed downstream signal fools the PCM

- A universal oxygen sensor with the signal and ground wires swapped is one of the most common causes of P1129 on Ford vehicles, and the sensor itself may test good on a bench.
- The PCM does not always set P1129 immediately; it may take several drive cycles with specific fuel trim and sensor switching conditions before the fault matures, so an intermittent wiring issue can hide for weeks.
- An exhaust leak between the upstream and downstream sensors can create a false lean condition that the PCM misinterprets as a reversed signal, so always inspect the exhaust before condemning the sensor.
- P1129 can be set by a faulty PCM connector terminal that only loses contact when the engine bay is hot, so wiggle-testing the harness while monitoring live data is a critical step.
- Do not replace the catalytic converter based on P1129 alone; the code points to the sensor signal, not catalyst efficiency, and a converter will not fix a reversed signal.

Can I keep driving with P1129?

You can usually drive the vehicle short distances to a repair shop, but avoid heavy acceleration, towing, or long highway trips because the PCM may be running in open-loop fuel control and fuel economy will suffer. If the check engine light starts flashing, stop driving and have the vehicle towed, as a flashing light indicates a misfire that can damage the catalytic converter.

Tools that help

- OBD-II scan tool with live data and graphing capability
- Digital multimeter with back-probing pins
- Automotive lab scope for comparing oxygen sensor waveforms
- Wiring diagram for the specific Ford model and engine
- Socket set and oxygen sensor wrench
- Contact cleaner and dielectric grease for connector repair

Reading P1129

P	Powertrain: engine, transmission and emissions.
1	Manufacturer-specific code (Ford): its meaning depends on the make.
1	Fuel and air metering.
29	The exact fault within that area.



Often seen with

P0135 O2 Sensor Heater Circuit Malfunction (Bank 1 Sensor 1) · **P0136** O2 Sensor Circuit Malfunction (Bank 1 Sensor 2) · **P0141** O2 Sensor Heater Circuit Malfunction (Bank 1 Sensor 2) · **P0156** O2 Sensor Circuit Malfunction (Bank 2 Sensor 2) · **P0171** System Too Lean (Bank 1)

See it working

Watch the animated explainer [How a Radiator Fan Relay Circuit Works](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/ford-p1129/>

