

GENERIC · POWERTRAIN

P0529

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0529

Fan Speed Sensor Circuit Intermittent

P0529 indicates that the powertrain control module (PCM) has detected an intermittent signal from the cooling fan speed sensor circuit. The PCM expects a steady, predictable signal that reflects the fan's actual rotational speed, and an intermittent signal means the circuit occasionally drops out or becomes erratic, which can prevent the PCM from properly controlling fan operation.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Vehicle speed, idle control and auxiliary inputs

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- Cooling fan may run constantly at high speed or fail to turn on when needed.
- Engine temperature gauge may fluctuate or show overheating in traffic or at low speeds.
- Air conditioning performance may degrade because the condenser fan is not operating correctly.
- In some vehicles, the PCM may disable the air conditioning compressor to protect the engine.
- Intermittent fan operation that is difficult to reproduce during a quick inspection.

Common causes, most likely first

- 1 Faulty fan speed sensor or fan motor assembly with an internal intermittent connection.
- 2 Damaged or corroded wiring harness between the fan module and the PCM, often due to heat or vibration.
- 3 Loose or corroded electrical connectors at the fan motor or PCM.
- 4 Poor ground connection for the cooling fan circuit.
- 5 Failed cooling fan control module or relay that interrupts the sensor signal.
- 6 PCM software issue or internal fault, though this is less common.



How to diagnose and fix it

- 1 Inspect the cooling fan wiring harness and connectors for chafing, corrosion, or loose pins, and repair as needed.
- 2 Check the fan speed sensor signal with a scan tool to see if the intermittent dropout correlates with harness movement.
- 3 Perform a wiggle test on the fan harness and connectors while monitoring live data to identify the intermittent point.
- 4 Test the fan motor and sensor assembly according to the manufacturer's procedure, replacing it if it fails the test.
- 5 Verify the ground circuit for the fan module has low resistance and is securely fastened.
- 6 If all external circuits and components test good, check for technical service bulletins (TSBs) or PCM software updates.
- 7 Clear the code and perform a road test to confirm the repair, ensuring the fan operates correctly under all conditions.

Intermittent fan sensor faults often misdiagnosed

- A fan speed sensor code can be set by a fan motor that is beginning to seize, causing erratic speed signals before complete failure.
- Heat damage to the fan connector is common and can create an intermittent signal that only appears when the engine bay is hot.
- Some vehicles use the fan speed sensor for closed-loop fan control, so an intermittent signal may cause the fan to default to full speed, which drivers may not notice.
- The code does not always mean the sensor itself is bad; the root cause is frequently a wiring issue or a failing fan control module.
- Aftermarket fan assemblies may have incompatible sensor output, leading to repeated P0529 codes even after replacement.

Can I keep driving with P0529?

You can usually drive with this code, but monitor the engine temperature closely and avoid heavy traffic or prolonged idling if the fan is not working reliably. If the temperature gauge climbs above normal, pull over and shut off the engine to prevent overheating damage.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wiring diagram for the cooling fan circuit
- Basic hand tools for connector and component access
- Infrared thermometer to verify fan operation and coolant temperature



Reading P0529

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 5** Vehicle speed, idle control and auxiliary inputs.
- 29** The exact fault within that area.

Often seen with

P0480 Cooling Fan 1 Control Circuit Malfunction · **P0481** Cooling Fan 2 Control Circuit Malfunction · **P0482** Cooling Fan 3 Control Circuit Malfunction · **P0483** Fan Rationality Check · **P0528** Fan Speed Sensor Circuit No Signal

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/p0529/>

