

GENERIC · POWERTRAIN

P2182

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2182

Engine Coolant Temperature Sensor 2 Circuit

P2182 indicates that the powertrain control module has detected an implausible or out-of-range signal from the second engine coolant temperature sensor, which is typically located at the radiator outlet or in a separate coolant circuit. The computer compares this signal against expected values and the primary coolant sensor to determine that the circuit is not reporting a believable temperature.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Low

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Inaccurate or fluctuating temperature gauge readings on the dashboard
- Cooling fans that run constantly or fail to activate when needed
- Reduced fuel economy or slightly rough running during warm-up
- A message on the driver information display indicating a coolant temperature fault

Common causes, most likely first

- 1 Faulty engine coolant temperature sensor 2
- 2 Damaged or corroded wiring or connector at sensor 2
- 3 Open or short circuit in the sensor 2 signal or ground circuit
- 4 Coolant level low or air pockets in the cooling system affecting sensor readings
- 5 Failed thermostat causing abnormal temperature changes that the sensor reports
- 6 Corrosion or debris on the sensor tip insulating it from coolant flow
- 7 Rarely, a software or calibration issue in the powertrain control module

How to diagnose and fix it

- 1 Verify coolant level and condition, and pressure-test the cooling system for leaks
- 2 Inspect the sensor 2 connector and wiring for corrosion, chafing, or loose pins
- 3 Measure the resistance of sensor 2 at known temperatures and compare to specifications
- 4 Back-probe the sensor 2 signal circuit to check for a plausible voltage with the key on
- 5 Check the sensor 2 ground circuit for excessive resistance to the engine block
- 6 Replace the sensor if resistance or voltage tests are out of range, then clear codes and retest
- 7 If the circuit tests good, diagnose the thermostat and cooling system operation before condemning the PCM

What the second coolant sensor really does

- Many vehicles use sensor 2 primarily for cooling fan control and radiator outlet temperature monitoring, so a fault may not affect the dashboard gauge at all.
- A common misdiagnosis is replacing sensor 2 when the real problem is a stuck-open thermostat that prevents the radiator outlet from reaching expected temperatures.
- Air trapped in the cooling system after a repair can cause sensor 2 to read erratically and set this code even though the sensor is good.
- On some models, sensor 2 shares a ground or reference circuit with other sensors, so a fault elsewhere can corrupt its signal and set P2182.
- Clearing the code without verifying live data from both coolant sensors often leads to a quick return of the fault and unnecessary parts swapping.

Can I keep driving with P2182?

The vehicle is generally safe to drive with P2182 because the primary coolant sensor still protects the engine, but avoid heavy loads or long idles until the fault is repaired. If the temperature gauge behaves erratically or the engine overheats, stop driving and address the cooling system immediately.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Infrared thermometer
- Cooling system pressure tester
- Socket and ratchet set
- Wiring diagram for the coolant sensor circuit

Reading P2182

P	Powertrain: engine, transmission and emissions.
2	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
1	Fuel and air metering.
82	The exact fault within that area.

Often seen with

P0115 Engine Coolant Temperature Circuit Malfunction · **P0116** Engine Coolant Temperature Circuit Range/Performance · **P0117** Engine Coolant Temperature Circuit Low Input · **P0118** Engine Coolant Temperature Circuit High Input · **P2183** Engine Coolant Temperature Sensor 2 Circuit Range/Performance



See it working

Watch the animated explainer [Engine Cooling System Trainer: How Engines Stay Cool](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2182/>

