

GENERIC · POWERTRAIN

P2B2B

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2B2B

Engine Coolant Temperature Sensor 5 Circuit

P2B2B indicates that the powertrain control module has detected an abnormal signal from the engine coolant temperature sensor 5 circuit, which is a secondary temperature sensor used in some vehicles for specific monitoring or control functions. The computer compares the sensor's voltage to expected values and sets this code when the signal is out of range, intermittent, or implausible.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Low	Intermediate	Hybrid propulsion

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Incorrect or erratic temperature gauge readings on the dashboard
- Poor fuel economy or rough running during warm-up if the sensor affects fuel enrichment
- Possible cooling fan running constantly or not engaging when needed
- In rare cases, the engine may enter a limp mode or exhibit hard starting when cold

Common causes, most likely first

- 1 Faulty engine coolant temperature sensor 5 itself, due to internal failure or contamination
- 2 Damaged or corroded wiring or connector at the sensor, causing high resistance or open circuit
- 3 Coolant level low or air pockets in the cooling system, leading to inaccurate sensor readings
- 4 A stuck-open or faulty thermostat that prevents the engine from reaching normal operating temperature
- 5 Signal interference or a short to ground or power in the sensor circuit
- 6 A problem within the powertrain control module, though this is less common



How to diagnose and fix it

- 1 Verify the coolant level is correct and check for air pockets by bleeding the cooling system if necessary
- 2 Inspect the sensor connector and wiring for corrosion, damage, or loose pins, and repair as needed
- 3 Measure the resistance of the sensor with a multimeter and compare it to the manufacturer's temperature-resistance chart
- 4 Backprobe the sensor signal wire at the PCM and check for a voltage that changes smoothly with temperature
- 5 Test the thermostat for proper opening and closing to rule out a cooling system issue affecting sensor readings
- 6 Replace the engine coolant temperature sensor 5 if it fails resistance or voltage tests
- 7 Clear the diagnostic trouble codes and perform a road test to confirm the repair and ensure the code does not return

Common Missteps When Diagnosing P2B2B

- Many technicians replace the sensor immediately, but a corroded connector or chafed wire is often the real culprit, so always perform a thorough visual and electrical inspection first.
- A low coolant level or trapped air can cause the sensor to read incorrectly even when the sensor itself is good, so pressure-test the system and bleed it properly before condemning parts.
- This code refers specifically to sensor 5, which may be a redundant or auxiliary sensor in some vehicles; do not confuse it with the primary ECT sensor, and consult the service information for its exact location and function.
- In some applications, sensor 5 is used for cylinder head temperature monitoring or for fan control, so a fault may not affect driveability but can still trigger the check engine light and affect emissions compliance.
- If the code persists after replacing the sensor, check for a faulty thermostat that is stuck open, as this can cause the engine to run too cool and set an implausible signal code for the coolant temperature sensor circuit.

Can I keep driving with P2B2B?

You can generally continue driving with this code because it rarely causes immediate safety issues, but avoid ignoring it for long periods as it may affect fuel economy and emissions. If the engine overheats or runs poorly, stop driving and seek professional diagnosis.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Infrared thermometer
- Socket set and wrenches
- Coolant pressure tester
- Service information for sensor location and resistance specifications



Reading P2B2B

- P** Powertrain: engine, transmission and emissions.
- 2** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- B** Hybrid propulsion.
- 2B** 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 · **P0119** Engine Coolant Temperature Circuit Intermittent

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/p2b2b/>

