

GENERIC · POWERTRAIN

P0ECC

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0ECC

A/C Refrigerant Temperature Sensor B Circuit Intermittent/Erratic

P0ECC means the powertrain control module (PCM) has detected an intermittent or erratic signal from the A/C refrigerant temperature sensor B circuit. The sensor monitors the temperature of the refrigerant, and the PCM uses that data to protect the air conditioning compressor from overheating or running with insufficient charge.

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

Symptoms you may notice

- The air conditioning may blow warm or inconsistently cold air, especially at idle or in stop-and-go traffic.
- The A/C compressor clutch may cycle rapidly or fail to engage at all.
- The climate control system may default to a fixed setting or disable certain functions.
- A stored trouble code with the check engine light or A/C warning light illuminated.
- Often no symptoms besides the warning light, because the fault is intermittent and the system may still operate normally most of the time.

Common causes, most likely first

- A failing A/C refrigerant temperature sensor B that internally opens or shorts intermittently when hot or cold.
- Damaged, chafed, or corroded wiring in the sensor circuit, especially near connectors or where the harness bends.
- Loose or contaminated electrical connectors at the sensor or PCM, causing resistance changes with vibration.
- A poor ground connection shared by the sensor circuit, leading to erratic reference voltage.
- Intermittent PCM internal fault on the sensor input circuit, though this is less common.
- Refrigerant contamination or moisture in the system that affects sensor readings under certain conditions.



How to diagnose and fix it

- 1 Inspect the sensor connector and wiring for corrosion, tightness, and chafing; clean and reseal connectors as needed.
- 2 Check the sensor circuit for intermittent opens or shorts by wiggle-testing the harness while monitoring live data.
- 3 Measure the sensor resistance or voltage at the sensor and compare it with specifications, then repeat the test after heating or cooling the sensor.
- 4 Verify the sensor reference voltage and ground at the PCM connector to rule out a bad ground or PCM driver.
- 5 Replace the A/C refrigerant temperature sensor B if it fails the resistance or voltage test when subjected to temperature changes.
- 6 Clear the code and perform a road test with the A/C on to confirm the intermittent fault is resolved.
- 7 If the code returns, perform a pinpoint test of the entire circuit, including the PCM, following the manufacturer's diagnostic flow chart.

Intermittent faults hide in connectors and heat

- Many technicians replace the sensor only to find the real problem is a chafed wire that only shorts when the engine bay heats up and expands the harness.
- A refrigerant temperature sensor that tests fine at room temperature can fail only when the A/C system is at full operating pressure and temperature, so always test it hot.
- This code does not always mean the sensor is bad; a low refrigerant charge can cause the sensor to read outside its expected range and set an intermittent fault.
- Corrosion inside a connector pin can create a high-resistance connection that changes with vibration, mimicking a failing sensor and fooling a simple resistance check.
- The PCM may use the same ground circuit for several sensors, so a bad ground elsewhere can set this code along with others that seem unrelated.

Can I keep driving with P0ECC?

You can usually continue driving safely because the fault is intermittent and does not affect engine operation, but avoid relying on the air conditioning for long trips until it is repaired. If the A/C compressor starts making noise or the engine overheats, stop driving and have the system checked.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter with temperature probe
- Backprobe pins or breakout box
- Wiring diagram for the A/C refrigerant temperature sensor circuit
- Heat gun or refrigerant gauge set to simulate temperature changes



Reading P0ECC

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- E** Hybrid propulsion.
- CC** The exact fault within that area.

Often seen with

P0532 A/C Refrigerant Pressure Sensor 'A' Circuit Low · **P0533** A/C Refrigerant Pressure Sensor 'A' Circuit High
 · **P0645** A/C Clutch Relay Control Circuit · **P0ECB** A/C Refrigerant Temperature Sensor B Circuit High ·
P0ECD A/C Refrigerant Distribution Valve A Control Circuit/Open

See it working

Watch the animated explainer [How Hydraulic Brakes Work: Pedal to Caliper](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0ecc/>

