

GENERIC · POWERTRAIN

P2E7D

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2E7D

A/C Compressor Control Module Internal Temperature Sensor B Range/Performance

P2E7D indicates that the air conditioning (A/C) compressor control module has detected an internal temperature sensor B signal that is outside its expected range or is not performing correctly. The module compares the sensor's voltage or resistance to a known good profile and sets this code when the reading is implausible, erratic, or stuck within a range that does not match actual conditions.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Professional	Hybrid propulsion

Symptoms you may notice

- The A/C may blow warm air or stop cooling entirely, especially after the system has been running for a while.
- The A/C compressor clutch may fail to engage, or it may cycle on and off rapidly without maintaining cabin comfort.
- A warning light on the dashboard, often the A/C system indicator or a generic check engine light, depending on the vehicle.
- In some cases, the A/C may work normally when first started but quit after the module reaches a certain temperature.
- Often no symptoms besides the warning light, because the system may default to a safe operating mode that still provides some cooling.

Common causes, most likely first

- A faulty internal temperature sensor B inside the A/C compressor control module, which is the most common cause.
- Damaged or corroded wiring and connectors between the sensor and the control module, leading to intermittent or out-of-range signals.
- A failing A/C compressor control module itself, where the internal processing circuit misreads the sensor signal.
- Low or contaminated refrigerant oil affecting heat transfer and causing the sensor to report abnormal temperatures.
- A restricted or blocked A/C compressor cooling circuit that causes the module to overheat and the sensor to read out of range.
- Software or calibration issues in the control module that misinterpret a valid sensor signal under certain conditions.



How to diagnose and fix it

- 1 Perform a visual inspection of the A/C compressor control module and its wiring harness for obvious damage, corrosion, or loose connections.
- 2 Use a scan tool to read live data from the internal temperature sensor B and compare it to ambient and compressor operating temperatures to verify the fault.
- 3 Check the sensor's resistance or voltage at the module connector and compare it to the manufacturer's specification for the current temperature.
- 4 Inspect the refrigerant level and oil condition, as low charge or contaminated oil can cause abnormal compressor temperatures and trigger the code.
- 5 If the sensor is integrated into the control module and not serviceable separately, test the module with a known-good unit or follow the manufacturer's diagnostic flow chart.
- 6 Repair or replace any damaged wiring or connectors, then clear the code and verify that it does not return after a complete drive cycle with the A/C operating.
- 7 If the module is confirmed faulty, replace and reprogram it according to the manufacturer's procedures, then perform a system calibration if required.

Hidden causes of P2E7D you should not overlook

- A weak or failing A/C compressor relay can cause voltage drops that make the internal temperature sensor signal appear out of range, even when the sensor itself is fine.
- Technicians often replace the control module only to find the real problem is a chafed wire in the harness near the compressor, so always perform a wiggle test on the wiring while watching live data.
- The code can be set by a completely different issue, such as a failing radiator fan that causes the compressor to run hotter than normal and pushes the sensor reading beyond its expected range.
- On some vehicles, the internal temperature sensor B is part of a combined sensor cluster, and a failure of another sensor in the same cluster can skew the B reading without setting a separate code.
- A software update for the control module may be available that corrects a false-setting logic for this code, so check for technical service bulletins before replacing hardware.

Can I keep driving with P2E7D?

You can usually continue driving with this code because the A/C system will often default to a safe mode and the engine will not be damaged, but avoid long trips in hot weather if cooling performance is poor. Have the system diagnosed soon to prevent potential compressor damage from overheating.



Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Manufacturer-specific diagnostic software or flow chart
- Refrigerant pressure gauges
- Wire terminal removal tools
- Infrared thermometer

Reading P2E7D

P	Powertrain: engine, transmission and emissions.
2	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
E	Hybrid propulsion.
7D	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 · **P2E7C** A/C Compressor Control Module Internal Temperature Sensor B · **P2E7E** A/C Compressor Control Module Internal Temperature Sensor B

See it working

Watch the animated explainer [How a Refrigerator Works: The Cooling Cycle](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2e7d/>

