

GENERIC · POWERTRAIN

P0EAB

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0EAB

A/C Compressor Motor Voltage Sensor B Circuit Range/Performance

P0EAB indicates that the powertrain control module has detected an out-of-range or performance fault in the voltage sensor circuit for the A/C compressor motor, specifically the 'B' circuit. The computer compares the sensor's voltage signal against expected values and flags this code when the signal falls outside the normal operating window or behaves erratically.

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

Symptoms you may notice

- The air conditioning may stop cooling or blow warm air intermittently.
- The A/C compressor clutch may fail to engage or disengage erratically.
- A warning light on the dashboard, often the A/C or check engine light, may illuminate.
- The blower motor may still run, but the air is not cold.
- In some cases, no symptoms besides the warning light are noticed.
- The compressor may run continuously or not at all, depending on the fault mode.

Common causes, most likely first

- 1 A faulty A/C compressor motor voltage sensor or its internal circuitry.
- 2 Damaged, corroded, or loose wiring or connectors in the sensor 'B' circuit.
- 3 A short to ground or short to voltage in the sensor signal circuit.
- 4 An open circuit in the sensor reference or ground circuit.
- 5 A failing A/C compressor control module or inverter assembly.
- 6 Poor electrical connections at the compressor or harness due to vibration or heat.
- 7 A malfunctioning powertrain control module, though this is rare.



How to diagnose and fix it

- 1 Perform a visual inspection of the compressor harness and connectors for damage, corrosion, or loose pins.
- 2 Use a scan tool to read live data for the A/C compressor motor voltage sensor 'B' circuit and compare to specifications.
- 3 Check the sensor reference voltage and ground at the sensor connector with a multimeter; repair any wiring faults.
- 4 Test the sensor signal circuit for shorts to ground or voltage and for continuity; repair as needed.
- 5 If wiring is intact, test the voltage sensor itself according to the manufacturer's procedure and replace if faulty.
- 6 Inspect the A/C compressor control module or inverter for signs of damage or overheating; replace if necessary.
- 7 Clear the code and verify the repair by running the A/C system and monitoring live data for normal sensor voltage.

Voltage Sensor Circuit Checks Before Parts

- A common oversight is replacing the compressor when the actual fault is a chafed wire near the compressor clutch or a corroded connector pin.
- The code can set intermittently due to heat-related resistance changes in the sensor or wiring, so wiggle tests and hot/cold checks are valuable.
- Some vehicles use the voltage sensor signal for compressor speed control, so a fault may cause the compressor to default to a fixed speed or shut down entirely.
- A low battery or charging system issue can cause erratic sensor readings and set this code, so always verify battery voltage and ground quality first.
- Do not confuse this code with P0EAA or P0EAC, which refer to different sensor circuits or range faults; always confirm the exact circuit designation.

Can I keep driving with P0EAB?

You can usually drive the vehicle with this code, but the air conditioning may not function properly, which could be uncomfortable in hot weather. Avoid long trips in high temperatures and have the fault diagnosed soon to prevent potential compressor damage.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wiring diagram for the A/C compressor circuit
- Basic hand tools for connector and component access
- Back probe pins or breakout box for circuit testing



Reading P0EAB

P	Powertrain: engine, transmission and emissions.
0	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
E	Hybrid propulsion.
AB	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 · **P0EAA** A/C Compressor Motor Voltage Sensor B Circuit · **P0EAC**
 A/C Compressor Motor Voltage Sensor B Circuit Low

See it working

Watch the animated explainer [Four-Stroke Engine Cutaway: Intake to Exhaust](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0eab/>

