

GENERIC · POWERTRAIN

P0B4A

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0B4A

Hybrid/EV Battery Voltage Sense D Circuit

P0B4A indicates that the hybrid or electric vehicle battery pack's voltage sensing circuit, specifically the channel labeled 'D', is reporting a voltage reading that is outside the expected range or is inconsistent with the other sensing channels. The battery energy control module (BECM) monitors multiple voltage taps across the pack and sets this code when the signal from sense circuit D is implausible, missing, or out of correlation with the pack's overall state of charge.

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

Symptoms you may notice

- Illumination of the hybrid/EV system warning light or service vehicle soon message
- Reduced electric-only range or the vehicle refusing to enter EV mode
- A sudden drop in state of charge displayed on the dash that does not match actual driving conditions
- The vehicle may enter a limp-home mode with limited power output
- Often no symptoms besides the warning light, especially if the fault is intermittent
- Charging may stop prematurely or the vehicle may fail to start in some cases

Common causes, most likely first

- 1 A faulty voltage sense wire or connector at the battery pack, often due to corrosion or vibration damage
- 2 A failed cell voltage sensing harness or a poor terminal connection at the BECM
- 3 An internal fault in the battery energy control module (BECM) affecting only the 'D' channel
- 4 A weak or failing battery module that causes the sense circuit to read out of range under load
- 5 Water intrusion or contamination in the battery pack connector causing signal interference
- 6 A software glitch in the BECM that misinterprets a valid signal, sometimes corrected by a reflash

How to diagnose and fix it

- 1 Use a scan tool to read the freeze-frame data and compare the 'D' circuit voltage reading with the other sense channels to confirm the fault is isolated.
- 2 Visually inspect the battery pack connectors and the sense wiring harness for corrosion, chafing, or loose pins, especially at the BECM connector.
- 3 Perform a voltage drop test on the sense circuit 'D' wire from the battery module to the BECM to check for excessive resistance.
- 4 Check for any technical service bulletins (TSBs) or software updates for the BECM that address voltage sensing errors, and reflash if applicable.
- 5 If the wiring and connectors are good, swap the sense circuit 'D' input with a known-good channel (if the design allows) to see if the fault follows the circuit or the BECM.
- 6 Replace the battery energy control module (BECM) only after confirming the sense circuit and battery module are healthy, as it is the most expensive and least likely cause.
- 7 Clear the code and perform a battery pack relearn or adaptation procedure as required by the manufacturer, then test-drive to verify the repair.

When the sense circuit lies about cell voltage

- A poor connection at the BECM connector is the most common cause of this code, yet many technicians replace the entire battery pack before checking the pins.
- The 'D' circuit may share a common ground or reference voltage with other sense channels, so a single bad ground can set multiple voltage sense codes, not just P0B4A.
- In some vehicles, a weak 12-volt auxiliary battery can cause the BECM to log false voltage sense codes because the module's internal reference is unstable during low-voltage conditions.
- The code can be set intermittently by vibration or temperature changes, so a wiggle test of the harness while monitoring live data is often more revealing than a static inspection.
- Do not assume the battery pack is failing; the BECM may simply be misinterpreting a valid signal due to a software bug that a dealer reflash can correct.

Can I keep driving with P0B4A?

It is generally safe to drive the vehicle with this code if it is the only one stored and the car is not in limp mode, but avoid aggressive acceleration or high-speed driving that puts extra load on the battery pack. If the warning light is accompanied by reduced power or a message to service the hybrid system immediately, have the vehicle towed to a qualified technician.



Tools that help

- Hybrid/EV-capable scan tool with live data and freeze-frame capability
- Digital multimeter with min/max recording and low-ohms resolution
- Insulation resistance tester (megohmmeter) for high-voltage circuit checks
- Manufacturer-specific breakout box or terminal test kit for BECM connectors
- Service information with wiring diagrams and TSB access

Reading P0B4A

P	Powertrain: engine, transmission and emissions.
0	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
B	Hybrid propulsion.
4A	The exact fault within that area.

Often seen with

P0A04 Motor Electronics Coolant Temperature Sensor Circuit Intermi · **P0AFA** Hybrid/EV Battery System Voltage Low · **P0B3F** Hybrid/EV Battery Voltage Sense A Circuit Intermittent/Errat · **P0B4B** Hybrid/EV Battery Voltage Sense D Circuit Range/Performance · **P0B4C** Hybrid/EV Battery Voltage Sense D Circuit Low

See it working

Watch the animated explainer [How Regenerative Braking Works in Electric Cars](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0b4a/>

