

GENERIC · POWERTRAIN

P0B82

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0B82

Hybrid/EV Battery Voltage Sense O Circuit Range/Performance

P0B82 indicates that the hybrid or electric vehicle battery pack's voltage sensing circuit for the 'O' module is reporting a voltage outside the range the battery energy control module expects. The computer compares the sensed voltage from this specific circuit against other voltage sense circuits and flags a performance fault when the signal is erratic, stuck, or implausible.

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

Symptoms you may notice

- Illumination of the hybrid system warning light or service vehicle soon message
- Often no symptoms besides the warning light, especially if the fault is intermittent
- 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
- Possible limp mode or reduced power output if the battery management system cannot trust the voltage data
- In rare cases, the vehicle may fail to start or engage the high-voltage system

Common causes, most likely first

- 1 A faulty voltage sense wire or connector at the 'O' battery module, often due to corrosion or vibration damage
- 2 A poor terminal tension or loose pin in the voltage sense harness connector
- 3 An internal failure in the battery module's voltage sensing circuit board or its local interconnect
- 4 A failing battery energy control module (BECM) or hybrid control module that misinterprets the voltage signal
- 5 High-voltage cable or busbar connection issues causing voltage drop that the sense circuit detects as out of range
- 6 Aged or failing battery cells within the 'O' module causing voltage divergence under load
- 7 Software calibration issues in the BECM that require a reflash or update



How to diagnose and fix it

- 1 Inspect the voltage sense harness and connector at the 'O' module for corrosion, chafing, or loose pins, and repair as needed
- 2 Measure the voltage at the sense circuit with a high-impedance multimeter and compare it to the module's actual terminal voltage to verify the signal
- 3 Perform a wiggle test on the harness while monitoring live voltage data to catch intermittent faults
- 4 Check for technical service bulletins (TSBs) or software updates for the BECM that address voltage sense performance codes
- 5 Swap the voltage sense circuit with a known-good circuit from another module if the design allows, to isolate the fault to the module or the harness
- 6 Replace the battery module or its internal sense board if the circuit is proven faulty and the harness is good
- 7 Clear the code and perform a battery pack voltage relearn or calibration drive cycle as required by the manufacturer

Voltage sense faults that fool good technicians

- A loose ground connection at the battery pack chassis can cause all voltage sense circuits to drift, but the 'O' circuit often sets the code first because it sits at the end of the reference chain.
- The code can be set by a perfectly healthy battery module if the BECM's internal reference voltage is unstable, so always verify the BECM's power and ground before condemning the module.
- Intermittent P0B82 codes that appear only under heavy acceleration or regenerative braking often point to a harness routing issue where the sense wire rubs against a sharp edge.
- Some manufacturers use a daisy-chained voltage sense design where one bad module can corrupt readings for adjacent modules, so a single code does not always mean a single bad module.
- After replacing a battery module or sense board, many vehicles require a battery pack capacity relearn or the code will reset immediately even though the repair is correct.

Can I keep driving with P0B82?

You can usually continue driving to a service center if the vehicle drives normally and the warning light is steady, but avoid aggressive acceleration, heavy regenerative braking, and long trips until the fault is diagnosed. If the vehicle enters limp mode or displays a high-voltage system fault, stop driving and have it towed to avoid damaging the battery pack.



Tools that help

- High-impedance digital multimeter with min/max recording
- OBD-II scan tool with hybrid battery live data capability
- Manufacturer-specific diagnostic software for BECM data and relearn procedures
- Insulated hand tools and personal protective equipment for high-voltage work
- Wiring diagram and connector pinout for the voltage sense circuit
- Oscilloscope for capturing intermittent voltage signals

Reading P0B82

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

Often seen with

P0AFA Hybrid/EV Battery System Voltage Low · **P0B80** Hybrid/EV Battery Voltage Sense N Circuit Intermittent/Errat · **P0B81** Hybrid/EV Battery Voltage Sense O Circuit · **P0B83** Hybrid/EV Battery Voltage Sense O Circuit Low · **P0B84** Hybrid/EV Battery Voltage Sense O Circuit High

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/p0b82/>

