

GENERIC · POWERTRAIN

P0E49

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0E49

Hybrid/EV Battery Pack Voltage Sense F Circuit

P0E49 indicates that the hybrid or electric vehicle battery pack voltage sensing circuit F has reported a value outside the expected range to the battery energy control module. The module compares this circuit's signal against other voltage sense channels and flags the fault when the readings are implausible, intermittent, or out of correlation.

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, with the vehicle continuing to drive normally
- Reduced electric-only range or forced engine operation if the battery module limits power
- Intermittent loss of hybrid drive or a sudden switch to limp-home mode
- Charging system or battery state-of-charge display behaving erratically

Common causes, most likely first

- 1 Damaged or chafed wiring in the voltage sense circuit F harness, often near the battery pack connector
- 2 Corroded, loose, or backed-out terminal pins at the battery pack voltage sense connector
- 3 Internal failure of the voltage sense circuit board or sensing module inside the high-voltage battery pack
- 4 Faulty battery energy control module or hybrid control module misreading the sense circuit
- 5 High-voltage battery cell degradation causing voltage divergence that the sense circuit reports
- 6 Water intrusion or contamination in the battery pack connector or sense harness



How to diagnose and fix it

- 1 Retrieve all stored codes and freeze-frame data, then clear codes and test-drive to confirm P0E49 returns
- 2 Inspect the voltage sense circuit F harness and connector at the battery pack for chafing, corrosion, and loose pins
- 3 Measure resistance and voltage drop on the sense circuit F wiring between the battery pack and the control module
- 4 Compare live voltage sense readings across all channels with a scan tool to identify the outlier circuit
- 5 Perform a battery pack voltage measurement at the sense connector and compare it with the module's reported value
- 6 If wiring and connectors pass, test or replace the battery pack voltage sense module or battery energy control module as directed by service information
- 7 After repair, clear codes and verify the sense circuit reads within specification during a road test

Sense circuit faults that mimic pack failure

- A loose or corroded sense connector pin is a far more common cause of P0E49 than an actual high-voltage battery pack failure, so inspect connectors before condemning the pack.
- The code does not always mean the battery pack is failing; a faulty sense circuit can report plausible but incorrect voltages that trigger the code without any cell degradation.
- Technicians sometimes replace the battery energy control module when the real fault is a chafed sense wire behind the pack, so always perform a voltage drop test on the circuit first.
- Intermittent P0E49 codes that appear only over bumps or in wet weather point to a harness routing or water intrusion problem rather than an internal module fault.
- Related codes for other voltage sense circuits or cell balance faults often store alongside P0E49 and can help pinpoint whether the issue is a single channel or the whole pack.

Can I keep driving with P0E49?

The vehicle may remain drivable with only a warning light, but continued driving risks a sudden loss of hybrid power or limp-home mode if the fault worsens. Avoid heavy acceleration and long trips until the circuit is inspected, and do not open any high-voltage battery components yourself.

Tools that help

- OBD-II scan tool with hybrid battery live data capability
- Digital multimeter with high-voltage safety rating
- Wiring diagram and service information for the specific vehicle
- Insulation tester or megohmmeter for high-voltage circuit checks
- Terminal pick and connector pin removal tools



Reading P0E49

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

Often seen with

P0A09 DC/DC Converter Status Circuit Low Input · **P0A0D** High Voltage System Interlock Circuit A High · **P0AFA** Hybrid/EV Battery System Voltage Low · **P0E48** Hybrid/EV Battery Pack Voltage Sense E Circuit Intermittent/ · **P0E4A** Hybrid/EV Battery Pack Voltage Sense F Circuit Range/Perform

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/p0e49/>

