

GENERIC · POWERTRAIN

P0E33

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

## P0E33

### DC/DC Converter Voltage Sensor A Low

P0E33 indicates that the voltage sensor circuit for the DC/DC converter, which steps high-voltage down to charge the 12-volt battery in hybrid and electric vehicles, is reporting a lower-than-expected voltage to the control module. The computer has detected that the sensor's signal is below the normal operating range, which can affect charging system performance and overall vehicle operation.

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

### Symptoms you may notice

- Illumination of the check engine light or service vehicle soon message
- Often no symptoms besides the warning light, especially if the converter still functions
- 12-volt battery may not charge properly, leading to a no-start or dead battery condition
- Electrical accessories may dim or operate erratically due to low system voltage
- Reduced power or limp mode if the vehicle's control strategy limits operation to protect the hybrid system
- Possible warning messages related to the hybrid or charging system on the dashboard

### Common causes, most likely first

- 1 Faulty DC/DC converter voltage sensor or sensor circuit wiring (open, short, or high resistance)
- 2 Poor electrical connection at the converter or sensor connector, such as corrosion or loose pins
- 3 Failed DC/DC converter assembly causing the sensor to read low
- 4 Low 12-volt battery voltage or a failing battery that drags down the sensor reference
- 5 Control module software issue or internal fault in the module that monitors the sensor
- 6 Damaged wiring harness between the converter and the control module due to chafing or heat
- 7 Ground circuit fault for the voltage sensor or converter, causing inaccurate readings



## How to diagnose and fix it

- 1 Verify the 12-volt battery state of charge and condition, as a weak battery can cause false low-voltage readings
- 2 Inspect the DC/DC converter and sensor connectors for corrosion, loose pins, or damage, and clean or repair as needed
- 3 Check the sensor reference voltage and ground circuits with a multimeter to confirm wiring integrity
- 4 Perform a voltage drop test on the converter output and sensor signal circuit to identify excessive resistance
- 5 Consult the factory service information for specific pinpoint tests for the DC/DC converter voltage sensor circuit
- 6 If the sensor is integral to the converter, replace the converter assembly; if separate, replace the sensor
- 7 Clear codes and perform a road test to verify the repair and ensure the code does not return

## Don't replace the converter before checking this

- A weak or failing 12-volt battery is a common cause of this code because the sensor reference voltage can sag, leading to a false low reading; always load-test the battery first.
- Corroded or loose connections at the converter, especially in areas exposed to road splash, often mimic a failed sensor and are frequently overlooked during diagnosis.
- The code can set intermittently due to vibration or heat, so a wiggle test of the harness while monitoring sensor data can reveal a wiring fault that static tests miss.
- On some vehicles, a low voltage sensor reading may be a symptom of a failing converter rather than the sensor itself, so testing the converter's output is essential before parts replacement.
- The DC/DC converter voltage sensor may share a ground with other sensors; a bad ground can cause multiple related codes and misleading readings.

## Can I keep driving with P0E33?

You can usually drive the vehicle short distances to a repair shop, but avoid long trips or heavy electrical loads because a failing DC/DC converter can leave you with a dead 12-volt battery and a no-start condition. If the vehicle enters limp mode or multiple warning lights appear, stop driving and seek professional assistance.

## Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Battery load tester
- Factory service information or wiring diagrams
- Insulated hand tools and terminal pick set



## Reading P0E33

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

## Often seen with

**P0562** System Voltage Low · **P0A94** DC/DC Converter A Performance · **P0E34** DC/DC Converter Voltage Sensor A High · **P0E35** DC/DC Converter Voltage Sensor A Intermittent/Erratic · **P0E36** DC/DC Converter Voltage Sensor B Circuit

## See it working

Watch the animated explainer [How a Supercharger Works: Roots Blower in X-Ray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0e33/>

