

GENERIC · POWERTRAIN

**P2E51**

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

## P2E51

# Battery Charger Coupler Temperature Sensor D Circuit Low

P2E51 indicates that the battery charger coupler temperature sensor, specifically its D circuit, is reporting a low signal to the vehicle's control module. The computer detects this when the sensor's output voltage falls below the expected range, which typically means the circuit is shorted to ground or the sensor has failed.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Hybrid propulsion

## Symptoms you may notice

- Illumination of the check engine light or service vehicle soon message
- Often no symptoms besides the warning light
- Reduced or disabled battery charging in plug-in hybrid or electric vehicles
- Inability to initiate or complete a charging session
- Overheating of the charge coupler or connector during charging
- Intermittent charging interruptions or error messages on the dashboard

## Common causes, most likely first

- 1 Faulty battery charger coupler temperature sensor
- 2 Short to ground in the sensor wiring harness
- 3 Corroded or damaged electrical connector at the coupler
- 4 Moisture intrusion into the sensor or connector
- 5 Failed control module or internal circuit fault
- 6 Physical damage to the charge coupler assembly

## How to diagnose and fix it

- 1 Inspect the charge coupler and sensor connector for corrosion, moisture, or physical damage
- 2 Disconnect the sensor and measure its resistance; compare to specifications
- 3 Check the sensor signal circuit for a short to ground using a multimeter
- 4 Inspect the wiring harness for chafing, pinches, or breaks along its routing
- 5 Test the control module's reference voltage and ground at the sensor connector
- 6 Replace the battery charger coupler temperature sensor if faulty
- 7 Clear the diagnostic trouble codes and verify the repair with a test drive or charging cycle



## Common misdiagnosis of coupler sensor faults

- A low signal code often results from a shorted sensor rather than a wiring issue, so resistance testing is more reliable than visual inspection alone.
- Moisture ingress at the charge coupler connector can mimic a failed sensor and cause intermittent low signal codes that disappear after drying.
- On some vehicles, the coupler temperature sensor is integrated into the charge port assembly and cannot be replaced separately, requiring a larger repair.
- The control module may set this code if the sensor circuit is open, but a low signal specifically points to a short or sensor failure, not an open circuit.
- Charging system faults can cause cascading codes, so always check for related codes in the battery management system before replacing parts.

## Can I keep driving with P2E51?

If the vehicle is a plug-in hybrid or electric model, avoid charging until the fault is repaired because a failed temperature sensor can lead to overheating or charging interruption. The vehicle may still be driven using the internal combustion engine, but reduced electric range is likely.

## Tools that help

- Digital multimeter
- OBD-II scan tool
- Wiring diagram for the specific vehicle
- Contact cleaner and dielectric grease
- Basic hand tools for trim and connector removal

## Reading P2E51

|           |                                                                      |
|-----------|----------------------------------------------------------------------|
| <b>P</b>  | Powertrain: engine, transmission and emissions.                      |
| <b>2</b>  | Generic (SAE) code: it means the same thing on every OBD-II vehicle. |
| <b>E</b>  | Hybrid propulsion.                                                   |
| <b>51</b> | The exact fault within that area.                                    |

## Often seen with

**P0A0D** High Voltage System Interlock Circuit A High · **P2E50** Battery Charger Coupler Temperature Sensor D Circuit Range/P · **P2E52** Battery Charger Coupler Temperature Sensor D Circuit High · **P2E53** Battery Charger Coupler Temperature D Too High



## 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/p2e51/>

