

GENERIC · POWERTRAIN

P2E4F

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2E4F

Battery Charger Coupler Temperature Sensor D Circuit

P2E4F indicates that the powertrain control module (PCM) has detected an abnormal condition in the electrical circuit for the battery charger coupler temperature sensor, specifically the 'D' circuit. This sensor monitors the temperature of the coupler that connects the vehicle's charging port to the battery charger, and the PCM uses that data to protect the charging system from overheating. The code is set when the sensor signal voltage falls outside the expected range or the circuit continuity is compromised.

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 on the dashboard.
- The vehicle may refuse to start or charge, especially in plug-in hybrid or electric models with this feature.
- Charging performance may be reduced or disabled to prevent overheating.
- In some cases, the driver may notice no symptoms besides the warning light.
- A message indicating a charging system fault may appear on the driver information display.
- The cooling fan for the charging module may run excessively or not at all.

Common causes, most likely first

- 1 A faulty battery charger coupler temperature sensor that has failed or is reading out of range.
- 2 Damaged or corroded wiring in the sensor circuit, including the 'D' circuit wire, due to heat, moisture, or physical damage.
- 3 A loose, corroded, or disconnected electrical connector at the sensor or the PCM.
- 4 A short to ground or short to voltage in the sensor signal circuit.
- 5 An open circuit in the sensor ground or reference voltage circuit.
- 6 A malfunctioning PCM that is unable to correctly interpret the sensor signal, though this is less common.
- 7 Extreme overheating of the charging coupler that has damaged the sensor or its wiring.



How to diagnose and fix it

- 1 Use an OBD-II scanner to retrieve the code and freeze-frame data, then visually inspect the sensor and its wiring for obvious damage or corrosion.
- 2 Disconnect the sensor connector and check for proper reference voltage (typically 5 volts) and ground at the harness side.
- 3 Measure the resistance of the sensor across its terminals and compare to the manufacturer's specification for the current temperature.
- 4 Perform a wiggle test on the wiring harness while monitoring sensor data to identify intermittent faults.
- 5 Check for continuity and shorts in the 'D' circuit wire between the sensor and the PCM, repairing any damaged sections.
- 6 If the circuit tests good, replace the battery charger coupler temperature sensor and clear the code.
- 7 After repair, clear the diagnostic trouble codes and verify the sensor reads correctly during a charging cycle.

Common Missteps in Coupler Sensor Diagnostics

- Many technicians replace the sensor without first checking the connector pins for fretting corrosion, which is a frequent cause of intermittent signals on high-voltage charging components.
- The 'D' circuit designation refers to a specific pin or wire in the sensor's multi-wire connector, so consult the wiring diagram for your vehicle rather than assuming it is the only signal wire.
- This code can be set by a charging coupler that has overheated due to a poor connection at the wall outlet or a worn charging cable, so inspect the entire charging path before condemning the sensor.
- A faulty sensor may still read plausible values at room temperature, so testing must include heating the coupler or simulating temperature changes to expose a drift.
- Some vehicles use the coupler temperature sensor to enable charging, so a failure can leave the vehicle inoperable even though the engine or drive system is otherwise fine.

Can I keep driving with P2E4F?

If the check engine light is on but the vehicle drives normally, you can continue driving, but avoid using the charging system until the fault is repaired. If charging is disabled or the vehicle enters a reduced-power mode, have the vehicle towed to a service facility to prevent further damage.

Tools that help

- OBD-II scanner with live data capability
- Digital multimeter
- Wiring diagram for the specific vehicle
- Heat gun or temperature probe for sensor testing
- Terminal cleaning tools and dielectric grease



Reading P2E4F

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

Often seen with

P0A0D High Voltage System Interlock Circuit A High · **P2E4E** Battery Charger Coupler Temperature C Too High
 · **P2E50** Battery Charger Coupler Temperature Sensor D Circuit Range/P · **U0111** Lost Communication With Battery Energy Control Module 'A'

See it working

Watch the animated explainer [How Push-Button Start Works: Keyless Ignition](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2e4f/>

