

GENERIC · POWERTRAIN

P2E76

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2E76

Hybrid/EV Battery Pack Coolant Temperature Sensor D Circuit Low

P2E76 means the hybrid or electric vehicle battery pack coolant temperature sensor D circuit is reporting a voltage below the normal range, so the battery control module cannot trust that sensor's reading. The computer detected a low-voltage condition on the signal circuit, which usually points to a wiring fault, a poor connection, or a failed sensor rather than an actual overheating event.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Professional

AREA

Hybrid propulsion

Symptoms you may notice

- Illuminated check engine light or hybrid system warning light, often with no other symptoms
- Reduced electric-only driving range or the vehicle refusing to enter EV mode
- Battery cooling fan running continuously or at unusually high speed
- Powertrain power limitation or turtle mode in severe cases
- Inconsistent state-of-charge readings or unexpected engine starts in a plug-in hybrid
- No noticeable drivability change in many instances besides the warning light

Common causes, most likely first

- 1 Open or chafed signal wire between sensor D and the battery control module
- 2 Corroded, loose, or water-intruded connector at the sensor or module
- 3 Failed coolant temperature sensor D (open thermistor element)
- 4 High resistance in the sensor ground circuit shared with other sensors
- 5 Coolant contamination or low coolant level affecting sensor immersion
- 6 Internal fault in the battery control module or its sensor reference voltage supply
- 7 Rodent damage or pinched harness along the battery pack coolant line routing



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data for P2E76 plus any companion codes before clearing anything
- 2 Inspect the sensor D connector and harness for corrosion, water intrusion, chafing, and rodent damage
- 3 Measure sensor resistance at the connector and compare it to the manufacturer's temperature-resistance chart
- 4 Backprobe the signal circuit to check for a short to ground or an open circuit while wiggling the harness
- 5 Verify the sensor reference voltage and ground circuit integrity at the battery control module connector
- 6 Replace the coolant temperature sensor D if resistance testing confirms an open or out-of-range element
- 7 Clear codes, perform a battery pack coolant temperature rationality test, and road-test to confirm the repair

What P2E76 does not always mean

- A low-voltage signal on sensor D frequently comes from a connector that has been contaminated by coolant seepage rather than from a failed sensor, so inspect the plug before condemning the part.
 - Technicians sometimes replace the battery pack coolant temperature sensor when the real fault is a shared ground circuit that also affects other sensors, which is why checking ground integrity at the module is essential.
 - P2E76 can set intermittently after a battery pack coolant service if air is trapped around the sensor, so a proper bleed and level check should precede any parts replacement.
 - The code does not confirm the battery is overheating; it only reports an electrical circuit fault, and the pack may be at a perfectly normal temperature.
- On some platforms the battery control module must be reflashed or initialized after sensor replacement, and skipping that step can leave the code stored even with a good sensor.

Can I keep driving with P2E76?

You can usually drive the vehicle short distances to a repair shop, but avoid sustained high-speed driving, rapid charging, and heavy loads until the fault is repaired because the battery cooling strategy may be compromised. If the vehicle enters a power-limited mode or shows a red battery warning, stop driving and arrange a tow.

Tools that help

- OBD-II scan tool with hybrid/EV module access and live data
- Digital multimeter with backprobe pins
- Manufacturer service information with sensor resistance charts
- Insulated hand tools and connector release picks
- Coolant refractometer or hydrometer
- Battery pack lift or access equipment if sensor is internal to the pack



Reading P2E76

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

Often seen with

P0A93 Inverter A Cooling System Performance · **P0AFA** Hybrid/EV Battery System Voltage Low · **P2E75** Hybrid/EV Battery Pack Coolant Temperature Sensor D Circuit · **P2E77** Hybrid/EV Battery Pack Coolant Temperature Sensor D Circuit · **P2E78** Hybrid/EV Battery Pack Coolant Temperature Sensor D Circuit

See it working

Watch the animated explainer [Engine Cooling System Trainer: How Engines Stay Cool](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2e76/>

