

GENERIC · POWERTRAIN

P0BDF

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0BDF

Drive Motor Inverter Temperature Sensor E Circuit Intermittent/Erratic

P0BDF indicates that the vehicle's control module has detected an intermittent or erratic signal from the temperature sensor circuit labeled 'E' for the drive motor inverter, which is the power electronics unit that converts DC battery voltage to AC for the traction motor. The computer is not reporting a fixed out-of-range temperature but rather a signal that jumps, drops out, or behaves unpredictably over time, which prevents reliable thermal protection of the inverter.

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

Symptoms you may notice

- Illumination of the check engine light or service vehicle soon message, often with no other noticeable symptoms
- Intermittent reduction in electric drive power or a limp-home mode that appears and clears on its own
- Sudden loss of propulsion or a warning to pull over safely, especially after the vehicle has been driven for a while
- Erratic temperature readings on a scan tool that do not match actual inverter temperature or ambient conditions
- Cooling fan or pump operation that cycles unusually because the control module is reacting to a faulty temperature signal

Common causes, most likely first

- 1 A failing inverter temperature sensor E that internally opens or shorts intermittently as it heats up
- 2 Damaged or chafed wiring in the sensor circuit, often where the harness passes near hot or moving components
- 3 Corroded, loose, or water-intruded connector pins at the sensor or at the control module
- 4 Poor terminal tension or a backed-out pin in the sensor connector causing an intermittent connection
- 5 Electrical interference or a poor ground shared with the inverter assembly that corrupts the sensor signal
- 6 A fault inside the control module's sensor input circuit, though this is less common than wiring or sensor issues



How to diagnose and fix it

- 1 Connect a scan tool and record live data for the inverter temperature sensor E while wiggling the harness and connectors to reproduce the erratic signal
- 2 Visually inspect the sensor, its connector, and the full wiring run for chafing, heat damage, corrosion, or loose pins
- 3 Perform a voltage drop and resistance test on the sensor circuit with a multimeter, flexing the harness to catch intermittent opens
- 4 Check the sensor's resistance or voltage output against the manufacturer's temperature chart to confirm it is drifting or dropping out
- 5 Clean and reseat the connector, repair any damaged terminals, and apply dielectric grease to exclude moisture
- 6 Replace the inverter temperature sensor if testing confirms it is faulty, then clear the code and verify the live data is stable
- 7 If the circuit and sensor test good, check the control module ground and power feeds before condemning the module itself

Why intermittent inverter sensor codes mislead

- This code often sets only after a specific drive cycle or temperature threshold, so a cold engine bay may show perfectly normal live data and send a technician down the wrong path
- A loose or corroded connector pin is more frequently the root cause than a failed sensor, and simply reseating the connector can make the code disappear temporarily without fixing the underlying problem
- The inverter temperature sensor E is one of several temperature sensors in the drive motor system, and a code for sensor E does not mean the inverter is overheating or that the motor is damaged
- Shared ground points and harness routing near high-current cables can induce erratic signals that look like a sensor failure but are actually electrical noise or a ground fault
- Clearing the code without capturing freeze-frame data or live sensor behavior destroys the best evidence of whether the fault is thermal, mechanical, or electrical

Can I keep driving with P0BDF?

The vehicle may remain drivable, but an erratic inverter temperature signal can cause unexpected power reduction or a sudden shutdown, so avoid sustained high-load driving and have the circuit inspected promptly. If the vehicle enters limp mode or warns you to stop, pull over safely and do not continue driving.



Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter with resistance and voltage drop functions
- Back probe pins or breakout leads for testing connectors without damage
- Manufacturer service information for sensor resistance and voltage specifications
- Dielectric grease and terminal cleaning tools

Reading P0BDF

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

Often seen with

P0A3F Drive Motor A Position Sensor Circuit · **P0BDE** Drive Motor Inverter Temperature Sensor E Circuit High
 · **P0BE0** Drive Motor Inverter Temperature Sensor F Circuit · **P0BE1** Drive Motor Inverter Temperature Sensor F Circuit Range/Perf · **P0C00** Drive Motor A Current Low

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/p0bdf/>

