

GENERIC · POWERTRAIN

P0C89

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0C89

Hybrid/EV Battery Temperature Sensor I Range/Performance

P0C89 indicates that the hybrid or electric vehicle battery temperature sensor designated as 'I' is reporting a signal that falls outside the expected range or performance window during a self-test. The battery energy control module compares this sensor's readings against other temperature sensors and models, and it flags the code when the value is implausible, stuck, or inconsistent with actual battery conditions.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Professional

AREA

Hybrid propulsion

Symptoms you may notice

- Illumination of the check engine light or hybrid system warning light, often with no other noticeable symptoms.
- Reduced electric-only driving range or the vehicle refusing to enter EV mode.
- A message on the dash indicating hybrid system fault or battery temperature warning.
- Charging may be limited or stopped prematurely on plug-in models.
- In rare cases, reduced power output or a forced engine-only limp mode.
- No symptoms besides the warning light in many instances, especially if the sensor is only slightly out of range.

Common causes, most likely first

- 1 Faulty battery temperature sensor I itself, due to internal failure or contamination.
- 2 Damaged or corroded wiring or connector at the sensor or along the harness to the battery control module.
- 3 High-voltage battery pack overheating from a cooling system fault, causing the sensor to read outside its expected range.
- 4 Software or calibration issue in the battery energy control module that misinterprets sensor data.
- 5 A problem with the battery control module itself, such as an internal fault in the sensor input circuit.
- 6 Loose or improper installation of the sensor, leading to poor thermal contact with the battery module.
- 7 Extreme ambient temperatures combined with heavy use that push the sensor beyond its normal operating window.



How to diagnose and fix it

- 1 Use a scan tool to retrieve the freeze-frame data and verify the sensor I reading against other battery temperature sensors and ambient temperature.
- 2 Visually inspect the sensor, its connector, and the wiring harness for damage, corrosion, or loose pins.
- 3 Perform a resistance or voltage check on the sensor according to the manufacturer's specification and compare with a known-good sensor.
- 4 Check the high-voltage battery cooling system for proper operation, including coolant level, fan operation, and duct blockages.
- 5 If the sensor is accessible, swap it with a known-good sensor of the same type to see if the code follows the sensor.
- 6 Verify that the battery control module has the latest software and reflash if a calibration update is available.
- 7 If all external checks pass, follow the manufacturer's diagnostic flow for internal battery control module testing or replacement.

Battery temperature sensor I pitfalls

- A common misdiagnosis is replacing the high-voltage battery pack when only the temperature sensor or its wiring is at fault, so always test the sensor circuit first.
- The code can be set by a cooling system problem that causes the battery to overheat, so ignoring the cooling system will lead to a repeat failure.
- Some vehicles use multiple temperature sensors and compare them; a single faulty sensor can trigger this code even if the battery temperature is actually normal.
- Intermittent wiring faults often set this code only under certain conditions, such as vibration or temperature extremes, making them hard to catch without a wiggle test.
- After repairs, the battery control module may require a relearn or adaptation procedure before the code will clear and stay off.

Can I keep driving with P0C89?

You can usually continue driving if the only symptom is the warning light, but avoid aggressive driving, heavy loads, and fast charging until the fault is repaired. If the vehicle enters limp mode or shows a battery temperature warning, stop and seek service to prevent damage to the high-voltage battery.

Tools that help

- OBD-II scan tool with hybrid/EV capability
- Digital multimeter
- Manufacturer service information for sensor specifications
- Insulation tester for high-voltage wiring
- Thermal camera or infrared thermometer
- Basic hand tools for trim and connector access



Reading P0C89

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

Often seen with

P0A0D High Voltage System Interlock Circuit A High · **P0AFA** Hybrid/EV Battery System Voltage Low · **P0C88** Hybrid/EV Battery Temperature Sensor I Circuit · **P0C8A** Hybrid/EV Battery Temperature Sensor I Circuit Low · **P0C8B** Hybrid/EV Battery Temperature Sensor I Circuit High

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/p0c89/>

