



P0CAF

Hybrid/EV Battery Temperature Sensor N Circuit Low

P0CAF means the hybrid or electric vehicle battery pack's temperature sensor N is reporting a voltage below the normal range, so the battery control module cannot trust that sensor's reading. The computer has detected a low-voltage condition on the sensor N signal circuit, which usually points to a wiring fault, a poor connection, or a failed sensor rather than a problem with the battery cells themselves.

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

Symptoms you may notice

- Illumination of the hybrid system warning light or service vehicle soon message
- Often no symptoms besides the warning light, especially in mild weather
- Reduced or disabled electric-only driving mode as the controller limits power to protect the pack
- A noticeable drop in fuel economy because the gasoline engine runs more often
- In some vehicles, the engine may fail to start or the vehicle may refuse to go into ready mode
- A stored freeze-frame showing an abnormally low temperature reading from sensor N

Common causes, most likely first

- 1 A failed battery temperature sensor N, typically an open or shorted thermistor element
- 2 Corroded, loose, or backed-out pins in the sensor N connector or the battery control module connector
- 3 A chafed or broken signal wire between sensor N and the battery control module, often from vibration or rodent damage
- 4 A short to ground on the sensor N signal circuit, which pulls the voltage below the expected range
- 5 High resistance in the sensor N ground or return circuit, which skews the voltage divider reading low
- 6 A faulty battery control module or hybrid control module that misreads an otherwise good sensor signal
- 7 Moisture intrusion into the battery pack or sensor connector causing a partial short



How to diagnose and fix it

- 1 Scan all modules and record the freeze-frame data for P0CAF, then compare sensor N's reading against the other battery temperature sensors with the key on and the engine off
- 2 Inspect the sensor N connector and the battery control module connector for corrosion, loose pins, or pushed-out terminals, and clean or repair as needed
- 3 Measure resistance across sensor N at the sensor and compare it to the expected value for the ambient temperature, then wiggle the harness to check for intermittent opens
- 4 Back-probe the sensor N signal circuit at the control module and check for a short to ground or an open circuit with a multimeter
- 5 Check the sensor N ground or return circuit for excessive resistance, and repair any chafed or broken wire in the harness
- 6 If the wiring and connectors test good, substitute a known-good sensor or a resistor of the correct value to confirm the module reads correctly before replacing the sensor
- 7 Clear the code and perform a road test with the battery pack at operating temperature to verify the repair and confirm the code does not return

What the battery temperature sensors hide

- A low-voltage code on a temperature sensor often comes from a short to ground in the harness rather than a failed sensor, so a resistance check at the sensor alone can send you chasing the wrong part.
- Battery temperature sensors are usually wired in a series string or a voltage-divider network, so one shorted sensor can drag down the readings of neighbouring sensors and set companion codes that look unrelated.
- Rodent damage and vibration chafing on the battery pack harness are common on hybrid and electric vehicles, and the fault often appears only when the vehicle is moving or after a temperature swing.
- Some vehicles set P0CAF when the battery pack is extremely cold, so a code stored in winter with no other symptoms may clear on its own once the pack warms up.
- Replacing the battery control module without first confirming the sensor circuit is good can leave the same code stored because the new module reads the same faulty wiring.

Can I keep driving with P0CAF?

You can usually drive the vehicle to a workshop, but avoid heavy acceleration, long grades, and fast charging because the controller is limiting battery use without a reliable temperature reading. If the hybrid system warning light is accompanied by a loss of power or the vehicle refuses to enter ready mode, stop driving and have it towed.



Tools that help

- OBD-II scan tool with hybrid module access and live data
- Digital multimeter with resistance and voltage measurement
- Back-probe pins or piercing probes for connector testing
- Wiring diagram for the battery temperature sensor circuit
- Insulated hand tools and a torque wrench for battery pack access

Reading P0CAF

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

Often seen with

P0CAC Hybrid/EV Battery Temperature Sensor M Circuit Intermittent/ · **P0CAD** Hybrid/EV Battery Temperature Sensor N Circuit · **P0CAE** Hybrid/EV Battery Temperature Sensor N Range/Performance · **P0CB0** DC/DC Converter Voltage Below Threshold · **P0CB1** Hybrid/EV Battery Temperature Sensor N Circuit Intermittent/

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/p0caf/>

