



P0AF1

Drive Motor Inverter Temperature Sensor A Circuit Intermittent/Erratic

P0AF1 means the hybrid or electric vehicle's control module has detected an intermittent or erratic signal from the temperature sensor that monitors the drive motor inverter, the power electronics unit that converts battery direct current into alternating current for the traction motor. The computer is not reporting a steady out-of-range temperature but rather a signal that jumps, drops out, or behaves inconsistently 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 hybrid system or check engine light, often with no other symptoms besides the warning light
- Intermittent reduction in electric propulsion power, sometimes called limp mode, that may clear after a restart
- A message on the dash indicating the hybrid system is overheating or requires service
- Occasional rough running or hesitation under acceleration when the inverter derates to protect itself
- In rare cases, the vehicle may refuse to start or shift into ready mode after a sensor dropout
- No noticeable drivability change during short trips, with the code returning only after several drive cycles

Common causes, most likely first

- 1 A failing inverter temperature sensor that has become thermally unstable or internally open
- 2 Corroded, loose, or backed-out terminals in the sensor connector or at the inverter harness
- 3 Chafed or intermittently shorted wiring between the sensor and the control module, often near a heat source or vibration point
- 4 Coolant contamination or low coolant level in the inverter cooling circuit causing erratic sensor readings
- 5 A faulty control module or poor ground connection that corrupts the sensor signal
- 6 Heat damage to the sensor pigtail from a failing inverter cooling fan or blocked airflow
- 7 Aftermarket or improperly installed electrical accessories tapping into the inverter harness



How to diagnose and fix it

- 1 Scan all modules for stored and pending codes, then record freeze-frame data to see when the intermittent signal occurs
- 2 Inspect the inverter temperature sensor connector and harness for corrosion, loose pins, and chafing, and perform a wiggle test while watching live data
- 3 Compare the sensor reading against ambient temperature after a cold soak to confirm the signal is plausible and stable
- 4 Check inverter coolant level and condition, and verify the cooling fan operates correctly, since low coolant can cause erratic readings
- 5 Measure sensor resistance or voltage at the sensor and at the control module to isolate whether the fault is in the sensor or the wiring
- 6 Repair or replace the faulty sensor, pigtail, or harness section, then clear codes and run a road test with live data logging
- 7 Verify the repair by completing several drive cycles and confirming the code does not return as pending or stored

Why an intermittent inverter sensor code misleads

- An intermittent code often sets because of a connector problem rather than a failed sensor, so replacing the sensor first without a wiggle test frequently wastes money and leaves the code unresolved.
- The inverter temperature sensor shares its reference voltage or ground with other sensors in some designs, so a fault elsewhere on that circuit can set P0AF1 even though the inverter sensor itself is healthy.
- Low or aerated inverter coolant can make the sensor report erratic values because the sensor is measuring a component that is not being cooled consistently, and the sensor is blamed for a cooling system fault.
- A weak 12-volt battery or poor chassis ground can cause control module signal corruption that mimics an intermittent sensor, especially on vehicles that sit unused for long periods.
- The code may reappear only after the inverter reaches operating temperature, so a cold-engine test drive will often pass and hide the fault from a technician who does not log live data.

Can I keep driving with P0AF1?

You can usually continue driving short distances at moderate speed because the fault is intermittent and the system retains thermal protection, but avoid sustained high-load driving such as long climbs or repeated hard acceleration until it is diagnosed. If the vehicle enters limp mode or displays a hybrid overheating message, pull over and stop rather than forcing it.



Tools that help

- OBD-II scan tool with live data and graphing capability
- Digital multimeter with back-probe pins
- Wiring diagram and connector pinout for the inverter circuit
- Insulated hand tools and a terminal pick set
- Infrared thermometer to compare inverter surface temperature with sensor data

Reading P0AF1

P	Powertrain: engine, transmission and emissions.
0	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
A	Hybrid propulsion.
F1	The exact fault within that area.

Often seen with

P0A93 Inverter A Cooling System Performance · **P0A94** DC/DC Converter A Performance · **P0AF0** Drive Motor Inverter Temperature Sensor A Circuit High · **P0AF2** Drive Motor Inverter Temperature Sensor B Circuit · **P0AF3** Drive Motor Inverter Temperature Sensor B Circuit Range/Perf

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/p0af1/>

