



P0AAC

Hybrid/EV Battery Pack Air Temperature Sensor A Circuit

P0AAC indicates that the hybrid or electric vehicle battery pack air temperature sensor A circuit has reported a value outside the expected range to the battery energy control module. The module uses this sensor to monitor the temperature of the air used to cool or heat the high-voltage battery pack, and it sets the code when the signal voltage is too high, too low, or erratic for a calibrated period.

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 hybrid system warning light, often with no other noticeable symptoms
- Reduced hybrid system power or a forced limp mode in some vehicles when battery temperature cannot be verified
- Inconsistent or disabled battery cooling fan operation, leading to poor cabin or pack cooling performance
- A message on the dash indicating a hybrid battery or cooling system fault
- In rare cases, a no-start condition or inability to engage the high-voltage system if the module deems the pack temperature unsafe

Common causes, most likely first

- 1 Failed battery pack air temperature sensor A, typically due to an open or shorted thermistor element
- 2 Damaged, corroded, or disconnected wiring or connector at the sensor or along the harness to the battery energy control module
- 3 Faulty battery cooling fan assembly that overheats the sensor or disrupts airflow, indirectly causing an out-of-range signal
- 4 Restricted or blocked air intake or exhaust duct for the battery pack, causing the sensor to read an extreme temperature
- 5 Internal fault in the battery energy control module or its sensor reference voltage circuit
- 6 Water intrusion or debris contamination in the sensor connector or housing, especially in vehicles with prior body or cooling system repairs



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data for P0AAC, then visually inspect the battery pack air temperature sensor and its connector for damage, corrosion, or loose pins
- 2 Measure the sensor resistance with a multimeter and compare it to the manufacturer's temperature-resistance chart to confirm whether the sensor is open, shorted, or out of specification
- 3 Back-probe the sensor signal and ground circuits at the module connector to check for reference voltage, ground integrity, and signal voltage that tracks temperature changes
- 4 Inspect the battery cooling fan operation and ductwork for blockage, fan failure, or debris that could cause the sensor to read an extreme temperature
- 5 Perform a wiggle test on the harness while monitoring sensor data to expose intermittent wiring faults that do not appear at rest
- 6 Replace the battery pack air temperature sensor A if resistance testing confirms it is faulty, then clear codes and verify the reading matches ambient and pack temperature after a test drive
- 7 If the sensor and wiring test good, follow the manufacturer's diagnostic flow for the battery energy control module, including software updates or module replacement only after all other causes are ruled out

Battery air temperature sensor traps to avoid

- A common misdiagnosis is replacing the battery pack air temperature sensor when the real problem is a failing battery cooling fan that lets the pack overheat and drives the sensor signal out of range.
- The sensor is a thermistor whose resistance changes with temperature, so a resistance check at the sensor connector must account for the actual air temperature around the pack, not just ambient shop temperature.
- P0AAC can be set by a completely disconnected sensor connector that looks seated, because the locking tab may be broken and the connector can back out under vibration.
- Some vehicles set this code after a 12-volt battery replacement or module reprogramming if the battery energy control module loses its learned temperature offset, and a relearn or calibration drive may be required after repairs.
- A restricted battery pack air filter or duct, often overlooked during routine maintenance, can cause the sensor to read an extreme temperature and set P0AAC without any sensor or wiring fault.

Can I keep driving with P0AAC?

You can usually drive the vehicle short distances at moderate speeds to a repair shop, but avoid heavy acceleration, sustained highway driving, or fast charging because the battery pack may not be cooled or heated correctly. If the dash displays a hybrid system warning or the vehicle enters limp mode, stop driving and have it towed to prevent damage to the high-voltage battery.



Tools that help

- OBD-II scan tool with hybrid and battery module capability
- Digital multimeter with temperature probe
- Manufacturer service information for sensor resistance charts and wiring diagrams
- Socket and trim tool set for accessing the battery pack air temperature sensor
- Infrared thermometer to verify actual air temperature near the sensor

Reading P0AAC

P Powertrain: engine, transmission and emissions.

0 Generic (SAE) code: it means the same thing on every OBD-II vehicle.

A Hybrid propulsion.

AC The exact fault within that area.

Often seen with

P0AAB Hybrid/EV Battery Voltage Isolation Sensor Circuit Intermitt · **P0AAD** Hybrid/EV Battery Pack Air Temperature Sensor A Circuit Rang · **P0AAE** Hybrid/EV Battery Pack Air Temperature Sensor A Circuit Low · **P0AAF** Hybrid/EV Battery Pack Air Temperature Sensor A Circuit High · **P0AFA** Hybrid/EV Battery System Voltage 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/p0aac/>

