

GENERIC · POWERTRAIN

P0A2A

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0A2A

Drive Motor A Temperature Sensor A Circuit

P0A2A indicates that the powertrain control module has detected an abnormal condition in the temperature sensor circuit for Drive Motor A, which is the primary electric traction motor in a hybrid or electric vehicle. The computer monitors the sensor's signal voltage and flags this code when the reading falls outside the expected range or behaves erratically, preventing accurate thermal protection of the motor.

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

Symptoms you may notice

- Illumination of the check engine light or service vehicle soon message, often with no other noticeable symptoms
- Reduced power output or a limp-home mode as the vehicle limits motor torque to prevent overheating
- The hybrid or electric system may disable the motor entirely, forcing the vehicle to rely on the engine or stop
- Inconsistent or erratic temperature gauge readings for the drive motor on the instrument cluster
- Overheating warnings or a message to pull over safely when the sensor falsely reports excessive temperature
- Poor acceleration or hesitation during electric-only driving because the controller cannot trust the temperature data

Common causes, most likely first

- 1 Faulty drive motor temperature sensor internally shorted or open
- 2 Damaged or corroded wiring harness between the sensor and the control module
- 3 Loose or contaminated electrical connector at the sensor or controller
- 4 Failed control module or inverter assembly that cannot process the sensor signal correctly
- 5 Moisture intrusion into the sensor or connector causing signal drift
- 6 Aftermarket or incorrect sensor installed during a previous repair
- 7 Physical damage to the sensor from debris, heat, or collision



How to diagnose and fix it

- 1 Connect a scan tool and record the freeze-frame data and live sensor voltage to confirm the circuit fault
- 2 Inspect the sensor connector and wiring for corrosion, chafing, or loose pins, and repair as needed
- 3 Measure the sensor resistance with a multimeter and compare it to the manufacturer's temperature-resistance chart
- 4 Check the reference voltage and ground at the sensor connector with the key on to rule out a module supply issue
- 5 Perform a wiggle test on the harness while watching live data to catch intermittent opens or shorts
- 6 Replace the drive motor temperature sensor if it fails resistance or voltage checks
- 7 Clear the codes and verify the repair with a test drive, confirming the sensor reads realistically through a full warm-up cycle

Why this code often misleads technicians

- A P0A2A can be set by a simple loose connector that only acts up under vibration, so always wiggle-test the harness before condemning the sensor.
- The code does not always mean the sensor is bad; a failing inverter or control module can pull the signal voltage out of range and mimic a sensor fault.
- On many hybrids, the drive motor temperature sensor is buried inside the motor housing, making replacement labor-intensive and increasing the temptation to guess.
- A weak 12-volt auxiliary battery can cause erratic module behavior and set this code, so check battery health before diving into the high-voltage system.
- After a collision repair or motor replacement, a reused sensor with bent pins is a common cause that gets overlooked during reassembly.

Can I keep driving with P0A2A?

You can usually drive the vehicle to a shop if it remains in limp-home mode, but avoid heavy acceleration or long trips because the motor may overheat without valid temperature data. If the vehicle disables the electric drive entirely or shows a stop-driving warning, pull over safely and arrange a tow.

Tools that help

- OBD-II scan tool with live data and hybrid/EV capability
- Digital multimeter with resistance and voltage functions
- Manufacturer service information for wiring diagrams and resistance charts
- Insulated hand tools and personal protective equipment for high-voltage safety
- Back probe pins or breakout box for connector testing



Reading P0A2A

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- A** Hybrid propulsion.
- 2A** The exact fault within that area.

Often seen with

P0A0A High Voltage System Interlock Circuit A · **P0A2B** Drive Motor A Temperature Sensor A Circuit Range/Performance · **P0A2C** Drive Motor A Temperature Sensor A Circuit Low · **P0A2D** Drive Motor A Temperature Sensor A Circuit High · **P0A3F** Drive Motor A Position Sensor Circuit

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/p0a2a/>

