

GENERIC · POWERTRAIN

P2E1D

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2E1D

Drive Motor A Phase X Current Sensor Circuit Low

P2E1D indicates that the powertrain control module has detected a low voltage condition on the current sensor circuit for phase X of drive motor A, which is the main traction motor in a hybrid or electric vehicle. The sensor is responsible for reporting phase current to the motor controller, and a low signal means the controller cannot accurately measure the current flowing through that phase.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

High

FIX DIFFICULTY

Professional

AREA

Hybrid propulsion

Symptoms you may notice

- Illumination of the check engine light or service vehicle soon message
- Reduced power output or limp mode, often with a message to service the hybrid system
- The vehicle may refuse to start or shift into gear
- Intermittent stalling or sudden loss of propulsion while driving
- Often no symptoms besides the warning light if the fault is intermittent

Common causes, most likely first

- 1 Faulty phase current sensor or its internal electronics
- 2 Damaged or corroded wiring harness or connector at the motor or controller
- 3 Open circuit or high resistance in the sensor signal or ground circuit
- 4 Poor electrical connection at the control module connector
- 5 Failed motor control module or inverter assembly
- 6 Moisture intrusion or contamination in the sensor or connector
- 7 Aftermarket or incorrect sensor installation causing signal deviation



How to diagnose and fix it

- 1 Connect a scan tool and record all stored and pending codes, then clear codes and test-drive to see if P2E1D returns
- 2 Visually inspect the phase current sensor, its connector, and the wiring harness for damage, corrosion, or loose pins
- 3 Measure resistance and continuity of the sensor signal and ground circuits between the sensor and the control module
- 4 Back-probe the sensor signal wire with a multimeter or oscilloscope to check for a low or missing voltage signal while cranking or driving
- 5 Compare live sensor data for all phases to identify an outlier reading that confirms a faulty sensor or circuit
- 6 If the circuit tests good, substitute a known-good sensor or perform a resistance check on the sensor itself per service information
- 7 If the sensor and wiring are confirmed good, diagnose the motor control module or inverter for internal faults

Phase current sensor faults often misdiagnosed

- A low current sensor signal can be caused by a simple loose connector pin that only acts up under vibration, so always wiggle-test the harness while watching live data.
- The code may set intermittently due to a poor ground connection at the motor or chassis, which is often overlooked when replacing sensors.
- Some vehicles use the same phase current sensor for multiple functions, so a failure can also trigger codes for motor performance or inverter faults that distract from the root cause.
- After a collision or major suspension work, the motor harness can be stretched or pinched, leading to this code without any sensor failure.
- Do not assume the sensor is bad just because the code says low signal; a short to ground in the signal wire will produce the same symptom and is cheaper to fix.

Can I keep driving with P2E1D?

Do not continue driving with this code active, as the vehicle may enter limp mode or lose propulsion without warning, which is dangerous in traffic. Have the vehicle towed to a qualified hybrid or electric vehicle technician for diagnosis.

Tools that help

- OBD-II scan tool with live data and graphing capability
- Digital multimeter with min/max recording
- Oscilloscope for signal waveform analysis
- Electrical connector pin removal tools
- Service information for wiring diagrams and sensor specifications



Reading P2E1D

- P** Powertrain: engine, transmission and emissions.
- 2** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- E** Hybrid propulsion.
- 1D** The exact fault within that area.

Often seen with

P0A3F Drive Motor A Position Sensor Circuit · **P0A40** Drive Motor A Position Sensor Circuit Range/Performance · **P2E1C** Drive Motor A Phase X Current Sensor Circuit Range/Performance · **P2E1E** Drive Motor A Phase X Current Sensor Circuit High · **P2E1F** Drive Motor A Phase Y Current 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/p2e1d/>

