

GENERIC · POWERTRAIN

P2E24

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2E24

Drive Motor A Phase Z Current Sensor Circuit Range/Performance

P2E24 indicates that the inverter controller for drive motor A has detected an out-of-range or erratic signal from the phase Z current sensor circuit, which monitors current flow in one of the motor's three phases. The computer compares the sensor's reported current against expected values derived from motor speed, torque request, and the other phase sensors, and it sets this code when the signal falls outside a calibrated window or fails a rationality check.

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

Symptoms you may notice

- Illumination of the hybrid or electric vehicle warning light, often with a message to service the drive system
- Reduced power output or a limp-home mode that limits vehicle speed
- The vehicle may refuse to start or shift into drive if the fault is active at key-on
- Intermittent hesitation or shudder during acceleration under load
- Often no symptoms besides the warning light, especially if the fault is stored but not currently active

Common causes, most likely first

- 1 A failing phase current sensor or its internal electronics
- 2 Damaged or chafed wiring between the current sensor and the inverter controller
- 3 Corroded or loose connector pins at the sensor or inverter harness
- 4 A faulty inverter controller or motor control module
- 5 Electrical interference or a poor ground affecting the sensor reference voltage
- 6 Moisture intrusion into the sensor or connector causing signal drift



How to diagnose and fix it

- 1 Connect a scan tool and record all stored codes, freeze-frame data, and live current-sensor readings to confirm the fault is present and not a historical glitch
- 2 Visually inspect the phase current sensor, its connector, and the harness for chafing, corrosion, or loose pins, repairing any obvious damage
- 3 Measure the sensor reference voltage and ground at the connector with a multimeter, comparing against the manufacturer's specification
- 4 Back-probe the sensor signal wire and compare its voltage or waveform with the other phase current sensors while the motor is loaded
- 5 Perform a wiggle test on the harness and connectors while watching live data to expose intermittent faults
- 6 If the signal is erratic but wiring and connectors are sound, replace the phase current sensor and clear the codes
- 7 If the fault persists after sensor replacement, diagnose the inverter controller or motor control module according to the service information

What the phase current sensor code hides

- A phase current sensor can pass a static resistance check and still fail under load, so live data during a road test is more revealing than a bench test.
- The code often sets from a momentary signal glitch caused by a loose connector pin that only acts up over bumps, so a wiggle test is essential before condemning the sensor.
- A weak 12-volt battery or a poor chassis ground can pull the sensor reference voltage low and trigger this code without any fault in the sensor itself.
- Technicians sometimes replace the inverter controller when the real problem is a chafed signal wire inside the motor harness, so always trace the circuit end to end.
- This code can be stored alongside motor position or resolver codes when a shared ground or reference circuit is compromised, so check for companion codes before diagnosing.

Can I keep driving with P2E24?

Do not continue driving with an active P2E24 because the inverter may misjudge phase current and cause a sudden loss of power or an unsafe shutdown. If the light is on but the vehicle drives normally, limit driving to a short trip to a repair shop and avoid hard acceleration or high-speed operation.

Tools that help

- OBD-II scan tool with live data and graphing capability
- Digital multimeter with min/max recording
- Oscilloscope for waveform analysis
- Insulated hand tools and connector pin removal kit
- Manufacturer service information for circuit specifications



Reading P2E24

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

Often seen with

P0A3F Drive Motor A Position Sensor Circuit · **P0A78** Drive Motor A Inverter Performance · **P2E23** Drive Motor A Phase Z Current Sensor Circuit · **P2E25** Drive Motor A Phase Z Current Sensor Circuit 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/p2e24/>

