

GENERIC · POWERTRAIN

P2E28

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2E28

Drive Motor A Excitation Current Sensor Performance

P2E28 indicates that the powertrain control module (PCM) has detected an abnormal signal from the excitation current sensor for drive motor A, which monitors the field current in a separately excited motor or the excitation circuit of a permanent magnet motor. The PCM compares this signal to expected values under current operating conditions and sets the code when the correlation falls outside the acceptable range.

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 or limp mode, as the PCM may limit motor output to protect the drive system
- Intermittent hesitation or stalling during acceleration
- Unusual noises from the drive motor area, such as whining or clicking
- Poor energy efficiency or reduced electric range
- In rare cases, the vehicle may fail to start or move

Common causes, most likely first

- 1 Faulty excitation current sensor or its internal circuitry
- 2 Damaged or corroded wiring and connectors in the sensor circuit
- 3 Poor electrical connection at the sensor or PCM, including loose pins or water intrusion
- 4 Failed drive motor assembly, such as a shorted or open excitation winding
- 5 PCM software error or internal fault in the sensor input circuit
- 6 Aftermarket accessories or modifications interfering with the sensor signal



How to diagnose and fix it

- 1 Perform a visual inspection of the sensor, wiring, and connectors for damage, corrosion, or loose pins
- 2 Check for technical service bulletins (TSBs) or software updates for the PCM that address this code
- 3 Measure the sensor reference voltage and ground at the sensor connector with a digital multimeter (DMM) and compare to specifications
- 4 Back-probe the sensor signal wire and compare the voltage to the manufacturer's expected values while wiggling the harness
- 5 Test the excitation current sensor with an oscilloscope to verify a clean, consistent waveform
- 6 If the sensor tests bad, replace it and clear the code; if the signal is good at the sensor but not at the PCM, repair the wiring
- 7 As a last resort, diagnose the drive motor excitation circuit or replace the PCM if all other checks pass

Excitation Sensor Diagnostics Beyond the Basics

- A common oversight is assuming the sensor itself is at fault when the real problem is a chafed wire hidden inside a loom or a connector that only acts up when the engine bay is hot.
- The code can be set by a weak or missing excitation current caused by a failing motor winding, so always verify the actual current with a clamp meter before condemning the sensor.
- On some vehicles, a low 12-volt battery or a poor ground can cause the PCM to misread the sensor signal, so check the charging system and grounds first.
- After replacing the sensor, some PCMs require a relearn or calibration procedure; skipping this step can cause the code to return immediately.
- Intermittent codes that appear only under certain driving conditions often point to a wiring issue rather than a failed sensor, so focus on harness routing and connector condition.

Can I keep driving with P2E28?

You can usually drive the vehicle with this code, but expect reduced power and possible limp mode; avoid heavy acceleration or long trips until the fault is repaired to prevent further damage to the drive system.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter (DMM)
- Oscilloscope
- Clamp meter
- Wiring diagram and service information



Reading P2E28

- P** Powertrain: engine, transmission and emissions.
- 2** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- E** Hybrid propulsion.
- 28** 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
 · **P2E27** Drive Motor A Phase X-Y-Z Current Sensor Correlation · **P2E29** Drive Motor A Excitation Current Sensor Circuit Low Voltage

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/p2e28/>

