

GENERIC · POWERTRAIN

P2E01

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2E01

Gear Lever Position Sensor A Range/Performance

P2E01 indicates that the powertrain control module (PCM) has detected an out-of-range or erratic signal from the gear lever position sensor A, which is responsible for reporting the selected gear or shift lever position. The PCM compares this signal against expected values for the current operating conditions and sets the code when the voltage or rationality check fails.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Hybrid propulsion

Symptoms you may notice

- Illumination of the check engine light or service engine soon light
- Harsh or delayed shifting because the PCM cannot determine the intended gear
- Inability to start the engine if the PCM does not recognize park or neutral
- Erratic operation of reverse lamps, backup camera, or park assist
- Transmission stuck in a single gear or default limp mode
- Often no symptoms besides the warning light

Common causes, most likely first

- 1 Faulty gear lever position sensor A
- 2 Wiring damage such as chafed, corroded, or broken wires in the sensor circuit
- 3 Loose or corroded electrical connector at the sensor or PCM
- 4 Mechanical misalignment or binding in the shift lever assembly
- 5 Water intrusion or contamination inside the sensor connector
- 6 PCM software calibration issue or internal PCM fault



How to diagnose and fix it

- 1 Verify the code with a scan tool and check for any related transmission or body control codes
- 2 Inspect the sensor connector and wiring for corrosion, damage, or loose pins
- 3 Check the sensor's reference voltage and ground circuits with a multimeter
- 4 Compare the sensor signal voltage across the full range of lever positions against the manufacturer's specification
- 5 Inspect the shift lever mechanism for binding, wear, or misalignment that could affect sensor movement
- 6 Replace the gear lever position sensor if electrical and mechanical checks pass but the signal remains out of range
- 7 Clear the code and perform a road test to confirm the repair, reprogramming the PCM if required

Before you replace the gear lever sensor

- A misadjusted shift cable or worn linkage can cause the sensor to report an implausible position even when the sensor itself is healthy.
Corrosion inside the connector is a frequent culprit, especially on vehicles with floor-mounted shifters exposed to spills or humidity.
- The PCM may set P2E01 as a rationality code when the sensor signal is plausible but does not match the expected pattern during a shift sequence.
- Some vehicles use the gear lever position signal for reverse lamps and park assist, so those systems may act up without any transmission symptoms.
After replacing the sensor, a relearn or calibration procedure is often required; skipping it can cause the code to return immediately.

Can I keep driving with P2E01?

If the vehicle drives and shifts normally, you can drive cautiously to a repair shop, but avoid aggressive acceleration or towing. If the transmission is in limp mode or the engine will not start, stop driving and arrange a tow to prevent further damage.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wire probe set
- Service manual or wiring diagram for the vehicle
- Basic hand tools for trim and connector removal



Reading P2E01

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

Often seen with

P0705 Transmission Range Sensor Circuit Malfunction · **P0706** Transmission Range Sensor Circuit Range/Performance · **P0707** Transmission Range Sensor Circuit Low · **P0708** Transmission Range Sensor Circuit High · **P0850** Park/Neutral Switch Input Circuit

See it working

Watch the animated explainer [How an Automatic Transmission Works, Gear by Gear](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2e01/>

