

BMW · POWERTRAIN

P1541

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1541 · BMW

Pedal Position Sensor Double Error

P1541 on BMW vehicles indicates that the engine control module (ECM) has detected a double error in the pedal position sensor circuit, meaning the two redundant signals from the accelerator pedal module do not agree or have failed simultaneously. The ECM compares the two sensor voltages and sets this code when their relationship falls outside the expected range, often due to a faulty pedal module, wiring issue, or connector problem.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	BMW specific	Medium	Intermediate	Vehicle speed, idle control and auxiliary inputs

Symptoms you may notice

- The check engine light or electronic throttle control (ETC) warning light illuminates on the dashboard.
- The engine may enter limp mode, limiting power and engine speed to a predetermined safe level.
- The accelerator pedal may feel unresponsive or require excessive travel to accelerate.
- In some cases, the engine may idle erratically or stall when coming to a stop.
- Often no symptoms besides the warning light, especially if the fault is intermittent.

Common causes, most likely first

- Faulty accelerator pedal module (throttle position sensor) with worn or contaminated internal tracks.
- Corroded, loose, or damaged electrical connectors at the pedal sensor or ECM.
- Wiring harness damage such as chafed wires, open circuits, or short circuits between the sensor and ECM.
- Water intrusion into the pedal sensor connector or module, common in vehicles with clogged sunroof drains or cowl leaks.
- ECM software glitch or internal fault, though less common than sensor or wiring issues.
- Aftermarket or incorrectly installed pedal modules that do not meet BMW specifications.



How to diagnose and fix it

- 1 Use a BMW-specific scan tool to read live data from both pedal position sensors and compare their voltages through the full pedal travel.
- 2 Visually inspect the pedal module connector and wiring for corrosion, moisture, or physical damage; clean and dry as needed.
- 3 Check for continuity and resistance in the sensor wiring between the pedal and ECM, looking for opens or shorts.
- 4 Perform a wiggle test on the harness while monitoring sensor data to identify intermittent connections.
- 5 If the pedal module is suspect, replace it with a genuine BMW part and perform adaptation or calibration if required.
- 6 Clear the fault memory and test-drive the vehicle to verify the code does not return.
- 7 If the fault persists, diagnose the ECM and its power/ground circuits before considering replacement.

Pedal Sensor Double Error Nuances

- A double error does not always mean both sensors failed; it can be set when the two signals disagree by more than a calibrated threshold, which may be caused by a single sensor drifting.
- Water damage from a leaking windshield cowl or sunroof drain is a frequent hidden cause on BMWs, corroding the pedal connector and setting P1541 without any other symptoms.
- After replacing the pedal module, some BMW models require a relearn procedure or adaptation reset using a factory-level scan tool; skipping this can leave the code stored.
- Intermittent P1541 codes often occur due to worn pedal pivot bushings causing sensor misalignment, not an electrical fault, so inspect the pedal assembly for mechanical wear.
- This code can be misdiagnosed as a throttle body issue because both affect power delivery, but P1541 specifically points to the pedal sensor circuit, so always check live pedal data first.

Can I keep driving with P1541?

If the vehicle is in limp mode, driving is not recommended because power is severely limited and unpredictable. If the light is on but the car drives normally, you can drive cautiously to a repair shop, but avoid aggressive acceleration or high speeds until the fault is resolved.

Tools that help

- BMW-specific scan tool (e.g., ISTA, INPA, or a capable OBD-II scanner with live data)
- Digital multimeter for voltage and continuity checks
- Wiring diagram for the accelerator pedal circuit
- Basic hand tools for trim removal and connector access
- Contact cleaner and dielectric grease for connector servicing



Reading P1541

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (BMW): its meaning depends on the make.
- 5** Vehicle speed, idle control and auxiliary inputs.
- 41** The exact fault within that area.

Often seen with

P1540 Vehicle Speed Sensor High Input · **P1542** Throttle Actuation Potentiometer Range Performance · **P1543** Throttle Actuation Potentiometer Signal Too Low · **P1540** Vehicle Speed Sensor Malfunction · **P1540** A/C System High Pressure · **P1542** A/C System High Pressure High Temperature · **P1543** A/C System Performance · **P1540** A/C System High Pressure · **P1542** A/C System High Pressure High Temperature · **P1543** A/C System Performance · **P1540** Pedal Position Sensor · **P1542** Pedal Position Sensor Electrical · **P1543** Pedal Position Sensor · **P0121** Throttle Position Sensor A Circuit Range/Performance · **P2135** Throttle/Pedal Position Sensor A/B Voltage Correlation

See it working

Watch the animated explainer [How a Helicopter Flies: Rotor and Tail in X-Ray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/bmw-p1541/>

