

BMW · POWERTRAIN

P1284

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1284 · BMW

Switching Solenoid for Air Assisted Injection Valves Bank 1 Control Circuit Signal Low

P1284 on BMW vehicles means the engine control module (DME) has detected a low signal on the control circuit for the switching solenoid that operates the air-assisted injection valves on bank 1. The computer expects to see a voltage near battery level when the solenoid is commanded off, but the circuit is being pulled low, indicating a short to ground, an open circuit, or a faulty solenoid.

SYSTEM

Powertrain

CODE TYPE

BMW specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering (injector circuits)

Symptoms you may notice

- Illumination of the check engine light (CEL) with no other noticeable symptoms in many cases.
- Rough idle or stumbling when the engine is cold, especially during the warm-up phase when air-assisted injection is active.
- Hesitation or flat spot during light acceleration from a stop.
- Increased fuel consumption due to poor mixture control during cold starts.
- Occasional misfire codes for bank 1 cylinders if the solenoid fails to open, leaning out the mixture.
- A faint clicking or buzzing from the solenoid area may be absent if the solenoid is electrically dead.

Common causes, most likely first

- 1 Failed switching solenoid for the air-assisted injection valve bank 1 (open or shorted coil).
- 2 Damaged or corroded wiring harness between the DME and the solenoid, often due to heat, oil contamination, or chafing.
- 3 Loose or corroded electrical connector at the solenoid or at the DME.
- 4 Internal fault in the DME driver circuit for that solenoid (less common but possible).
- 5 Short to ground in the control wire, often caused by a pinched wire against the engine block or exhaust manifold.
- 6 Blown fuse or relay supplying power to the solenoid circuit (if applicable to the model).
- 7 Aftermarket alarm or remote start installation tapping into the wrong wire and disturbing the circuit.



How to diagnose and fix it

- 1 Clear the code and test-drive the vehicle to see if P1284 returns; note any freeze-frame data to confirm the conditions.
- 2 Visually inspect the solenoid, its connector, and the wiring harness for obvious damage, corrosion, or loose pins.
- 3 Measure the resistance of the solenoid coil with a multimeter and compare to the manufacturer's specification (typically 10–20 ohms).
- 4 Check for battery voltage at the solenoid connector with the key on, engine off, to verify power supply.
- 5 Perform a voltage drop test on the ground side of the circuit and on the control wire from the DME to the solenoid.
- 6 If the circuit tests good, substitute a known-good solenoid and recheck for the code.
- 7 If the solenoid and wiring are confirmed good, diagnose the DME driver circuit or reprogram/replace the DME as a last resort.

What BMW techs check before replacing the solenoid

- A low signal code often results from a short to ground in the wiring, not a failed solenoid, so always inspect the harness near hot components and sharp edges first.
- The air-assisted injection system only operates during cold start and warm-up, so a faulty solenoid may not set a code until the engine is cold; testing when warm can miss the fault.
- On some BMW engines, the same solenoid circuit is shared with other components, and a failure elsewhere can pull the signal low, so check for related codes before condemning the solenoid.
- A weak battery or poor ground can cause false low-signal codes on solenoid circuits, so verify battery health and ground connections before deep circuit testing.
- After replacing a solenoid, always clear adaptations and perform a cold-start relearn if the DME supports it, otherwise the code may reappear temporarily.

Can I keep driving with P1284?

You can usually drive the car with P1284 set, but expect rough running during cold starts and slightly higher emissions. Avoid heavy acceleration or towing until the fault is repaired, and address it promptly to prevent catalytic converter damage from prolonged rich or lean operation.

Tools that help

- OBD-II scan tool with BMW-specific software (e.g., INPA, ISTA, or a capable aftermarket tool)
- Digital multimeter with resistance and voltage measurement
- Wire piercing probes or back-probe kit
- Hand tools for removing engine covers and accessing the solenoid
- Soldering iron and heat-shrink tubing for wire repair
- Manufacturer service information for wiring diagrams and solenoid specifications



Reading P1284

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (BMW): its meaning depends on the make.
- 2** Fuel and air metering (injector circuits).
- 84** The exact fault within that area.

Often seen with

P1283 Fuel Injection Air Control Valve Circuit Electrical Malfunc · **P1285** Fuel Injection Air Control Valve Circuit Short To Ground · **P1283** Accelerator Pedal Position Sensor 2 Circuit High Voltage · **P1285** Accelerator Pedal Positioning Sensor 2 Circuit · **P1283** IPR Circuit Failure · **P1285** Cylinder Head Over Temp Sensed · **P1283** Idle Select Signal Invalid · **P1285** Fuel Injection Pump Controller Always On · **P1283** Switching Solenoid for Air Assisted Injection Valves Bank 1 · **P1285** Switching Solenoid for Air Assisted Injection Valves Bank 1 · **P0171** System Too Lean (Bank 1) · **P0300** Random/Multiple Cylinder Misfire Detected · **P0301** Cylinder 1 Misfire Detected

See it working

Watch the animated explainer **Four-Stroke Engine Cutaway: Intake to Exhaust** on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/bmw-p1284/>

