

BMW · POWERTRAIN

**P1506**

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

## P1506 · BMW

# Idle Speed Control Valve Open Solenoid Control Circuit Signal High

P1506 on a BMW means the engine control module (DME) has detected a high signal on the control circuit for the idle speed control valve's open solenoid, indicating an open circuit, short to voltage, or a failed solenoid winding. The DME expects a specific voltage or current feedback when commanding the valve open, and the signal it sees is above the acceptable threshold, so it flags the circuit as faulty.

SYSTEM

Powertrain

CODE TYPE

BMW specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Vehicle speed, idle control and auxiliary inputs

## Symptoms you may notice

- Illuminated check engine light, often with no other noticeable symptoms
- Unstable or fluctuating idle speed, sometimes surging between 500 and 1200 RPM
- Engine stalls when coming to a stop or when the throttle is released
- Rough or erratic idle quality, especially when cold or with electrical loads applied
- Occasional hesitation or stumble on acceleration from idle
- In some cases, the engine may idle too high (above 1000 RPM) when the valve sticks open

## Common causes, most likely first

- 1 Failed idle speed control valve open solenoid winding (open circuit or shorted internally)
- 2 Damaged or corroded wiring harness connector at the idle control valve
- 3 Broken, chafed, or shorted wire in the valve control circuit between the DME and the valve
- 4 Poor ground connection for the idle control valve or engine management system
- 5 Faulty engine control module (DME) driver circuit for the open solenoid (rare but possible)
- 6 Intake air leaks downstream of the mass air flow sensor causing the DME to command abnormal valve positions



## How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data to confirm P1506 is the only idle-related fault and note the conditions when it set.
- 2 Visually inspect the idle speed control valve connector and wiring for corrosion, loose pins, or chafing, and repair as needed.
- 3 Measure the resistance of the open solenoid winding at the valve connector and compare to BMW specifications; replace the valve if out of range.
- 4 Back-probe the control circuit at the DME connector and check for a short to voltage or an open circuit with a multimeter while wiggling the harness.
- 5 Check the valve's ground circuit for excessive voltage drop under load and clean or repair ground points as necessary.
- 6 If wiring and valve test good, substitute a known-good idle control valve and clear adaptations to see if the code returns.
- 7 As a last step, test or replace the DME only after confirming all external circuits are intact and the fault persists.

## Idle valve circuit checks before DME replacement

- A high signal on the open solenoid circuit is frequently caused by a disconnected or partially unseated connector at the idle control valve, which can happen after unrelated engine service.
- The DME may set P1506 intermittently if the valve winding resistance drifts with temperature, so testing the solenoid cold and after warming the engine can reveal a fault that a cold ohm check misses.
- Intake leaks or a dirty throttle body can cause the DME to command the idle valve to an extreme position, and the resulting high feedback signal can trigger P1506 even when the valve itself is healthy.
- BMW idle control valves on older models are known to gum up internally, causing the solenoid to draw abnormal current or stick, so cleaning the valve bore is a worthwhile step before condemning the electrical circuit.
- Do not overlook the engine ground strap and DME ground points; a poor ground can elevate the signal voltage on the open solenoid control circuit and set this code without any fault in the valve or its wiring.

## Can I keep driving with P1506?

You can usually drive the car to a workshop, but expect an unstable idle and possible stalling when stopping, so avoid heavy traffic and keep engine loads low until the fault is repaired.



## Tools that help

- OBD-II scan tool with BMW-specific software for live data and freeze-frame
- Digital multimeter with resistance and voltage measurement
- Back-probe kit or breakout leads for testing at the DME connector
- Hand tools for removing the idle control valve and accessing the harness
- Contact cleaner and dielectric grease for connector repair

## Reading P1506

**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.

**06** The exact fault within that area.

## Often seen with

**P1505** Closed Throttle Position Does Not Close Open Circuit · **P1505** Idle Air Control Valve Opening Coil Voltage Low · **P1505** Idle Air Control System at Adaptive Clip · **P1505** Idle Speed Control Valve Closing Solenoid Control Circuit EI · **P0171** System Too Lean (Bank 1) · **P0505** Idle Control System Malfunction · **P0506** Idle Control System RPM Lower Than Expected · **P0507** Idle Control System RPM Higher Than Expected

## 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-p1506/>

