

BMW · POWERTRAIN

P1528

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1528 · BMW

A Camshaft Position Actuator Control Circuit Signal High Bank 1

P1528 on a BMW means the engine control module (DME) has detected an abnormally high voltage on the control circuit for the bank 1 camshaft position actuator, which is the solenoid that adjusts intake cam timing. The DME expects a specific voltage range on the actuator's control wire, and a signal above that range indicates a short to power, an open circuit, or a failed actuator.

SYSTEM

Powertrain

CODE TYPE

BMW specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Vehicle speed, idle control and auxiliary inputs

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Rough idle or unstable engine operation, especially when cold
- Reduced engine performance and poor fuel economy due to incorrect cam timing
- A noticeable hesitation or stumble during acceleration
- In some cases, the engine may enter limp mode or exhibit hard starting

Common causes, most likely first

- 1 Faulty camshaft position actuator solenoid (vanos solenoid) with an internal short
- 2 Damaged or chafed wiring harness between the DME and the actuator, causing a short to power
- 3 Corroded or loose electrical connector at the actuator
- 4 Failed engine control module (DME) driver circuit, though rare
- 5 Oil sludge or debris blocking the actuator, leading to abnormal current draw and voltage spikes
- 6 Aftermarket or incorrect solenoid installed previously



How to diagnose and fix it

- 1 Perform a visual inspection of the actuator connector and wiring for damage, corrosion, or loose pins
- 2 Use a digital multimeter to check for battery voltage on the actuator control wire with the key on and engine off; compare to manufacturer specifications
- 3 Measure the resistance of the actuator solenoid and compare to the factory value to check for an internal short
- 4 Check for continuity between the actuator control wire and ground to rule out a short to power
- 5 If wiring and connector are good, swap the bank 1 actuator with a known-good unit and clear the code to see if it moves
- 6 Inspect the actuator for oil sludge or debris and clean or replace as necessary
- 7 If all else fails, diagnose the DME driver circuit or replace the DME after confirming no other faults

Before replacing the VANOS solenoid

- A high signal on the control circuit often results from a short to power in the harness where it rubs against the engine cover or intake manifold, so inspect the loom carefully before condemning the solenoid.
Oil sludge and debris can cause the solenoid to stick and draw excessive current, which the DME may interpret as a high signal; regular oil changes with the correct specification are critical.
- The code can be set intermittently by a poor connection at the actuator plug, so always perform a wiggle test on the connector while monitoring live data.
- Replacing the solenoid without clearing the adaptive values may leave the engine running poorly until the DME relearns the cam timing, so a relearn procedure is recommended after repair.

This fault can mimic other VANOS-related codes, but P1528 specifically points to the electrical circuit, not mechanical timing issues, so focus diagnostics on wiring and the solenoid first.

Can I keep driving with P1528?

You can usually drive the car with this code, but avoid aggressive acceleration and high engine loads because incorrect cam timing can reduce performance and fuel economy. If the engine runs roughly or enters limp mode, have it checked promptly to prevent further damage.

Tools that help

- OBD-II scan tool with BMW-specific software
- Digital multimeter
- Wire probe set
- Socket and ratchet set
- Torque wrench



Reading P1528

- 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.
- 28** The exact fault within that area.

Often seen with

P1529 Intake Camshaft Control Circuit Short To B+ · **P1529** Heated Windshield Request Problem · **P1529** Heated Windshield Request Problem · **P1529** B Camshaft Position Actuator Control Circuit Signal Low Bank · **P0010** 'A' Camshaft Position Actuator Circuit (Bank 1) · **P0011** 'A' Camshaft Position - Timing Over-Advanced or System Perfo · **P0012** 'A' Camshaft Position - Timing Over-Retarded (Bank 1) · **P0340** Camshaft Position Sensor A Circuit Malfunction (Bank 1)

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-p1528/>

