

BMW · POWERTRAIN

P1461

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1461 · BMW

Heated Catalyst Gate Voltage Signal Low

P1461 on a BMW means the engine control module (DME) has detected that the voltage signal from the heated catalyst gate circuit is lower than the expected range. The DME monitors this circuit to confirm the heated catalytic converter's gate is functioning properly, and a low voltage indicates an open circuit, short to ground, or a failed component in that path.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	BMW specific	Medium	Intermediate	Auxiliary emission controls

Symptoms you may notice

- Illumination of the check engine light (CEL) on the dashboard.
- Often no symptoms besides the warning light, especially if the catalyst is still functioning.
- Possible slight decrease in fuel economy if the heated catalyst does not activate promptly.
- In rare cases, a sulfur or rotten egg odor from the exhaust if the catalyst does not reach operating temperature.
- No noticeable performance issues in most cases, as the fault is electrical rather than mechanical.
- Intermittent warning light if the low voltage is caused by a loose connection or chafed wire.

Common causes, most likely first

- 1 Open circuit or high resistance in the heated catalyst gate voltage signal wire.
- 2 Short to ground in the signal circuit, often due to chafed insulation or moisture intrusion.
- 3 Failed heated catalyst gate relay or control module, preventing voltage from reaching the signal circuit.
- 4 Corroded or loose electrical connector at the heated catalyst or DME.
- 5 Defective heated catalyst element or gate actuator, causing abnormal voltage feedback.
- 6 Faulty DME internal circuit, though this is less common and should be diagnosed last.



How to diagnose and fix it

- 1 Use a BMW-specific scan tool to read live data for the heated catalyst gate voltage and confirm the low signal.
- 2 Visually inspect the heated catalyst wiring harness and connectors for damage, corrosion, or loose pins.
- 3 Disconnect the heated catalyst connector and measure resistance across the gate circuit to check for an open or short.
- 4 Check for voltage at the heated catalyst gate signal wire with the ignition on, comparing to manufacturer specifications.
- 5 Test the heated catalyst gate relay and fuse, replacing if faulty.
- 6 If wiring and components check out, perform a continuity test from the DME connector to the heated catalyst to rule out an open circuit.
- 7 As a last step, substitute a known-good DME only after confirming all external circuits are intact.

Before replacing the heated catalyst

- A low voltage signal often originates from a simple chafed wire near the exhaust manifold, not from a failed catalyst.
- The heated catalyst gate circuit is separate from the main catalyst monitor, so P1461 can set even when catalyst efficiency is fine.
- Technicians sometimes overlook a weak battery or charging system issue that causes low voltage on multiple circuits, including this one.
- After repairs, the DME may require a specific drive cycle or relearn procedure to clear the code and verify the fix.
- A faulty ground connection at the heated catalyst housing can mimic a low signal voltage and is frequently missed during diagnosis.

Can I keep driving with P1461?

You can generally continue driving with P1461, but avoid long periods of idling or heavy load until the fault is repaired, as the heated catalyst may not activate properly and could increase emissions. Have the vehicle inspected soon to prevent potential damage to the catalytic converter.

Tools that help

- BMW-specific OBD-II scan tool with live data capability
- Digital multimeter (DMM) for voltage and resistance measurements
- Wiring diagram for the heated catalyst circuit
- Socket set and trim removal tools for access to connectors
- Contact cleaner and dielectric grease for connector repair



Reading P1461

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (BMW): its meaning depends on the make.
- 4** Auxiliary emission controls.
- 61** The exact fault within that area.

Often seen with

P1460 Exhaust Gas Temperature Control Bank 2 Limit Attained · **P1462** Exhaust Gas Temperature Control Bank 2 Range Performance · **P1460** Radiator Fan Control System Fault · **P1460** Cooling Fan Control System · **P1460** Wide Open Throttle Air Conditioning Cutoff Circuit Malfunction · **P1462** Air Conditioning Pressure Sensor Circuit High Input · **P1460** Cooling Fan Control System · **P1460** Heated Catalyst Heater Power Switch Temperature Sensor Elect · **P1462** Heated Catalyst Internal Control Module Checksum ROM Error · **P0130** O2 Sensor Circuit Malfunction (Bank 1 Sensor 1) · **P0420** Catalyst System Efficiency Below Threshold (Bank 1) · **P0430** Catalyst System Efficiency Below Threshold (Bank 2)

See it working

Watch the animated explainer [How a Gyroscope Works: Gimbals and Precession](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/bmw-p1461/>

