

VOLKSWAGEN · POWERTRAIN

P1105

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1105 · Volkswagen

Oxygen Sensor Heating Circuit Bank 1 Sensor 2 Short To B+

This code means the engine computer has detected a short to battery voltage in the heating circuit for the downstream oxygen sensor on bank 1, which is the sensor after the catalytic converter. The computer monitors the heater control wire and sees voltage present when the heater should be off, indicating a wiring fault rather than a sensor that has simply failed.

SYSTEM

Powertrain

CODE TYPE

Volkswagen
specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Fuel and air
metering

Symptoms you may notice

- Illuminated check engine light, often with no other noticeable symptoms
- Slightly higher fuel consumption because the sensor stays cold and the computer runs a richer default mixture
- Occasional rough idle or hesitation when the engine is cold
- Failed emissions test due to the oxygen sensor heater monitor not being ready
- In rare cases, a blown fuse for the oxygen sensor heater circuit that also affects other components on the same circuit

Common causes, most likely first

- 1 Chafed or damaged heater control wire between the oxygen sensor and the engine control module, shorting to a battery-positive wire in the harness
- 2 Corroded or water-contaminated connector at the downstream oxygen sensor, allowing voltage to bleed across pins
- 3 Internal short inside the oxygen sensor heater element, feeding battery voltage back into the control circuit
- 4 Faulty engine control module driver for the heater circuit, holding the control wire at battery voltage
- 5 Rodent damage or previous repair damage to the harness near the exhaust or transmission tunnel
- 6 Aftermarket alarm or accessory wiring tapped into the oxygen sensor circuit incorrectly



How to diagnose and fix it

- 1 Clear the code and road-test the vehicle to confirm the fault returns, because a one-time glitch can set this code without a hard failure
- 2 Inspect the downstream oxygen sensor connector and the harness routing for chafing, corrosion, or contact with the exhaust, repairing any damage found
- 3 Disconnect the oxygen sensor and check for battery voltage on the heater control wire at the sensor connector with the key on and engine off, which confirms a short upstream of the sensor
- 4 Measure resistance across the oxygen sensor heater element and compare with the manufacturer specification to rule out an internal sensor short
- 5 Back-probe the engine control module connector and check for battery voltage on the heater control circuit with the module disconnected, isolating a harness short from a module fault
- 6 Repair or replace the affected section of harness, using proper solder and heat-shrink rather than crimp connectors in the exhaust environment
- 7 Replace the downstream oxygen sensor if the heater element is out of specification, then clear codes and verify the heater monitor completes during a test drive

What a short to B+ really means here

- A short to B+ does not mean the sensor is dead; the heater circuit is being fed voltage when it should be grounded, so replacing the sensor first often wastes money on a wiring fault.
- The downstream sensor heater is controlled by the engine control module through a low-side driver, so a short on the control wire can damage that driver if the fault is left unrepaired for a long time.
- Volkswagen harnesses routed near the exhaust and battery cable can rub through on sharp edges, and the short often appears only when the engine moves under load, making it intermittent on a stationary test.
- A corroded connector pin can bridge battery voltage from an adjacent heater supply pin to the control pin, which looks exactly like a harness short until the connector is opened and inspected.
- This code can set alongside mixture or catalyst codes because a cold downstream sensor prevents the computer from confirming catalyst efficiency, so do not replace the catalytic converter until the heater circuit is repaired.

Can I keep driving with P1105?

You can usually drive the vehicle short distances to a repair shop, but avoid long trips and heavy loads because the cold sensor keeps the engine in a richer default mode that can overheat the catalytic converter over time. Do not ignore the warning light for weeks, since the short can eventually damage the engine control module heater driver.



Tools that help

- Digital multimeter with back-probe pins
- OBD-II scan tool with live data and monitor readiness capability
- Wiring diagram for the specific Volkswagen model and engine
- Heat-shrink tubing and soldering iron for harness repair
- Socket set and oxygen sensor wrench

Reading P1105

P Powertrain: engine, transmission and emissions.

1 Manufacturer-specific code (Volkswagen): its meaning depends on the make.

1 Fuel and air metering.

05 The exact fault within that area.

Often seen with

P0136 O2 Sensor Circuit Malfunction (Bank 1 Sensor 2) · **P0137** O2 Sensor Circuit Low Voltage (Bank 1 Sensor 2) · **P0138** O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) · **P0141** O2 Sensor Heater Circuit Malfunction (Bank 1 Sensor 2) · **P0420** Catalyst System Efficiency Below Threshold (Bank 1)

See it working

Watch the animated explainer [How Airbags Work: A 50 km/h Crash in Slow Motion](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/volkswagen-p1105/>

