

VOLKSWAGEN · POWERTRAIN

**P1160**

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

## P1160 · Volkswagen

# Manifold Temperature Sensor Circuit Short To Ground

P1160 on Volkswagen vehicles indicates that the engine control module (ECM) has detected a short to ground on the manifold temperature sensor circuit, which is typically integrated into the intake manifold and measures the temperature of the air entering the engine. The ECM monitors the sensor signal voltage and flags this code when the voltage stays abnormally low, indicating a short to ground rather than a valid temperature reading.

SYSTEM

**Powertrain**

CODE TYPE

**Volkswagen specific**

SEVERITY

**Medium**

FIX DIFFICULTY

**Intermediate**

AREA

**Fuel and air metering**

## Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- Rough idle or hesitation during acceleration if the faulty sensor signal causes incorrect fuel mixture calculations.
- Poor fuel economy as the ECM may default to a rich fuel strategy.
- Intermittent stalling or difficulty starting in extreme temperatures.
- A slight decrease in engine performance, especially during cold starts.

## Common causes, most likely first

- 1 Damaged or chafed wiring in the manifold temperature sensor circuit, causing the wire to contact ground.
- 2 Corroded or loose electrical connector at the manifold temperature sensor or ECM.
- 3 Internal short to ground within the manifold temperature sensor itself.
- 4 Moisture intrusion into the sensor connector or wiring harness, leading to a short.
- 5 Faulty ECM (rare but possible) with an internal short on the sensor signal circuit.



## How to diagnose and fix it

- 1 Visually inspect the manifold temperature sensor and its wiring for obvious damage, corrosion, or loose connections.
- 2 Disconnect the sensor connector and check for continuity between the signal wire and ground; if continuity exists, repair the short in the wiring.
- 3 Measure the resistance of the sensor with a multimeter and compare to specifications; replace the sensor if out of range.
- 4 Check the sensor reference voltage at the connector with the key on, engine off; if absent, inspect the ECM and wiring for faults.
- 5 Perform a wiggle test on the wiring harness while monitoring sensor signal voltage to identify intermittent shorts.
- 6 Clear the diagnostic trouble codes and verify the repair by test-driving the vehicle and ensuring the code does not return.

## Common Misdiagnosis Traps for P1160

- A short to ground in the manifold temperature sensor circuit can be caused by a pinched wire under the intake manifold, often overlooked during visual inspection.
- The manifold temperature sensor is frequently integrated with the manifold absolute pressure (MAP) sensor on Volkswagen engines, so a faulty MAP sensor can set P1160 even if the temperature element itself is fine.
- Technicians sometimes replace the sensor without checking the wiring, only to find the code returns due to a chafed harness near the engine block.
- P1160 can be set by a poor ground connection at the ECM or engine block, which mimics a sensor short and leads to unnecessary sensor replacement.
- On some Volkswagen models, the manifold temperature sensor shares a circuit with other sensors, so a short in a related component can trigger P1160 along with other codes.

## Can I keep driving with P1160?

You can usually continue driving with P1160, but avoid aggressive acceleration or heavy loads because the ECM may run a default fuel mixture that reduces performance and fuel economy. Have the fault diagnosed soon to prevent potential long-term engine management issues.

## Tools that help

- OBD-II scan tool
- Digital multimeter
- Wiring diagram for the specific Volkswagen model
- Socket set and screwdrivers for sensor removal
- Electrical contact cleaner



## Reading P1160

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

## Often seen with

**P0106** MAP/Barometric Pressure Circuit Range/Performance · **P0107** MAP/Barometric Pressure Circuit Low Input · **P0111** Intake Air Temperature Circuit Range/Performance · **P0112** Intake Air Temperature Circuit Low Input · **P0113** Intake Air Temperature Circuit High Input

## See it working

Watch the animated explainer [How a MAF Sensor Works: Hot-Wire Airflow Explained](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/volkswagen-p1160/>

