

VOLKSWAGEN · POWERTRAIN

P1161

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1161 · Volkswagen

Manifold Temperature Sensor Circuit Open/Short To B+

P1161 on Volkswagen vehicles means the engine control module has detected an open circuit or a short to battery voltage on the manifold temperature sensor signal circuit. The sensor is typically integrated into the intake manifold and reports air temperature to the ECU for fuel and boost calculations. The ECU sets this code when the signal voltage stays outside the expected range for a calibrated time.

SYSTEM

Powertrain

CODE TYPE

Volkswagen specific

SEVERITY

Low

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Slightly rough idle or hesitation when the engine is cold
- Reduced fuel economy due to incorrect air density calculations
- In rare cases, a mild loss of power or poor throttle response
- Intermittent warning light if the wiring fault is temperature or vibration sensitive
- No drivability complaints at all in many cases, especially if the sensor fails open

Common causes, most likely first

- 1 Broken or chafed wire in the manifold temperature sensor signal circuit
- 2 Corroded or loose electrical connector at the sensor or ECU
- 3 Failed manifold temperature sensor (open element or internal short)
- 4 Short to battery voltage in the signal harness, often from rubbing against a hot or sharp component
- 5 Water intrusion into the sensor connector causing corrosion and signal loss
- 6 Faulty engine control module (rare but possible after other causes are ruled out)



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data to confirm P1161 is active and not a stored history code
- 2 Visually inspect the sensor connector and harness for corrosion, chafing, or loose pins
- 3 Measure sensor resistance across its terminals and compare to the manufacturer's temperature chart
- 4 Backprobe the signal wire at the ECU and check voltage with the key on; look for battery voltage indicating a short to B+
- 5 Disconnect the sensor and check for continuity to battery voltage on the signal wire to isolate a short
- 6 Repair or replace the damaged section of harness and clear the code, then verify the sensor reading matches ambient temperature after a cold soak
- 7 If wiring and sensor test good, substitute a known-good sensor and recheck before condemning the ECU

What the manifold temperature sensor really does

- Many technicians replace the manifold temperature sensor when the real fault is a chafed signal wire near the intake manifold or a corroded connector pin.
A short to B+ on the signal circuit can be caused by the harness rubbing against a metal bracket or the battery positive cable, so inspect the entire run, not just the sensor end.
- On some Volkswagen engines the manifold temperature sensor is combined with the manifold absolute pressure sensor in one housing, so a faulty shared connector can set both P1161 and pressure-related codes.
- The ECU may use a default intake air temperature value when the sensor signal is lost, which is why the engine often runs normally and the driver notices only the warning light.
Clearing the code without repairing the wiring will usually result in the code returning after a few drive cycles, especially when the engine bay reaches operating temperature.

Can I keep driving with P1161?

You can generally continue driving with P1161 because the engine control module substitutes a default temperature value and the vehicle remains driveable. Avoid extended heavy-load driving or towing until the fault is repaired, since incorrect air density calculations can affect fuel mixture and emissions.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter with backprobe pins
- Wiring diagram for the specific Volkswagen model
- Temperature sensor resistance chart or repair manual
- Basic hand tools and electrical contact cleaner



Reading P1161

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (Volkswagen): its meaning depends on the make.
- 1** Fuel and air metering.
- 61** 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 [Readiness Monitors and the OBD-II Drive Cycle](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/volkswagen-p1161/>

