

GENERIC · POWERTRAIN

P2031

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2031

Exhaust Gas Temperature Sensor Circuit (Bank 1 Sensor 2)

P2031 indicates that the powertrain control module (PCM) has detected an abnormal signal from the exhaust gas temperature (EGT) sensor located after the catalytic converter on bank 1, which is the side of the engine containing cylinder number one. The PCM monitors this sensor to protect the exhaust system from overheating, and when the signal falls outside the expected range or behaves erratically, it stores this code and illuminates the check engine light.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Fuel and air metering and auxiliary emission controls

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- Reduced engine power or limp mode in some vehicles as a protective measure.
- Poor fuel economy or altered shift patterns if the PCM defaults to a safe strategy.
- In rare cases, a burning smell or visible exhaust smoke if the sensor failure is accompanied by an actual overheating condition.
- Intermittent warning light activation, especially after the engine reaches operating temperature.

Common causes, most likely first

- 1 Faulty exhaust gas temperature sensor (bank 1 sensor 2) due to age, contamination, or internal failure.
- 2 Damaged or corroded wiring harness or connector at the sensor, often from heat exposure or road debris.
- 3 Exhaust leaks upstream of the sensor allowing outside air to affect readings.
- 4 A failing catalytic converter that causes abnormal temperature fluctuations.
- 5 PCM software issues or a faulty PCM driver circuit, though less common.
- 6 Poor electrical connections or ground faults in the sensor circuit.



How to diagnose and fix it

- 1 Use an OBD-II scanner to verify the code and check for related freeze-frame data to understand the conditions when the fault set.
- 2 Visually inspect the sensor, wiring, and connector for damage, corrosion, or loose connections, and repair as needed.
- 3 Check for exhaust leaks near the sensor and repair any leaks that could skew readings.
- 4 Test the sensor's resistance and voltage output according to the manufacturer's specifications using a multimeter.
- 5 Compare the sensor's live data readings with expected values during a test drive to confirm proper operation.
- 6 If the sensor is faulty, replace it with a quality part and clear the codes to verify the repair.
- 7 If the code persists after sensor replacement, diagnose the PCM and its wiring for faults.

Key checks before replacing the EGT sensor

- A common misdiagnosis is replacing the sensor when the real problem is a corroded connector or chafed wire that only acts up when hot.
- Exhaust leaks upstream of the sensor can cause it to read artificially high temperatures, mimicking a sensor failure.
- Some vehicles use the EGT sensor to infer catalytic converter efficiency, so a failing converter can set this code without the sensor being defective.
- The sensor's signal can be affected by aftermarket exhaust modifications or engine tuning that alters exhaust temperatures.
- Always check for technical service bulletins (TSBs) for your specific vehicle, as some models have known issues with sensor placement or software calibration.

Can I keep driving with P2031?

It is generally safe to continue driving with P2031 set, but avoid heavy loads or sustained high-speed driving that could cause exhaust temperatures to rise further. If the check engine light flashes or you notice performance issues, have the vehicle inspected promptly to prevent potential damage.

Tools that help

- OBD-II scanner with live data capability
- Digital multimeter
- Infrared thermometer
- Socket set and wrench set
- Wire repair kit



Reading P2031

- P** Powertrain: engine, transmission and emissions.
- 2** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 0** Fuel and air metering and auxiliary emission controls.
- 31** The exact fault within that area.

Often seen with

P0420 Catalyst System Efficiency Below Threshold (Bank 1) · **P0430** Catalyst System Efficiency Below Threshold (Bank 2) · **P0546** Exhaust Gas Temperature Sensor Circuit High (Bank 1 Sensor 1) · **P2032** Exhaust Gas Temperature Sensor Circuit Low (Bank 1 Sensor 2) · **P2033** Exhaust Gas Temperature Sensor Circuit High (Bank 1 Sensor 2)

See it working

Watch the animated explainer [How a Manual Transmission Works: Four-Speed Cutaway](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2031/>

