



P1111 · GM

Intake Air Temperature Sensor Intermittent High Voltage

P1111 on a GM vehicle means the engine control module (ECM) has seen the intake air temperature (IAT) sensor signal voltage spike intermittently to a level that corresponds to an unrealistically cold intake air reading. The ECM sets this code when the high-voltage condition appears and then disappears often enough to be flagged as intermittent rather than a hard fault.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	GM specific	Low	Intermediate	Fuel and air metering

Symptoms you may notice

- Often no symptoms besides the warning light, because the intermittent glitch is brief and the ECM can default to a substitute temperature value.
- A brief stumble or rough idle that appears and disappears, especially when the engine is cold or the wiring is disturbed.
- Poor fuel economy or slightly rich running if the ECM substitutes a cold default intake air temperature for extended periods.
- A check engine light that comes and goes, sometimes clearing itself after several clean drive cycles.
- Reduced power or sluggish throttle response in some driving conditions when the ECM relies on default values.
- Hard starting or a fast idle on cold mornings if the intermittent signal confuses cold-start fuel calculations.

Common causes, most likely first

- 1 A loose, corroded, or backed-out terminal in the IAT sensor connector or the ECM harness connector.
- 2 A chafed or broken wire in the IAT signal circuit that intermittently opens and drives the voltage high.
- 3 A failing IAT sensor that goes open-circuit internally when hot, cold, or vibrating.
- 4 Water intrusion into the sensor connector or harness, causing intermittent high resistance.
- 5 A poor ground or reference-voltage circuit shared with other sensors that momentarily drops out.
- 6 A faulty ECM driver or internal connection, which is rare but possible after other causes are ruled out.
- 7 Aftermarket wiring repairs or accessories tapped into the IAT circuit that introduce intermittent opens.



How to diagnose and fix it

- 1 Inspect the IAT sensor connector and the ECM harness connector for corrosion, loose pins, and pushed-back terminals, then clean and reseat them.
- 2 Wiggle-test the IAT harness while watching live IAT data on a scan tool to catch an intermittent open circuit.
- 3 Measure IAT sensor resistance with a multimeter and compare it to a temperature-resistance chart for the vehicle.
- 4 Check the IAT signal circuit for continuity and for intermittent opens by flexing the harness along its length.
- 5 Verify the sensor reference voltage and ground at the connector with a multimeter, looking for dropouts.
- 6 Replace the IAT sensor if resistance is out of specification or jumps erratically when tapped or heated.
- 7 Clear the code and perform a drive cycle that includes cold starts and vibration to confirm the repair.

Intermittent IAT faults that fool technicians

- A scan tool that only shows the current IAT value can miss this code entirely, so graphing IAT voltage over a long drive is the fastest way to catch the intermittent spike.
The IAT sensor is often integrated into the mass airflow sensor (MAF) housing on GM engines, so a faulty MAF assembly can set P1111 even though the sensor itself tests fine when cold.
- Harness chafe near the throttle body or air cleaner box is a common hidden cause because the IAT wiring runs through an area with engine movement and heat.
- P1111 does not always mean the sensor is bad; a poor ground shared with the MAP or ECT sensor can pull the IAT signal high intermittently.
Clearing the code without fixing the intermittent open will usually bring it back after several drive cycles, so a repair should always include a wiggle test and a long test drive.

Can I keep driving with P1111?

This is a low-severity fault and the vehicle is generally safe to drive, but avoid long trips or heavy load until the intermittent connection is repaired because the ECM may run on default intake air temperature values. If the check engine light starts flashing or the engine runs poorly, stop driving and diagnose immediately.

Tools that help

- Scan tool with live data and graphing capability
- Digital multimeter
- Back probe pins or breakout leads
- Temperature-resistance chart for the IAT sensor
- Wire terminal pick and contact cleaner



Reading P1111

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

Often seen with

P0101 Mass/Volume Air Flow Circuit Range/Performance · **P0111** Intake Air Temperature Circuit Range/Performance · **P0112** Intake Air Temperature Circuit Low Input · **P0113** Intake Air Temperature Circuit High Input · **P0128** Coolant Thermostat (Coolant Temperature Below Thermostat Reg

See it working

Watch the animated explainer [How a Knock Sensor Works: Spark Timing and Octane](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/gm-p1111/>

