



P1115 · GM

Engine Coolant Temperature Sensor Intermittent

P1115 on a GM vehicle means the engine control module (ECM) has detected an intermittent signal from the engine coolant temperature (ECT) sensor circuit. The ECM expects a steady voltage that changes smoothly with coolant temperature, but the signal momentarily drops out or jumps, so the ECM flags the circuit as unreliable rather than completely failed.

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 fault is intermittent and the ECM may substitute a default coolant temperature value.
- Cooling fans that run constantly or fail to turn on at the correct temperature.
- Poor fuel economy or a rich-running condition when the ECM loses the coolant temperature signal.
- Rough idle or hard starting when the engine is cold, especially on first start of the day.
- An erratic or inaccurate temperature gauge on the instrument cluster.
- Intermittent stalling or a momentary stumble when the signal drops out while driving.

Common causes, most likely first

- 1 A failing engine coolant temperature sensor that goes open or shorts internally as it heat-cycles.
- 2 Corroded, loose, or backed-out terminals in the ECT sensor connector, which is the most common cause on older GM vehicles.
- 3 Chafed or broken wiring between the ECT sensor and the ECM, often near the intake manifold or where the harness flexes.
- 4 A poor ground connection at the sensor or at the ECM ground stud, causing a floating reference voltage.
- 5 Coolant contamination or a low coolant level that exposes the sensor tip and changes its resistance.
- 6 A faulty thermostat that keeps the engine from reaching normal temperature, so the ECM sees a signal outside the expected range.
- 7 Rarely, an internal ECM driver fault on the sensor reference or signal circuit.



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data for P1115, then clear the code and test-drive to confirm whether it returns hot, cold, or after a specific drive cycle.
- 2 Inspect the ECT sensor connector for corrosion, loose pins, and pushed-back terminals, and repair or repin as needed.
- 3 Measure the ECT sensor resistance cold and hot with a multimeter and compare it to the GM temperature-resistance chart for the engine.
- 4 Back-probe the signal wire at the ECM and wiggle the harness while watching live coolant temperature data for dropouts.
- 5 Check the sensor ground circuit for excessive voltage drop and clean or repair the ground if resistance is high.
- 6 Replace the ECT sensor with a quality part and use the correct thread sealant, then clear codes and verify the temperature reading is stable.
- 7 If the wiring and sensor test good, check for a thermostat stuck open and replace it if the engine never reaches operating temperature.

Why intermittent coolant sensor codes fool people

- A sensor that tests perfectly on a cold engine can still fail once it heat-soaks, so always test the ECT circuit both cold and at full operating temperature.
- The ECM often substitutes a fixed coolant temperature value when the signal drops out, which hides the fault from the driver and makes the code the only clue.
- Corroded terminals inside the ECT connector are more common than a failed sensor on high-mileage GM vehicles, so inspect the connector before buying parts.
- A thermostat stuck open can set P1115 because the coolant never warms enough for the ECM to see the expected signal change, even though the sensor itself is fine.
- Wiggling the harness while watching live data is the fastest way to expose a chafed wire that only breaks contact over bumps or during engine movement.

Can I keep driving with P1115?

The vehicle is safe to drive with P1115 because the ECM substitutes a default coolant temperature and the engine will not overheat from this fault alone. Avoid long trips or heavy load until the circuit is repaired, since a rich-running condition can wash cylinder walls and damage the catalytic converter over time.

Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter with back-probe pins
- GM service information or temperature-resistance chart for the ECT sensor
- Terminal pick and connector repair kit
- Infrared thermometer to verify actual coolant temperature



Reading P1115

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

Often seen with

P0115 Engine Coolant Temperature Circuit Malfunction · **P0116** Engine Coolant Temperature Circuit Range/Performance · **P0117** Engine Coolant Temperature Circuit Low Input · **P0118** Engine Coolant Temperature Circuit High Input · **P0128** Coolant Thermostat (Coolant Temperature Below Thermostat Reg

See it working

Watch the animated explainer [Engine Cooling System Trainer: How Engines Stay Cool](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/gm-p1115/>

