

FORD · POWERTRAIN

P1299

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1299 · Ford

Cylinder Head Temperature Sensor Detected Engine Overheating Condition

P1299 is a Ford-specific code that sets when the cylinder head temperature (CHT) sensor reports an overheating condition to the powertrain control module (PCM). The PCM compares the CHT signal against expected values and triggers the code when the sensor indicates the engine has exceeded a safe temperature threshold, often while the gauge may still appear normal.

SYSTEM

Powertrain

CODE TYPE

Ford specific

SEVERITY

High

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering (injector circuits)

Symptoms you may notice

- Check engine light or message center warning illuminated, often with no other noticeable symptoms
- Temperature gauge climbing above normal or fluctuating erratically
- Reduced engine power or limp mode triggered by the PCM to protect the engine
- Coolant boiling or steam from under the hood after a drive
- Poor heater performance or coolant loss with no visible external leak
- Rough running or misfire when the engine is hot

Common causes, most likely first

- 1 Low coolant level due to a leak or improper fill procedure
- 2 Faulty cylinder head temperature sensor or damaged sensor wiring connector
- 3 Stuck closed thermostat preventing coolant circulation
- 4 Air pocket trapped in the cooling system after recent service
- 5 Failed water pump or restricted radiator flow
- 6 Corroded or chafed CHT sensor harness causing a false high reading
- 7 PCM calibration issue or faulty PCM on rare occasions



How to diagnose and fix it

- 1 Check coolant level and condition when the engine is cold, then pressure-test the system for leaks
- 2 Inspect the CHT sensor connector and harness for corrosion, chafing, or loose pins
- 3 Use a scan tool to compare CHT sensor live data against actual coolant temperature with an infrared thermometer
- 4 Test the thermostat for proper opening and verify coolant circulation through the radiator
- 5 Bleed the cooling system properly to remove trapped air, following Ford's fill procedure
- 6 Replace the CHT sensor if resistance testing shows it out of specification
- 7 Verify water pump operation and radiator flow before condemning the PCM

Why P1299 often isn't the sensor

- A significant number of P1299 codes are caused by low coolant or trapped air rather than a failed sensor, so always verify coolant level and bleed the system before replacing parts.
- The CHT sensor is a thermistor that changes resistance with temperature, and a poor connection can mimic an overheating signal even when the engine is at normal temperature.
- Ford's CHT sensor is often located in the cylinder head near the thermostat housing, and on some engines it is difficult to access, leading to misdiagnosis when wiring is disturbed during other repairs.
- A stuck-closed thermostat can cause the CHT sensor to see high temperature before the coolant temperature gauge reacts, so the code may set with a normal-looking gauge.
- After cooling system repairs, air pockets can cause P1299 to return until the system is properly vacuum-filled or bled, which is a common comeback.

Can I keep driving with P1299?

Do not continue driving if the temperature gauge is in the red or steam is visible, as engine damage can occur quickly. If the light is on but the gauge reads normal, drive directly to a repair shop and avoid heavy loads or long trips until the fault is diagnosed.

Tools that help

- OBD-II scan tool with live data capability
- Infrared thermometer
- Cooling system pressure tester
- Multimeter for resistance and continuity testing
- Hose clamp pliers and coolant drain pan



Reading P1299

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

Often seen with

P1285 Fuel Injection Air Control Valve Circuit Short To Ground · **P1285** Accelerator Pedal Positioning Sensor 2 Circuit · **P1290** CNG Fuel Pressure Too High · **P1285** Cylinder Head Over Temp Sensed · **P1290** Cylinder Head Temperature Sensor Signal Less Than Self-Test · **P1285** Fuel Injection Pump Controller Always On · **P1290** CNG Fuel Pressure Too High · **P1285** Switching Solenoid for Air Assisted Injection Valves Bank 1 · **P0117** Engine Coolant Temperature Circuit Low Input · **P0118** Engine Coolant Temperature Circuit High Input · **P0217** Engine Over-Temperature Condition

See it working

Watch the animated explainer [How a MAP Sensor Works: Engine Vacuum and Load](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/ford-p1299/>

