

BMW · POWERTRAIN

P1112

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1112 · BMW

Engine Coolant Temperature Radiator Outlet Sensor High Input

P1112 on BMW vehicles indicates that the engine control module (ECM) has detected an abnormally high voltage signal from the radiator outlet coolant temperature sensor, which is used to monitor the temperature of coolant leaving the radiator. This high input typically means the sensor circuit is open, shorted to voltage, or the sensor itself has failed, causing the ECM to see a temperature reading that is higher than physically possible.

SYSTEM

Powertrain

CODE TYPE

BMW specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering

Symptoms you may notice

- Illumination of the check engine light (CEL) on the dashboard
- Often no symptoms besides the warning light, especially in mild weather
- Electric cooling fan may run continuously or not at all, depending on fail-safe strategy
- Inaccurate or erratic coolant temperature gauge readings on the instrument cluster
- Possible reduced engine performance or fuel economy due to incorrect temperature data
- Overheating in severe cases if the fan control is affected and the engine is worked hard

Common causes, most likely first

- 1 Faulty radiator outlet coolant temperature sensor (internal open circuit or high resistance)
- 2 Damaged or corroded electrical connector at the sensor
- 3 Open or shorted wiring in the sensor circuit (signal or ground side)
- 4 Poor ground connection for the sensor circuit
- 5 Failed engine control module (ECM) driver circuit (rare)
- 6 Coolant contamination or air pockets causing sensor misreading (less common)



How to diagnose and fix it

- 1 Perform a visual inspection of the sensor, connector, and wiring for damage, corrosion, or loose pins
- 2 Use a scan tool to read live data from the radiator outlet temperature sensor and compare with actual coolant temperature after a cold soak
- 3 Check the sensor's resistance with a multimeter and compare to BMW specifications for the ambient temperature
- 4 Backprobe the sensor connector to measure reference voltage (typically 5V) and ground continuity
- 5 Inspect the wiring harness for opens, shorts to voltage, or chafing, especially near hot or moving components
- 6 If wiring and connector are good, replace the radiator outlet temperature sensor with a quality OEM part
- 7 Clear the fault codes and verify the repair by test-driving and monitoring live data for plausible temperature readings

Radiator outlet sensor diagnostics and pitfalls

- A high input code often results from a simple unplugged connector or a broken wire, so always check the harness before condemning the sensor.
- The radiator outlet sensor on BMW models is sometimes confused with the engine coolant temperature sensor; P1112 specifically refers to the sensor at the radiator outlet, not the one on the engine block.
- Coolant leaks or low coolant level can cause air pockets that lead to erratic sensor readings, mimicking a high input fault.
- After replacing the sensor, the ECM may need a adaptation reset or a drive cycle to relearn the temperature curve, otherwise the code may reappear temporarily.
- In some cases, a failing thermostat that sticks closed can cause the radiator outlet temperature to rise abnormally, indirectly setting a high input code if the sensor's range is exceeded.

Can I keep driving with P1112?

It is generally safe to drive with P1112 as long as the engine temperature gauge remains in the normal range and you avoid heavy loads or prolonged idling in hot weather. If the temperature gauge climbs above normal or you notice overheating symptoms, stop driving and have the vehicle inspected immediately to prevent engine damage.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wire piercing probes or backprobe pins
- Socket set and ratchet
- BMW-specific diagnostic software (for advanced testing)



Reading P1112

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

Often seen with

P1111 Oxygen Sensor Control Bank 1 System Too Lean · **P1111** Atmospheric Pressure Sensor High Input · **P1111** System Pass · **P1111** Intake Air Temperature Sensor Intermittent High Voltage · **P1111** System Pass · **P1111** Intake Air Temperature (IAT) Sensor Circuit Intermittent Hig · **P1111** Engine Coolant Temperature Radiator Outlet Sensor Low Input · **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

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/bmw-p1112/>

