



P1117 · BMW

Mass Or Volume Air Flow Circuit Low Input Bank 2

P1117 on a BMW indicates that the engine control module (ECM) has detected a low input signal from the mass air flow (MAF) sensor on bank 2, meaning the sensor's output voltage is below the expected range for the current engine operating conditions. This typically points to a faulty MAF sensor, a wiring issue, or an air leak between the sensor and the throttle body that causes unmetered air to enter the engine.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	BMW specific	Medium	Intermediate	Fuel and air metering

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Rough idle or stumbling, especially when the engine is cold
- Hesitation or flat spot during acceleration
- Reduced engine power and poor throttle response
- Increased fuel consumption due to incorrect air/fuel mixture
- Occasional engine misfire or surging at steady speeds

Common causes, most likely first

- 1 Contaminated or failed mass air flow sensor on bank 2
- 2 Intake air leak between the MAF sensor and throttle body (e.g., cracked intake boot, loose clamp)
- 3 Damaged or corroded wiring or connector at the MAF sensor
- 4 Faulty engine control module (ECM) or software issue (less common)
- 5 Clogged air filter or restricted intake path causing low airflow
- 6 Excessive oil or dirt buildup on the MAF sensing element from aftermarket air filters



How to diagnose and fix it

- 1 Inspect the air intake system for leaks, cracks, or loose connections between the MAF sensor and throttle body
- 2 Check the MAF sensor connector and wiring for corrosion, damage, or loose pins
- 3 Clean the MAF sensor element with a dedicated MAF cleaner and re-test
- 4 Verify air filter condition and replace if clogged
- 5 Use a scan tool to monitor MAF sensor voltage and compare to BMW specifications
- 6 Perform a smoke test to detect unmetered air leaks
- 7 Replace the MAF sensor if cleaning and wiring checks do not resolve the low input signal

Before you replace the bank 2 MAF sensor

- A low input code on a BMW MAF sensor is frequently caused by a torn intake boot or a loose clamp that lets unmetered air into the engine, so always smoke-test the intake before condemning the sensor.
- Oil from an over-oiled aftermarket air filter can coat the MAF hot wire and skew the signal low, so cleaning the element often restores normal operation without parts replacement.
- On some BMW engines, a failing bank 2 MAF sensor can be intermittent and only set the code under specific load or temperature conditions, so road-test with live data to catch the glitch.
- The ECM may set P1117 even when the MAF sensor is functioning correctly if the signal wire has high resistance due to corrosion, so always check voltage drop on the signal circuit.
- A low MAF input can also be caused by a restricted air filter or a collapsed intake hose that limits airflow, so inspect the entire intake tract before assuming the sensor is faulty.

Can I keep driving with P1117?

You can usually drive the vehicle short distances to a repair shop, but avoid heavy acceleration or sustained high speeds because the incorrect air/fuel mixture can cause misfires and damage the catalytic converter over time. If the engine runs very rough or stalls, stop driving and have the vehicle towed.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- MAF sensor cleaner
- Smoke machine for intake leak testing
- Screwdriver set and socket set



Reading P1117

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

Often seen with

P1116 Oxygen Sensor Heater Circuit Open Bank 1 Sensor 1 · **P1115** Oxygen Sensor Heater Circuit Short To Ground Bank 1 Sensor 1 · **P1115** Engine Torque Control Cut Signal Circuit High Input · **P1116** Engine Torque Control Cut Signal Circuit Low Input · **P1116** ECT Sensor Circuit Out Of Self Test Range · **P1115** H02S12 Heater Circuit Low Voltage · **P1115** Engine Coolant Temperature Sensor Intermittent · **P1116** Engine Coolant Temperature Sensor Erratic · **P1115** Intake Air Temperature B (IAT2) Circuit High Input · **P1116** Engine Coolant Temperature Sensor is Out of Self-Test Range · **P1115** Engine Coolant Temperature (ECT) Sensor Circuit Intermittent · **P1116** ECT Signal Unstable Or Intermittent · **P1115** Coolant Temperature Sensor Plausibility · **P1116** Mass Or Volume Air Flow Circuit Range Performance Problem Ba · **P0101** Mass/Volume Air Flow Circuit Range/Performance · **P0174** System Too Lean (Bank 2) · **P0171** System Too Lean (Bank 1)

See it working

Watch the animated explainer [How Variable Valve Timing Works: Cam Phaser and VVT Solenoid](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/bmw-p1117/>

