



P1102 · Mazda

Mass Air Flow Sensor Signal Inconsistent With Throttle Position Sensor

P1102 on Mazda vehicles means the powertrain control module (PCM) has compared the mass air flow (MAF) sensor signal against the throttle position sensor (TPS) signal and found them inconsistent for the current driving conditions. The PCM expects a predictable relationship between throttle opening and measured airflow, and when the MAF reading does not track the TPS reading within calibrated limits, it stores this code.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Mazda 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 unstable engine speed when the throttle is closed or barely open
- Hesitation or stumble during light acceleration from a stop
- Reduced engine power or poor fuel economy as the PCM relies on default airflow estimates
- Occasional surging or uneven power delivery at steady cruising speeds
- In rare cases, an engine stall when coming to a stop or during rapid throttle changes

Common causes, most likely first

- 1 Contaminated or failing mass air flow sensor element causing inaccurate airflow readings
- 2 Vacuum leak between the MAF sensor and throttle body allowing unmetered air into the engine
- 3 Dirty or worn throttle position sensor causing erratic throttle angle reporting
- 4 Wiring damage or poor connections at the MAF sensor or TPS connectors
- 5 Clogged or improperly installed air filter element disturbing airflow across the MAF sensor
- 6 Carbon buildup on the throttle plate changing the relationship between throttle angle and actual airflow
- 7 Failed or leaking intake manifold gasket creating an internal vacuum leak



How to diagnose and fix it

- 1 Inspect the air intake tract for cracks, loose clamps, or disconnected hoses between the MAF sensor and throttle body
- 2 Clean the MAF sensor element with dedicated MAF cleaner and verify the air filter is correct and properly seated
- 3 Check the MAF sensor and TPS connectors for corrosion, backed-out pins, or damaged wiring, and repair as needed
- 4 Use a scan tool to compare live MAF and TPS data against Mazda specifications during idle and light throttle application
- 5 Clean the throttle body and perform a throttle body calibration or idle relearn procedure if carbon buildup is present
- 6 Perform a smoke test on the intake system to locate vacuum leaks that are not visible during a visual inspection
- 7 Replace the faulty MAF sensor or TPS only after electrical and airflow checks confirm the sensor itself is out of specification

What Mazda technicians check before replacing sensors

- A dirty MAF sensor element is the most common cause of P1102 on Mazda engines, and cleaning it with the correct spray often resolves the code without any parts replacement.
- A small vacuum leak downstream of the MAF sensor lets unmetered air into the engine, which skews the MAF-to-TPS relationship and sets this code even when both sensors are functioning correctly.
- Carbon buildup on the throttle plate changes the effective throttle opening at idle, so the PCM sees a TPS angle that does not match the expected airflow and flags the inconsistency.
- After replacing or cleaning the throttle body on many Mazda models, a throttle position relearn or idle calibration with a scan tool is required or the code can return immediately.
- P1102 does not automatically mean the MAF sensor has failed, and replacing it without checking intake integrity and live data frequently leads to a repeat repair.

Can I keep driving with P1102?

The vehicle can usually be driven to a repair shop, but avoid heavy acceleration and sustained high-speed driving until the fault is diagnosed. If the engine hesitates, surges, or stalls, stop driving and arrange a tow to prevent unsafe conditions.



Tools that help

- OBD-II scan tool with live data capability
- MAF sensor cleaner spray
- Digital multimeter for circuit testing
- Smoke machine for intake leak detection
- Basic hand tools for intake and sensor removal

Reading P1102

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

Often seen with

P0101 Mass/Volume Air Flow Circuit Range/Performance · **P0102** Mass/Volume Air Flow Circuit Low Input · **P0103** Mass/Volume Air Flow Circuit High Input · **P0121** Throttle Position Sensor A Circuit Range/Performance · **P0171** System Too Lean (Bank 1)

See it working

Watch the animated explainer [How Crank and Cam Position Sensors Work](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/mazda-p1102/>

