



P1110 · Subaru

Atmospheric Pressure Sensor Low Input

P1110 on a Subaru means the engine control module (ECM) is seeing a lower-than-expected voltage signal from the atmospheric pressure sensor, which is built into the mass air flow (MAF) sensor on most models. The ECM uses this signal to calculate air density for fuel delivery and boost control, so a low reading tells the computer the outside air pressure is lower than it actually is.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Subaru 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 shortly after engine start
- Reduced engine performance or sluggish acceleration
- Poor fuel economy or rich-running condition
- Hard starting or stalling when coming to a stop
- In some cases, the engine may run fine because the ECM substitutes a default pressure value

Common causes, most likely first

- 1 Faulty mass air flow sensor with an integrated atmospheric pressure sensor
- 2 Corroded, loose, or damaged electrical connector at the MAF sensor
- 3 Wiring harness damage (open, short, or high resistance) between the MAF sensor and ECM
- 4 Contaminated sensing element inside the MAF sensor
- 5 Failed ECM (rare, but possible after other causes are ruled out)
- 6 Intake air leaks or restrictions that affect the sensor's reference pressure



How to diagnose and fix it

- 1 Inspect the MAF sensor connector and wiring for corrosion, looseness, or damage; clean and repair as needed
- 2 Check the air intake system for leaks, blockages, or a dirty air filter that could affect sensor readings
- 3 Clean the MAF sensor element with a dedicated MAF cleaner and recheck the code
- 4 Use a scan tool to compare the atmospheric pressure reading with a known good value (e.g., local barometric pressure) and check the sensor's voltage signal
- 5 Perform a voltage drop test on the sensor's power, ground, and signal circuits to rule out wiring faults
- 6 If the sensor signal remains low with good wiring, replace the MAF sensor (which includes the atmospheric pressure sensor)
- 7 After repair, clear the code and verify the atmospheric pressure reading matches actual conditions during a test drive

Atmospheric sensor lives inside the MAF

- On many Subaru models, the atmospheric pressure sensor is not a separate component; it is integrated into the mass air flow sensor, so a P1110 often leads to MAF replacement rather than a standalone sensor.
- A dirty or contaminated MAF sensing element can skew the atmospheric pressure reading, so cleaning the sensor is a valid first step before condemning it.
- Technicians sometimes overlook a poor ground connection at the MAF sensor or ECM, which can cause a low signal voltage without any sensor fault.
- The ECM may substitute a default atmospheric pressure value when the sensor fails, allowing the engine to run almost normally, which is why some drivers notice no symptoms beyond the light.
- P1110 is often accompanied by other MAF-related codes such as P0102 or P0103, and diagnosing those together can save time.

Can I keep driving with P1110?

You can usually continue driving with P1110 because the ECM often substitutes a default value, but avoid heavy acceleration or towing until the fault is repaired. Prolonged driving with a low atmospheric pressure signal can cause rich running, poor fuel economy, and potential damage to spark plugs or the catalytic converter over time.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- MAF sensor cleaner
- Basic hand tools (screwdrivers, socket set)
- Wiring diagram for the vehicle



Reading P1110

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (Subaru): its meaning depends on the make.
- 1** Fuel and air metering.
- 10** 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 · **P0171** System Too Lean (Bank 1) · **P0172** System Too Rich (Bank 1)

See it working

Watch the animated explainer [Car Relay Test Bench: Test 4-Pin and 5-Pin Relays](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/subaru-p1110/>

