



P1124 · Mazda

Throttle Position Sensor Signal Out Of Self Test Range

P1124 on Mazda vehicles means the powertrain control module (PCM) commanded the throttle position sensor (TPS) through its full sweep during a self-test and the returned signal fell outside the expected voltage range. The PCM detected that the TPS output did not rise and fall as predicted, indicating a faulty sensor, wiring problem, or mechanical binding in the throttle body.

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

Symptoms you may notice

- Check engine light illuminated, often with no other noticeable symptoms
- Hesitation or stumble when accelerating from a stop
- Erratic or surging idle quality
- Reduced engine power or limp-home mode in some cases
- Poor fuel economy or altered shift quality on automatic models

Common causes, most likely first

- 1 Worn or contaminated throttle position sensor internal tracks
- 2 Corroded, loose, or damaged TPS connector pins or wiring
- 3 Carbon buildup or mechanical binding in the throttle body preventing full sweep
- 4 Failed TPS reference voltage or ground circuit from the PCM
- 5 PCM software glitch or faulty PCM driver (rare)
- 6 Aftermarket throttle body or TPS with incorrect resistance range

How to diagnose and fix it

- 1 Connect a scan tool and read live TPS voltage while slowly opening the throttle by hand to confirm the signal is erratic or out of range
- 2 Inspect the TPS connector and wiring for corrosion, chafing, or loose pins, and repair as needed
- 3 Clean the throttle body and throttle plate with approved cleaner to remove carbon binding
- 4 Backprobe the TPS reference voltage (typically 5V) and ground circuits to verify they are stable
- 5 Replace the TPS with a quality OEM-equivalent part and perform a throttle position relearn or idle relearn procedure
- 6 If the signal remains out of range after replacement, check for a faulty PCM or wiring harness fault between the TPS and PCM

Why a clean throttle body often fixes P1124

- Carbon buildup on the throttle plate can prevent the TPS from reaching its full self-test sweep, setting P1124 even when the sensor itself is healthy.
- A TPS that tests fine with a multimeter can still fail the PCM self-test because the sweep is too fast for a meter to catch a dropout; use a scan tool with live graphing.
- After replacing the TPS, many Mazda models require a throttle position relearn or idle relearn procedure, and skipping it can cause a repeat P1124 or poor idle.
- Corroded pins at the TPS connector are a common missed cause, especially on older Mazdas exposed to road salt or humidity.
- P1124 can be set by a binding throttle cable or pedal assembly that prevents the throttle plate from moving through its full range during the self-test.

Can I keep driving with P1124?

You can usually drive the vehicle to a repair shop, but avoid aggressive acceleration or heavy load because the PCM may limit power or shift quality. If the engine enters limp-home mode or stalls, stop driving and arrange a tow.

Tools that help

- OBD-II scan tool with live data graphing
- Digital multimeter
- Throttle body cleaner and shop rags
- Basic socket and screwdriver set
- Feeler gauge or feeler picks for connector pin tension

Reading P1124

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

Often seen with

P0120 Throttle Position Sensor A Circuit Malfunction · **P0121** Throttle Position Sensor A Circuit Range/Performance · **P0122** Throttle Position Sensor A Circuit Low Input · **P0123** Throttle Position Sensor A Circuit High Input · **P0507** Idle Control System RPM Higher Than Expected



See it working

Watch the animated explainer [How a Car Thermostat Works: Wax Pellet and Cooling Fan](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/mazda-p1124/>

