

GM · POWERTRAIN

P1891

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1891 · GM

Throttle Position Sensor PWM Signal Low

P1891 on a GM vehicle means the powertrain control module (PCM) has detected that the pulse-width modulated (PWM) signal from the throttle position sensor (TPS) is lower than the expected voltage range for the current throttle angle. The PCM monitors the TPS signal duty cycle and flags this code when the return signal indicates a short to ground, an open circuit, or a sensor that is failing to produce adequate output.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	GM specific	Medium	Intermediate	Transmission

Symptoms you may notice

- Illuminated check engine light or reduced power message on the driver information center
- Hesitation or stumble when accelerating from a stop
- Erratic or surging engine speed at steady throttle
- Transmission may shift harshly or fail to downshift properly
- Often no symptoms besides the warning light, especially if the fault is intermittent

Common causes, most likely first

- 1 Wiring harness damage between the TPS and PCM, such as chafing, corrosion, or a broken wire
- 2 Faulty throttle position sensor with worn internal contacts or a failed PWM circuit
- 3 Poor electrical connection at the TPS or PCM connector, including loose pins or water intrusion
- 4 Failed or contaminated throttle body causing the sensor to read out of range
- 5 PCM internal fault affecting the PWM signal driver circuit
- 6 Aftermarket or incorrect TPS installed that does not match the OEM signal profile



How to diagnose and fix it

- 1 Connect a scan tool and record live TPS voltage and PWM duty cycle while slowly opening the throttle to confirm the low signal
- 2 Visually inspect the TPS connector and wiring for corrosion, loose pins, or chafed insulation, and repair as needed
- 3 Backprobe the TPS signal wire at the sensor and at the PCM to check for a short to ground or an open circuit with a multimeter
- 4 Measure reference voltage and ground at the TPS connector to rule out a supply or ground fault
- 5 Replace the throttle position sensor if the signal is confirmed low at the sensor with good wiring and supply
- 6 Perform a throttle body cleaning and relearn procedure if carbon buildup is affecting sensor sweep
- 7 If all external circuits and the sensor test good, diagnose the PCM for a faulty internal driver before replacement

What Most Techs Miss on P1891

- A common misdiagnosis is replacing the throttle body assembly when the actual fault is a chafed signal wire in the harness near the intake manifold, so always wiggle-test the harness while watching live data.
- The TPS PWM signal can be intermittently low only when the engine is hot or vibrating, so a cold static test may pass and the code may not reset until a specific drive cycle is completed.
- Corrosion inside the TPS connector pins often goes unnoticed because the outside looks clean, and a pin drag test with a terminal tool is the only reliable way to confirm tension.
- This code can be set by a failing PCM ground connection rather than the sensor itself, so checking ground integrity at the engine block and PCM is a worthwhile step before condemning parts.
- On some GM platforms, a low TPS PWM signal can be caused by a faulty accelerator pedal position sensor circuit that shares a reference or ground with the TPS, so review the wiring diagram for shared circuits.

Can I keep driving with P1891?

You can usually drive the vehicle to a repair shop, but avoid aggressive acceleration or heavy loads because the PCM may limit power or shift erratically. If the engine enters reduced power mode or stalls, pull over safely and arrange a tow.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter with backprobe pins
- Terminal test kit for connector pin drag and tension checks
- Wiring diagram for the specific GM model
- Throttle body cleaner and shop rags



Reading P1891

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (GM): its meaning depends on the make.
- 8** Transmission.
- 91** The exact fault within that area.

Often seen with

P0121 Throttle Position Sensor A Circuit Range/Performance · **P0122** Throttle Position Sensor A Circuit Low Input · **P0123** Throttle Position Sensor A Circuit High Input · **P0222** Throttle Position Sensor B Circuit Low Input · **P2135** Throttle/Pedal Position Sensor A/B Voltage Correlation

See it working

Watch the animated explainer [How a Padlock Works: Pin Tumbler Lock in X-Ray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/gm-p1891/>

