

MAZDA · POWERTRAIN

P1400

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1400 · Mazda

DPFE Sensor Circuit Low Input

P1400 on a Mazda means the powertrain control module has detected a low input voltage on the differential pressure feedback exhaust sensor circuit, which monitors the pressure drop across the exhaust gas recirculation system. The computer expects a signal within a specific voltage range and instead sees a value below the acceptable threshold, indicating a short to ground, an open circuit, or a failed sensor.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Mazda specific	Medium	Intermediate	Auxiliary emission controls

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Rough or unstable idle quality, especially when the engine is cold
- Slight hesitation or stumble during light acceleration
- Reduced fuel economy over time as the engine management strategy defaults
- In some cases, a noticeable decrease in engine power or sluggish response
- Intermittent misfire or surging at steady cruising speeds

Common causes, most likely first

- 1 Failed differential pressure feedback exhaust sensor (DPFE sensor) internal short or faulty sensing element
- 2 Damaged, cracked, or disconnected vacuum hose between the exhaust gas recirculation tube and the DPFE sensor
- 3 Corroded, loose, or damaged electrical connector at the DPFE sensor
- 4 Open or shorted wire in the DPFE sensor signal circuit or reference voltage circuit
- 5 Exhaust gas recirculation valve stuck open or carbon-fouled, altering pressure readings
- 6 Plugged or restricted exhaust gas recirculation passage in the intake manifold or exhaust tube
- 7 Faulty powertrain control module, though this is rare and should be diagnosed last



How to diagnose and fix it

- 1 Inspect the DPFE sensor electrical connector and wiring for corrosion, looseness, or damage, and clean or repair as needed
- 2 Check the vacuum hoses connected to the DPFE sensor for cracks, splits, or disconnection, and replace any faulty hose
- 3 Measure the reference voltage at the DPFE sensor connector with the key on and engine off, confirming it matches the manufacturer specification
- 4 Backprobe the DPFE sensor signal wire and compare the voltage reading to the expected value with the engine running at idle and during a snap throttle test
- 5 Test the DPFE sensor itself by applying vacuum and observing signal voltage change, replacing the sensor if it does not respond correctly
- 6 Inspect and clean the exhaust gas recirculation valve and passages for carbon buildup or sticking, repairing or replacing as necessary
- 7 If all circuits and components test good, perform a continuity and short-to-ground test on the signal wire back to the powertrain control module before condemning the module

DPFE sensor low input diagnostics

- A cracked or disconnected vacuum hose at the DPFE sensor is one of the most common causes of a low input code and is often overlooked because the hose can look intact from the outside.
- The DPFE sensor on Mazda engines is heated and can suffer from internal contamination or corrosion from exhaust condensation, which may not show up in a simple resistance check.
- A stuck-open or carbon-fouled EGR valve can create a constant low pressure condition that mimics a failed DPFE sensor, so always verify EGR operation before replacing the sensor.
- Corrosion inside the DPFE sensor connector pins can cause a low signal voltage without any visible damage to the wiring harness, so a thorough pin drag test is essential.
- This code does not always mean the DPFE sensor itself has failed; a short to ground in the signal wire or a faulty reference voltage from the PCM can set the same code.

Can I keep driving with P1400?

You can usually continue driving with this code, but avoid heavy acceleration and towing until it is repaired because the engine may run with reduced EGR function and slightly higher emissions. Prolonged driving with a low input fault can lead to poor fuel economy and potential damage to the catalytic converter over time.



Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Hand vacuum pump with gauge
- Socket and ratchet set
- Wire probe kit or backprobe pins

Reading P1400

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (Mazda): its meaning depends on the make.
- 4** Auxiliary emission controls.
- 00** The exact fault within that area.

Often seen with

P1402 EGR Valve Circuit Short To B+ · **P1401** EGR Valve Power Stage Short To Ground · **P1401** Sub-Throttle Position Sensor Range Performance Problem · **P1401** Fuel Tank Pressure Control System Performance · **P1402** Fuel Level Pressure Sensor Circuit Fault · **P1401** EGR Temperature Sensor · **P1402** EGR System · **P1401** EGR Lifting Sender B283 · **P1401** DPFE Sensor Circuit High Input · **P1402** EGR Valve Position Sensor Circuit · **P1401** EGR Control Solenoid Circuit Signal Low · **P1402** EGR Control Solenoid Circuit Signal High · **P1401** Exhaust Gas Recirculation Valve Position Circuit · **P1401** Differential Pressure Feedback Electronic Sensor Circuit High · **P1402** EGR Metering Orifice Restricted · **P1401** Heated Catalyst Current Too High During Heating Bank 1 · **P1402** Heated Catalyst Power Switch Overtemperature Condition Bank · **P0400** Exhaust Gas Recirculation Flow Malfunction · **P0402** EGR Flow Excessive Detected · **P0401** EGR Flow Insufficient Detected

See it working

Watch the animated explainer [How an EGR Valve Works: Exhaust Gas Recirculation](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/mazda-p1400/>

