

GENERIC · POWERTRAIN

P0EC2

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0EC2

A/C Compressor Motor Phase W Current Sensor Circuit Intermittent/Erratic

P0EC2 means the computer that controls the air conditioning compressor motor has seen the electrical current signal from the phase W current sensor drop out or jump around erratically, rather than reading a steady value. The sensor itself is a hall-effect or shunt device that reports how much current is flowing through one of the motor's three phases, and the controller flags this code when that signal is intermittent or noisy for a set period.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Professional	Hybrid propulsion

Symptoms you may notice

- Often no symptoms besides the warning light, because the system may still run normally between glitches
- Air conditioning that cuts out intermittently or blows warm for short periods
- The compressor may refuse to start on some drive cycles and work fine on others
- A slight shudder or hesitation from the compressor when it engages
- Reduced cooling performance in high ambient temperatures when the controller limits compressor output
- A stored history of related overcurrent or phase-loss codes in the same module

Common causes, most likely first

- 1 A loose, corroded or backed-out terminal in the phase W current sensor connector or its harness
- 2 Chafed or pinched wiring between the sensor and the compressor control module, often near a mounting bracket or heat source
- 3 A failing current sensor inside the compressor inverter assembly, giving an erratic output as it warms up
- 4 Internal solder joint or board-level faults in the compressor control module caused by vibration and heat cycling
- 5 Electrical interference from a failing phase cable or poor shielding on the high-voltage side
- 6 Low or contaminated refrigerant oil causing abnormal compressor load and current spikes that confuse the sensor
- 7 A weak 12-volt supply or ground to the control module that makes sensor readings unstable



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data for P0EC2, then clear the code and test-drive with the A/C on to see whether it returns immediately or only after warm-up
- 2 Inspect the phase W sensor connector and harness for corrosion, loose pins, chafing and heat damage, and wiggle-test the wiring while watching live current data
- 3 Check the sensor reference voltage and ground at the connector with a multimeter, comparing readings to the manufacturer's specification
- 4 Back-probe the sensor signal wire and watch for dropouts or erratic voltage while tapping the harness and warming the compressor
- 5 Verify the 12-volt power and ground at the compressor control module, including voltage drop under load, before condemning any component
- 6 If the signal is erratic at the sensor with good wiring and supply, replace the current sensor or the compressor inverter assembly as a unit
- 7 After repair, clear codes and run the A/C through several full cycles, confirming live current data stays steady and the code does not reset

Why this code is often a wiring fault

- The phase W current sensor is a low-level signal device, so a tiny amount of corrosion or a slightly loose pin can set this code long before the compressor shows any real performance problem.
- Technicians who replace the compressor on the first visit often find the code returns because the actual fault was a chafed signal wire routed near a hot exhaust component or a sharp bracket edge.
- This code can be set by electrical noise from a failing phase cable or a poor high-voltage shield ground, so always inspect the high-voltage cabling and grounds before condemning the sensor.
- A weak or intermittent 12-volt supply to the compressor control module can mimic a sensor fault, so voltage-drop testing the module power and ground is a cheap check that saves expensive parts.
- The code does not always mean the sensor has failed; it can be a symptom of abnormal compressor load from low refrigerant oil or a failing bearing that causes current spikes the sensor reports as erratic.

Can I keep driving with P0EC2?

You can usually keep driving because the fault mainly affects air conditioning comfort, but avoid long trips in hot weather where loss of cooling could become a safety issue. If the compressor starts making noise or the A/C cuts out repeatedly, have it checked promptly to prevent damage to the compressor and control module.



Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter with back-probe pins
- Wiring diagram and connector pinout for the specific vehicle
- Insulated hand tools for high-voltage connector work
- Heat gun or hair dryer for warm-up testing of the sensor and module

Reading P0EC2

P	Powertrain: engine, transmission and emissions.
0	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
E	Hybrid propulsion.
C2	The exact fault within that area.

Often seen with

P0A0A High Voltage System Interlock Circuit A · **P0A94** DC/DC Converter A Performance · **P0EC0** A/C Compressor Motor Phase W Current Sensor Circuit Low · **P0EC1** A/C Compressor Motor Phase W Current Sensor Circuit High · **P0EC3** A/C Refrigerant Temperature Sensor A Circuit

See it working

Watch the animated explainer [How ABS Works: Anti-Lock Brakes in X-Ray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0ec2/>

