

GENERIC · POWERTRAIN

P0EC1

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0EC1

A/C Compressor Motor Phase W Current Sensor Circuit High

P0EC1 indicates that the powertrain control module has detected an abnormally high current in the phase W circuit of the electric A/C compressor motor, which is used in hybrid and electric vehicles. The computer monitors this current via a dedicated sensor and sets the code when the signal exceeds the expected range for the operating conditions.

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

Symptoms you may notice

- The air conditioning may stop blowing cold air entirely or intermittently.
- The A/C compressor may be noisy or emit a burning smell if the high current is due to a short.
- The hybrid or EV system may reduce power or disable the A/C to protect the high-voltage battery.
- A warning light or message on the dash, often indicating an A/C system fault or high-voltage issue.
- In some cases, no symptoms besides the warning light, especially if the fault is intermittent.

Common causes, most likely first

- A faulty current sensor on the phase W circuit of the compressor motor.
- Damaged or chafed wiring in the phase W circuit, causing a short to power or ground.
- A shorted or partially shorted stator winding in the A/C compressor motor.
- A failing A/C compressor inverter or control module, which can distort current signals.
- Poor electrical connections or corrosion at the compressor motor connector.
- A software glitch in the powertrain control module that misinterprets the current signal.

How to diagnose and fix it

- Perform a visual inspection of the compressor motor wiring and connectors for damage, corrosion, or loose pins.
- Use a scan tool to check for related codes and freeze-frame data to confirm the fault conditions.
- Measure the resistance of the phase W circuit and compare to specifications to rule out an open or short.
- Check the current sensor signal with an oscilloscope or multimeter to verify it is within the expected range.
- If the sensor and wiring are good, test the compressor motor windings for shorts or grounds.
- Repair or replace any damaged wiring or connectors as needed.
- If the compressor motor or inverter is faulty, replace the A/C compressor assembly and clear the code.



High-Voltage A/C Compressor Current Traps

- This code often appears after jump-starting or battery charging, which can spike the current sensor signal and set a false high-current fault.
- A weak 12-volt battery can cause the compressor inverter to malfunction and set this code, so always load-test the battery before condemning the compressor.
- The phase W current sensor is sometimes integrated into the compressor inverter, so a sensor failure may require replacing the entire compressor assembly.
- Intermittent wiring chafing near the compressor mount is a common cause that only shows up when the engine or suspension moves, so wiggle-test the harness while monitoring live data.
- This code does not always mean the compressor is bad; a poor ground connection at the compressor body can cause the current to spike and set the code.

Can I keep driving with P0EC1?

You can usually drive the vehicle with this code, but the A/C may not work and the system could disable high-voltage components to protect itself. Avoid using the A/C and have the fault diagnosed soon to prevent further damage to the compressor or inverter.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Oscilloscope
- Insulation tester (megohmmeter)
- Wiring diagram and service information

Reading P0EC1

P	Powertrain: engine, transmission and emissions.
0	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
E	Hybrid propulsion.
C1	The exact fault within that area.

Often seen with

P0532 A/C Refrigerant Pressure Sensor 'A' Circuit Low · **P0A93** Inverter A Cooling System Performance · **P0EC0** A/C Compressor Motor Phase W Current Sensor Circuit Low · **P0EC2** A/C Compressor Motor Phase W Current Sensor Circuit Intermit · **P0EC3** A/C Refrigerant Temperature Sensor A Circuit



See it working

Watch the animated explainer [Excavator Simulator: Hydraulics You Can Operate](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0ec1/>

