



P0E21

Hybrid/EV Battery Pack Coolant Control Valve B Control Circuit Driver Current/Temperature Too High

P0E21 indicates that the hybrid or electric vehicle battery pack coolant control valve B has a driver circuit that is reporting excessive current or temperature. The battery energy control module detects this condition when the valve's driver circuit draws more current than expected or the driver's internal temperature rises too high, which can prevent proper coolant flow to the high-voltage battery.

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

Symptoms you may notice

- Illumination of the check engine light or service vehicle soon message
- Reduced hybrid system performance or a forced limp mode
- The vehicle may refuse to start or enter ready mode
- Overheating of the high-voltage battery pack, which may trigger additional warnings
- Often no symptoms besides the warning light, especially if the fault is intermittent

Common causes, most likely first

- 1 A shorted or internally damaged coolant control valve B actuator
- 2 Damaged or chafed wiring in the valve driver circuit causing a short to ground or power
- 3 Corroded or loose electrical connectors at the valve or control module
- 4 A failed driver circuit inside the battery energy control module
- 5 Coolant contamination or debris causing the valve to seize and overload the driver
- 6 Excessive ambient heat or poor module cooling leading to driver overtemperature



How to diagnose and fix it

- 1 Scan all modules for stored and pending codes, and record freeze-frame data to understand when the fault occurs
- 2 Visually inspect the coolant control valve B, its connectors, and the wiring harness for damage, corrosion, or loose pins
- 3 Measure resistance and voltage on the valve driver circuit to check for shorts or open circuits, comparing to manufacturer specifications
- 4 Command the valve through a scan tool bidirectional test to verify mechanical operation and observe driver current
- 5 Check coolant level, condition, and flow to ensure the valve is not mechanically binding
- 6 If the circuit and valve test good, test or replace the battery energy control module as the driver may be internal to it
- 7 Clear codes and perform a road test to confirm the repair, monitoring live data for driver current and temperature

Valve driver faults often misdiagnosed as valve failure

- A shorted valve actuator can damage the driver circuit in the control module, so replacing only the valve may lead to a repeat failure if the module is not checked.
- Intermittent wiring rubs near hot exhaust or battery pack components can cause this code without any permanent valve fault, so wiggle tests and harness inspection are critical.
- Some vehicles use a shared driver for multiple valves, and a fault in one valve can set codes for others, so always check related circuits before condemning parts.
- The code can be set by a driver overtemperature condition that occurs only during prolonged high-load driving, which may not be reproducible in a short test drive.
- After repairs, some systems require a coolant valve calibration or battery pack cooling system bleed procedure to prevent recurrence of the code.

Can I keep driving with P0E21?

Do not continue driving with this code because a failed coolant control valve can lead to overheating of the high-voltage battery, which may cause reduced power, shutdown, or permanent battery damage. Have the vehicle inspected by a qualified hybrid technician as soon as possible, and avoid heavy loads or long drives until repaired.



Tools that help

- OBD-II scan tool with hybrid-specific bidirectional controls
- Digital multimeter with min/max recording
- Wiring diagram and service information for the specific vehicle
- Back probe kit and terminal test tools
- Insulation resistance tester (megohmmeter)

Reading P0E21

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

Often seen with

P0A0D High Voltage System Interlock Circuit A High · **P0A1F** Battery Energy Control Module A Performance · **P0C76** Hybrid/EV Battery System Discharge Time Too Long · **P0E20** Hybrid/EV Battery Pack Coolant Control Valve A Control Circu · **P0E22** Hybrid/EV Battery Pack Coolant Control Valve C Control Circu

See it working

Watch the animated explainer **Four-Stroke Engine Cutaway: Intake to Exhaust** on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0e21/>

