

GENERIC · POWERTRAIN

P2B21

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2B21

Hybrid/EV Electronics Coolant Temperature Sensor B Range/Performance

P2B21 indicates that the hybrid or electric vehicle's electronics coolant temperature sensor B is reporting a signal outside its expected range or behaving erratically. The computer compares the sensor's voltage against known limits and other temperature inputs, and it flags this code when the reading is implausible or inconsistent.

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

Symptoms you may notice

- Illumination of the check engine light or service vehicle soon message
- Often no symptoms besides the warning light
- Reduced power or limp mode if the vehicle limits operation to protect electronics
- Cooling fan running constantly or not at all
- Inaccurate or fluctuating coolant temperature gauge reading
- Possible overheating warning if the sensor under-reports temperature

Common causes, most likely first

- 1 Faulty electronics coolant temperature sensor B
- 2 Damaged or corroded wiring or connector at the sensor
- 3 Coolant level low or air pockets in the cooling system
- 4 Sensor signal circuit shorted to ground or power
- 5 Failed thermostat or cooling system restriction causing abnormal temperature behavior
- 6 Faulty hybrid/EV control module or sensor reference voltage issue

How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data for P2B21 and any related codes
- 2 Visually inspect sensor B, its connector, and wiring for damage or corrosion
- 3 Check coolant level and bleed the cooling system if air is suspected
- 4 Measure sensor resistance or voltage and compare with manufacturer specifications
- 5 Backprobe the signal circuit to verify voltage changes with temperature
- 6 Check for shorts or opens in the sensor wiring between the sensor and control module
- 7 Replace the sensor if testing confirms it is out of specification, then clear codes and verify



Sensor B faults often misdiagnosed

- A low coolant level or trapped air can cause the sensor to read erratically and set P2B21 even when the sensor itself is good.
- On many hybrids, sensor B monitors a separate electronics cooling loop, so a fault in that loop's pump or thermostat can mimic a sensor failure.
- Technicians sometimes replace the sensor without checking the reference voltage from the control module, which can be skewed by a shorted signal wire.
- The code can be set by a momentary glitch during a cold start, so always check for history or pending status before condemning parts.
- After repairs, the cooling system must be properly bled; trapped air can cause the new sensor to read incorrectly and set the code again.

Can I keep driving with P2B21?

You can usually drive the vehicle short distances to a repair shop, but avoid heavy acceleration or long trips because a faulty temperature reading can lead to overheating of the electronics. If the vehicle enters limp mode or shows a high-temperature warning, stop driving and seek service.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Backprobe pins or breakout box
- Coolant refractometer or hydrometer
- Service information for sensor specifications and bleeding procedure

Reading P2B21

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

Often seen with

P0A93 Inverter A Cooling System Performance · **P0C73** Hybrid Battery Pack Cooling Pump Performance · **P2B20** Hybrid/EV Electronics Coolant Temperature Sensor B Circuit · **P2B22** Hybrid/EV Electronics Coolant Temperature Sensor B Circuit L



See it working

Watch the animated explainer [Engine Cooling System Trainer: How Engines Stay Cool](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2b21/>

