

GENERIC · NETWORK

U0401

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

U0401

Invalid Data Received From ECM/PCM

U0401 is a communication fault where a control module receives data from the engine control module (ECM) or powertrain control module (PCM) that it considers invalid or implausible. The receiving module has detected that the ECM/PCM is sending messages that fail its internal validity checks, such as missing expected data, out-of-range values, or incorrect message counters.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Network	Generic (all makes)	Medium	Professional	Invalid data received from a module

Symptoms you may notice

- Illumination of the malfunction indicator lamp (MIL) with no noticeable change in vehicle behavior
- Multiple warning lights on the dashboard, especially those tied to systems that share data with the ECM/PCM
- Intermittent stalling, rough running, or reduced power if the invalid data affects engine operation
- Transmission shifting erratically or entering limp mode due to unreliable engine data
- Non-starting condition if the ECM/PCM data is required for immobilizer or start authorization
- Often no symptoms besides the warning light, especially if the fault is intermittent

Common causes, most likely first

- 1 Corroded, loose, or damaged wiring or connectors on the controller area network (CAN) bus between the ECM/PCM and the module setting the code
- 2 Failing ECM/PCM, often due to internal circuit faults or water intrusion
- 3 Low battery voltage or poor charging system performance causing the ECM/PCM to send corrupted data
- 4 Aftermarket electronic devices or poor installations that introduce electrical noise onto the CAN bus
- 5 Software incompatibility or calibration mismatch between modules after a replacement or update
- 6 Open or shorted CAN bus lines, including chafed harnesses or failed terminating resistors



How to diagnose and fix it

- 1 Record all stored codes and freeze-frame data, then clear codes and test-drive to see if U0401 returns immediately or intermittently
- 2 Perform a battery and charging system test to rule out low voltage as the root cause of corrupted data
- 3 Inspect and wiggle-test the CAN bus wiring and connectors between the ECM/PCM and the module that set the code, looking for corrosion, pushed pins, or chafing
- 4 Measure CAN bus resistance and voltage levels with a digital multimeter to check for bus faults or termination issues
- 5 Use a scan tool to monitor live data from the ECM/PCM and verify that reported values are plausible and update correctly
- 6 Check for technical service bulletins (TSBs) or software updates for the affected modules that address communication or data validity issues
- 7 If all wiring and power supplies check out, substitute a known-good ECM/PCM or perform module reprogramming as a final step

What U0401 really tells you about the ECM

- U0401 does not automatically mean the ECM/PCM is bad; the fault is set by the receiving module, so the problem often lies in the communication path or power supply rather than the ECM itself.
- A weak or failing battery can cause U0401 because the ECM/PCM may boot up slowly or send corrupted messages during low-voltage events, especially in cold weather.
- Aftermarket alarms, remote starters, or poorly installed accessories tapped into the CAN bus are a frequent hidden cause of invalid data codes that disappear after the device is removed.
- Some vehicles set U0401 as a companion code when another module on the bus is flooding the network with invalid messages, so always check for other U-codes before condemning the ECM.
- Intermittent U0401 that never returns after clearing is often caused by a one-time low-voltage event or a loose connector that was disturbed during service, so a thorough road test with live data monitoring is essential.

Can I keep driving with U0401?

If the vehicle runs normally and only the warning light is on, you can drive it to a workshop for diagnosis, but avoid long trips or heavy load until the fault is checked. If the engine stalls, runs poorly, or the transmission behaves erratically, stop driving and have the vehicle towed to prevent unsafe operation.

Tools that help

- OBD-II scan tool with live data and CAN bus monitoring capability
- Digital multimeter with CAN bus voltage and resistance measurement functions
- Wiring diagram and connector pinout for the affected vehicle
- Battery tester and charging system analyzer
- Oscilloscope for advanced CAN bus signal analysis



Reading U0401

- U** Network: communication between the vehicle's control modules.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 4** Invalid data received from a module.
- 01** The exact fault within that area.

Often seen with

P0600 Serial Communication Link Malfunction · **U0100** Lost Communication With ECM/PCM A · **U0101** Lost Communication with TCM · **U0121** Lost Communication With Anti-Lock Brake System (ABS) Control · **U0140** Lost Communication With Instrument Panel Cluster

See it working

Watch the animated explainer [How Coil-on-Plug Ignition Works: Coil and Spark Plug](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/u0401/>

