

GENERIC · NETWORK

U05A3

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

U05A3

Invalid Data Received From Reductant Quality Module

U05A3 means the module that monitors diesel exhaust fluid (DEF) quality is sending data the engine control module (ECM) considers invalid or missing. The ECM has lost a reliable quality reading from the reductant quality sensor, so it cannot confirm the DEF concentration is correct for emissions control.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Network	Generic (all makes)	Medium	Professional	Network communication

Symptoms you may notice

- Malfunction indicator lamp (MIL) illuminated, often with a message about DEF quality or emissions system service
- No noticeable change in engine performance in many cases, especially if the fault is intermittent
- Possible reduced engine power or speed limitation after a number of drive cycles, depending on the manufacturer's strategy
- DEF quality or range warnings displayed in the driver information center
- Possible inability to clear the warning light with a simple scan tool reset
- Rough running or poor fuel economy only if the fault is accompanied by other emissions-related failures

Common causes, most likely first

- 1 Faulty reductant quality sensor or its internal electronics
- 2 Damaged, corroded, or disconnected wiring between the reductant quality sensor and the control module
- 3 Water or contamination in the DEF tank affecting the sensor's ability to report quality
- 4 Failed or failing DEF quality control module (where the sensor is a separate module)
- 5 Software or calibration issue in the ECM or reductant quality module requiring an update
- 6 Poor electrical ground or power supply to the reductant quality module
- 7 Aftermarket or incorrect DEF fluid causing the sensor to report out-of-range values



How to diagnose and fix it

- 1 Connect a scan tool and record all stored and pending codes, then check for any related communication or sensor codes before clearing anything
- 2 Inspect the DEF tank level and condition, and verify the fluid meets the manufacturer's specification using a refractometer if available
- 3 Visually inspect the reductant quality sensor connector and harness for corrosion, chafing, or loose pins, and repair as needed
- 4 Check power and ground circuits at the reductant quality module with a multimeter and verify voltage drops under load
- 5 Perform any available manufacturer-recommended software updates or recalibrations for the ECM or reductant quality module
- 6 If wiring and fluid are good, substitute a known-good reductant quality sensor or module to confirm the fault
- 7 After repair, clear codes and complete a drive cycle to verify the monitor runs and the code does not return

What the DEF quality sensor really reports

- The reductant quality sensor does not measure DEF concentration directly in all systems; some infer quality from acoustic or electrical properties, so contamination or aeration can set this code without any sensor failure.
- A weak or failing battery or charging system can cause the reductant quality module to send invalid data, so always check system voltage before condemning the sensor.
- This code can be stored by a module that is not the ECM, so scanning all modules is essential to avoid replacing the wrong part.
- Aftermarket DEF or diluted DEF is a common cause that technicians miss because the fluid looks clean and the tank is full.
- U05A3 often appears alongside communication codes on the same serial data bus, pointing to a shared wiring or ground issue rather than the sensor itself.

Can I keep driving with U05A3?

The vehicle is generally safe to drive short distances, but prolonged driving with an active U05A3 can lead to reduced engine power or a no-start condition as the emissions strategy escalates. Avoid towing heavy loads or long highway trips until the fault is diagnosed and repaired.

Tools that help

- OBD-II scan tool with manufacturer-level module access
- Digital multimeter
- Refractometer for DEF quality testing
- Wiring diagram and connector pinout for the reductant quality circuit
- Breakout box or back-probe kit for circuit testing



Reading U05A3

- U** Network: communication between the vehicle's control modules.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 5** Network communication.
- A3** The exact fault within that area.

Often seen with

P207F Reductant Quality Performance · **P20B9** Reductant Heater A Control Circuit/Open · **P20BD** Reductant Heater B Control Circuit/Open · **U05A2** NOx Sensor B Received Invalid Data From ECM/PCM · **U05A4** Particulate Matter Sensor Received Invalid Data From ECM/PCM

See it working

Watch the animated explainer [Disc Brake Trainer: How Car Brakes Stop a Wheel](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/u05a3/>

