



DEF Level (UQLS) Sensor Troubleshooting Guide - US17+OBD16 Emissions and Newer



> Internal Content

Overview

The Urea Quality Level Sensor (UQLS) is a smart sensor that is located in the top of the Urea (DEF) Tank, commonly referred to as the DEF Level Sensor or Combined Tank Unit. This smart sensor has Urea Quality, Level, and Temperature all integrated into it as one unit and reports on the DL7 (J1939-7) Datalink. This sensor is responsible for sending all the urea information to the Aftertreatment Control Module (ACM) and Engine Control Module (ECM).

Diagnosis and Repair

Perform a DTC Readout and Review Codes

If any of the codes in yellow below appear on the Readout in Active or Confirmed status: Continue to the diagnostic steps in the following section.

DTC	DTC Description
P205B64	Reductant Tank Temperature Sensor, Circuit Range/Performance
P203A13	Reductant Level Sensor "A", Open Circuit
P203C00	Aftertreatment Reagent Level, Short Circuit Low
P206A13	Reductant Quality Sensor, Open Circuit
P206C00	Reductant Quality Sensor, Short Circuit Low
P206B64	Reductant Quality Sensor Range/Performance
P205A13	Reductant Tank Temperature Sensor, Open Circuit
P205C00	Aftertreatment Reagent Tank Temperature, Short Circuit Low



DO NOT REPLACE the DEF Level Sensor for any of the codes

in green below: DO NOT proceed with the diagnostics steps in this solution. None of these codes immediately indicate a failed DEF Level Sensor. Use the table in conjunction with PTT's Guided Diagnostics to find the root cause.

DTC	DTC Description	Probable Source
P203F00	Reductant Level Low	Commonly low DEF quantity or level sensor float in DEF tank stuck
P203B00	Aftertreatment Reagent Level Warning	System fault. Follow Guided Diagnostics.
U02A200	Lost Communication with Reductant Quality Module	Commonly a wiring harness or connection issue.
P24FF00	Reductant Temperature Too High	DEF tank temp above 70°C (160°F). Commonly the coolant lines to the DEF tank are swapped.
P207F00	Reductant Quality	DEF quality low and SCR efficiency low. Commonly a DEF quality issue.

Diagnostic Steps For Yellow Codes

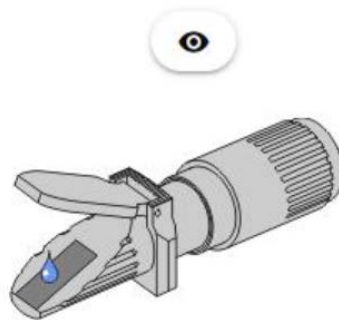
1. Check the sensor wiring harness connection.

- Disconnect the harness and make sure there is no damage to the wires or pins, corrosion, or water ingress in either of the connectors. If damage is found replace in accordance with FSB 258-040.



2. Verify the DEF quality is at an acceptable value.

- Use refractometer part number 88890105 to verify the DEF quality. See illustration below.



3. Verify that the DEF tank is not frozen.
4. Ensure that the DEF tank is adequately filled.
5. Clear the Fault Codes.
6. Start the engine. Run the engine on high idle for 2 minutes at 1000 rpm or higher.
7. Turn the Engine Off, Key Off for 15 seconds.
8. Start the engine. Run the engine on high idle for 2 minutes a second time.

Evaluate the Results

If any of the faults shown in the yellow chart above return active:
Replace the DEF Level Sensor in accordance with Impact instructions and the wires routed as shown in FSB 258-040.

If none of the faults in the yellow chart above return: No troubleshooting or replacement of the DEF Level Sensor is necessary.



Rules for Replacement

- Warranty will only cover replacement of the UQLS if one of the codes in Yellow section above is present. If the UQLS is suspected to have failed with no codes present, an eService case is required for further

evaluation.

- Standard Diagnostic Time for a DEF Level Sensor is 0.6 hrs.

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