



Agilent Technologies

CE Specific Error Codes and Troubleshooting Advice

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CE Specific Error Codes and Advice

[EL 0063 Error: Serious Error In Other Module](#)

- o Is the DAD sending a shutdown signal to the CE?
- o Is the APG cable defective?
- o Check for error in any module connected by APG.
- o See “DAD Troubleshooting By Symptom” on page 156.

[EL 0064 Error: Leak Detected](#)

- o Has a leak reached the CE leak detector?
- o Is the CE leak detector defective or disconnected?
- o See “DAD Troubleshooting By Symptom” on page 156.

[EL 5001 System Initialization Failed - Timeout Occurred](#)

- o Check for correct movement of the lift assemblies and tray.
- o Has the Lamp ignited?
- o Check electronics of CE module and detector.

[EL 5002 System Initialization Failed - Hardware Crash](#)

- o Defective tray:
 - motor?
 - connectors unplugged?
 - broken or loose belt?
 - PDV board?

System Hardware Troubleshooting
CE Specific Error Codes and Advice

- o Defective lift:
 - motor?
 - connectors unplugged?
 - lift head problem?
 - PDV board?
jammed vial?

EL 5103 Error: PDV Board Lost External Bits

- o Electronics problem. Replace PDV board.

EL 5104 Error: Cover was Opened While High Voltage was Applied

- o Check top cover for proper alignment.

EL 5108 Error: Tray Blocked; Didn't Move Correctly

- o Belt broken or loose?
- o Jammed vial?
- o Lift head defective?
- o Instrument turned off while lift was moving?

EL 5109 Error: Inlet Lift Failed to Move

- o PDV board defective?
- o Bad connections?
- o Mechanical blockage?
- o Replace or repair lift assembly.

EL 5110 Error: Outlet Lift Failed to Move

- o Motor defective?
- o PDV board defective?
- o Bad connections?
- o Mechanical blockage?
- o Replace or repair lift assembly.

EL 5111 Error: Repl Lift Failed to Move

- o Motor defective?
- o PDV board defective?
- o Bad connections?
- o Replace or repair lift assembly. Don't forget the limiter ring and the metal lifthead screw.

EL 5117 Error: HV Current Below Minimum Limit

- o Is the current low limit set too low?
- o Insufficient capillary conductivity due to:
 - wrong or old buffer?
 - air bubbles in capillary?
 - plugs?
 - cracks?
 - inoperative flush function?
 - plugged inlet pre-puncher air fitting?
 - general problem with capillary flushing?
 - air bubbles in vials?

System Hardware Troubleshooting
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- o Check HVT board for correct operation in both + and - modes.
- o High Voltage Power Supply defective?

EL 5119 Error: Vial Conflict During Parallel Repl/precon.

- o Edit repl and/or precon tables; verify with “simulation”.

EL 5120 Error: Timeout During Replenishment of a Vial

- o Use the diagnostic disk to check the value of the levelsensor in both states; at least 210 mbar with levelsensor valve deactivated, and between 10 and 50 mbar with levelsensor valve activated.
- o Replenishment needles plugging due to high salt or SDS concentrations? Operate with a water vial in position# 49.
- o Try to clear buffer plugs with Clean Levelsensor and Clean Tubes functions.
- o Empty/ fill valves ok? Replace liquid valve assembly.
- o A and B plastic tubes tight, and correctly located, at the replenishment needle assembly and the liquid valve assembly?

EL 5121 Error: Timeout During Injection

- o Problem related to system pressure/vacuum.
- o Defective vial cap?
- o Leak between pre-puncher and electrode?

EL 5122 Error: Area Out of Limits During Injection

- o For pressure injections:
 - Defective vial cap?
 - Leak between pre-puncher and electrode?

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- o For electrokinetic injections:
 - Voltage/time combination is not possible for the electronics to do? Decrease the voltage or increase the time, or do both proportionately.

EL 5123 Tray Segment is Missing

- o Replace the missing tray segment.
- o Check the operation of the replenishment lift assembly. Lift finger lowering correctly?

EL 5124 Inlet Vial Missing

- o The presence of a vial is checked if flush or injection is requested.

EL 5125 Replenishment Vial Missing

- o The presence of a vial is checked if any replenishment lift vial operation is requested.

EL 5126 Attempt to Move Tray While Tray Door is Open

- o Close the tray door.
- o Check the alignment of the tray door and the operation of the Status board.

EL 5127 Cassette Fan Switched Off

NOTE

The cassette fan will not resume turning until the top cover is closed, and the detector has successfully completed a calibration.

- o Top cover opened during a run?
- o Check top cover for correct alignment.
- o Check the operation of the Status board.
- o “Cassette not recognized” in effect, check position of cassette and interface.

EL 5128 Outlet Vial Missing

- o Outlet vial was not specified (no physical check is made for the outlet vial).

EL 5129 Error: Sensor Offset Not Adjustable

- o EMS board sensor(s) defective.
- o HVT board defective.

EL 5130 System Pressure Leak Out of Limits

- o General problem with system pressure/vacuum.
- o Vial cap defective?
- o Leak between pre-puncher and electrode?

EL 5131 Power Limit For Servo Motor Exceeded

- o Defective servo motor or mechanical blockage.

EL 5132 Error: HV Return Cable Not Connected

- o Check for correct connection of the HV return wire at the CE motherboard.

EL 5133 Error: HV Measured, But Voltage Set to Zero

- o HVT board defective.
- o HVPS defective.
- o ELC board 8 A fuse open.

EL 5134 Error: Tray Restart Failed

- o Tray motor (both cables) connected ok?
- o Tray motor defective

EL 5135 Error: Inlet Lift Restart Failed

- o Inlet lift motor (both cables) connected ok?
- o Inlet lift motor defective.

EL 5136 Error: Outlet Lift Restart Failed

- o Outlet lift motor (both cables) connected ok?
- o Outlet lift motor defective.

EL 5137 Error: Replenishment Lift Restart Failed

- o Replenishment lift motor (both connectors) connected ok?
- o Replenishment lift motor defective.

EL 5138 Error: Tray Servo Timed Out

EL 5139 Error: Inlet Lift Servo Timed Out

EL 5140 Error: Outlet Lift Servo Timed Out

EL 5141 Error: Replenishment Lift Servo Timed Out

[EL 5207 Error: Airpump Failed to Generate Pressure](#)

- o If EL 5210 is also present, first see the advice for EL 5210 below. If only EL 5207 is present, continue with the advice immediately below.
- o Check the accompanying 5500 series code to determine when the error occurred.
- o Use the adjust pressoffset diagnostic disk function to determine the ramp-up time for initial pressure; greater than 330 seconds results in the error.
- o Use the diagnostic disk to activate the rise valve; measure the pressure regeneration

System Hardware Troubleshooting

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- o time with an empty buffer bottle. Greater than 60 seconds results in the error.
- o Check:
 - loose/defective buffer vial cap.
 - defective bottle sealing surface.
 - crimped or loose tubes in the P/V system.
 - poorly installed airpump foam box.
 - defective valves.

EL 5208 Error: Airpump Failed to Generate Vacuum

- o If EL 5209 is also present, first see the advice for EL 5209. If only EL 5208 is present, continue with the advice immediately below.
- o Check the accompanying 5500 series code to determine when the error occurred.
- o Use the adjust pressoffset diagnostic disk function to determine the ramp-up time for initial vacuum; greater than 330 seconds results in the error.
- o Use the diagnostic disk to activate the fall valve; measure the vacuum regeneration time with an empty waste bottle. Greater than 330 seconds results in the error. Less than 1 second shows “Waste Bottle Full” message.
- o Does the error occur only with more than 400 ml in the waste bottle? Empty the waste bottle.
- o Does the error occur with less than 400 ml in the waste bottle? Check if the instrument has a vacuum sensor restrictor installed.
- o Check:
 - loose/defective waste bottle cap.
 - defective airpump.
 - crimped or loose tubes in the P/V system.
 - poorly installed airpump foam box.
 - defective valves.

EL 5209 Error: Vacuum Below Alarm Limit

[EL 5208 will also be present.](#)

- o Check the accompanying 5500 series code to determine when the error occurred.
- o This error is caused by vacuum in the waste bottle falling below the alarm limit of 300 mbar.
- o Check:
 - was the waste bottle removed during operation without the change bottles function?
 - very bad seal at the waste bottle cap?
 - loose tubes or fittings?

EL 5210 Error: Pressure Below Alarm Limit

[EL 5207 will also be present.](#)

- o Check the accompanying 5500 series code to determine when the error occurred.
- o This error is caused by pressure in the buffer bottle falling below the alarm limit of 675 mbar.
- o Check:
 - was the buffer bottle removed during operation without the change bottles function?
 - very bad seal at the buffer bottle cap?
 - loose tubes or fittings?

EL 5213 Error: External Pressure above 13 bar

Unfortunately this error message has no description in the logbook.

- o Check the external pressure setting in the gas manifold where it is connected to.

[EL 5303 Error: Cassette Temperature Raised too High](#)

- o This error is caused by a defective reading of one of the three sensors in the Peltier

temperature control module. Use the Temp sensors diagnostic disk function to read the value of the three sensors.

- o Check:
 - Peltier hot-side cooling fan running ok?
 - Peltier device defective?
 - HVT board defective?
 - Peltier device sensor wires loose or incorrectly placed on the TDR board?
 - TDR board defective?

The following 5500 series error codes indicate in which instrument state another error occurred.

EL 5500 Error: Error Occurred During Prerun

EL 5501 Error: Error Occurred During Startrequest

EL 5502 Error: Error Occurred During Replenish

EL 5503 Error: Error Occurred During Precondition

EL 5504 Error: Error Occurred During Inject

EL 5505 Error: Error Occurred During Readywait

EL 5506 Error: Error Occurred During Run

EL 5507 Error: Error Occurred During Postrun

EL 5508 Error: Error Occurred During Postcondition

DAD Specific Error Codes and Advice

ED 0062 Error: Detector Timeout Occurred

- o Check timeout parameter in sequence parameters.
- o Check for unwanted delay between runs in CE.
- o See “DAD Troubleshooting By Symptom” on page 156.

ED 0063 Error: Serious Error In Other Module

- o Check for error in CE.
- o Check for error in any module connected by APG.
- o Check for defective APG cable.
- o See “DAD Troubleshooting By Symptom” on page 156.

ED 3000 Lamp Has Failed

- o Lamp or lamp connections?
- o Detector DPS?
- o AQB board?
- o Detector CMP board?
- o Shutter?

ED 3001 Lamp Ignition Has Failed

- o Lamp or lamp connections?
- o Detector DPS?
- o AQB board?
- o Detector CMP board?
- o Shutter?

ED 3200 Spectra Buffer Full

- o Too many signals; reduce the number of signals.
- o Too many applications opened; close some applications.
- o Reduce the amount of spectra being taken.

DAD Troubleshooting By Symptom

- o Inability to Calibrate
- o Correct alignment interface, capillary well inserted?
- o Is the CE/MWD select jumper on the AQB board set to the CE position?
- o AQB board defective?
- o Shutter defective?

Excessive Noise/Drift

- o Install an empty red interface into the cassette and perform the DAD test. Intensity plot and Holmium spectra ok? No 'strange' signal during DAD test? Lamp on hours correct? Alignment Interface ok?
 - Replace the lamp.
 - Replace the optical unit.
 - Replace the ASC board.

Lamp Ignition Failure

- o First, try in order of likelihood those things that may be the problem:
 - New lamp.
 - DPS-A (detector) power module.
 - AQB board.
 - DAD CMP board

If none of the above correct the problem, you must determine which of the lamp ignition voltages (heater, ignition) is missing.

Proceed as follows:

Check for the presence of heater voltage ...

- o Unplug the lamp. Make a DC voltage measurement directly across the two filament wire pins of the lamp connector. The two thin wires of the lamp are the filament wires. When lamp ignition begins, 2.5 VDC should be present for about 15 seconds. Since the lamp is disconnected, an ED 3001 will be produced after two attempts to ignite the lamp have been made.

If heater voltage is missing ...

- o Check the continuity of the filament wires of the lamp cable.
- o Check for a good connection of the lamp cable at J12 of the DAD motherboard.

Check for the presence of the ignition voltage spark ...

- o Unplug the lamp. Connect the positive lead of the DC meter directly to the anode wire pin of the lamp connector. The heaviest of the three lamp wires is the anode wire. Connect the negative lead of the DC meter to any good metal part (ground) of the mainframe. About 15 seconds after lamp ignition begins, the meter should measure between about 550 and 600 volts. This reading is present at the meter long enough to see. ED 3001 will be produced after two attempts to ignite the lamp have been made.

NOTE

With a functional lamp in place, the ignition spark is not held long enough to be seen on the meter.

If ignition voltage is not present ...

- o Check the continuity of the anode wire of the lamp cable.
- o Check for a good connection of the lamp cable at J12 of the DAD motherboard.

Troubleshooting Shutdowns and Time-outs

The shutdown relationship between the CE and DAD is based on the connections made by the APG cable. Removing this cable could be a good troubleshooting tool in some cases.

[ED 0062 \(DAD Timeout Has Occurred\)](#)

The time between the end of one run and the beginning of the next run has exceeded the nRdy Timeout set in SEQ. PARAMETERS. The lamp is shut off, and a red Error appears in the main screen status display bar.

Check:

- o Is the nRdy Timeout just too short for normal post-run activity?
- o Does the method contain an excessively long Posttime?
- o Is another device connected to the one of the APG remote connectors? Is this device
- o Applying a nRdy signal to APG?

NOTE

There may be no indication of this in the main screen status bar.

[ED 0063 \(Serious Error In Other Module\)](#)

A shutdown signal has been applied to the DAD. The lamp remains on. This is a normal by-product of a CE leak detected condition (EL 0064).

If ED 0063 is present, but the CE leak sensor circuit is not the cause, check:

- o Is another device connected to one of the APG remote connectors? Is this device
- o Applying a shutdown signal to both CE and DAD? In this case, a red Shutdown will appear in the main screen status display bar, and EL 0063 will also be present.
- o APG cable loose or defective?
- o Try another CE CMP.

System Hardware Troubleshooting
[Troubleshooting Shutdowns and Time-outs](#)

NOTE This will require that the adjust pressoffset be done.

- o Try another DAD CMP

NOTE This will permanently erase the existing Lamp lifetime hours and Array lifetime hours.

[EL 0063 \(Serious Error In Other Module\)](#)

A shutdown signal has been applied to the APG remote by another device. Normally, ED 0063 will also be present. Pressure is released from the electrolyte bottle. A red Shutdown is displayed in the main screen status display bar.

Check:

- o Is another device applying a shutdown signal to the APG remote?
- o APG cable loose or defective?
- o Try another CE CMP.

NOTE This will require that the adjust pressoffset be done.

- o Try another DAD CMP

NOTE This will permanently erase the existing Lamp lifetime hours and Array lifetime hours.

[EL 0064 \(Leak Detected in the CE\)](#)

This condition will release pressure from the electrolyte bottle, and produce an ED 0063 as well. The DAD lamp will not be shut off. A red Error will appear in the main screen status display bar.

Check:

- o Is the leak sensor wet or defective?
- o Try another CE CMP.

NOTE

This will require that the adjust pressoffset be done.

ED 0064 (Leak Detected in DAD)

The CE DAD does not have a leak detector, so this message does not appear in normal operation.

The CE DAD uses the same boards and firmware as the HP 1050 DAD. The HP 1050 DAD does require the presence of a functioning leak sensor, or the Leak Detected message is set. Therefore, the missing leak sensor must be simulated in hardware.

In the CE DAD shutter assembly, a fixed resistor simulates a functioning leak sensor.

If the ribbon cable connecting the shutter assembly to the DAD motherboard is disconnected, the ED 0064 (Leak detected in DAD) error is created. The lamp is shut off. Now, the DAD sends a Shutdown signal to the CE. EL 0063 (serious error in other module) is also produced. Pressure is released from the electrolyte bottle. In the main screen status display bar, a red Shutdown appears.