

# TECHNICAL BULLETIN

## NUMBER 2021 - 005

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**Subject:** PeCOD Error Code Reference

The following table outlines a range of possible errors the PeCOD® Analyzer could display, along with associated actions to resolve each error. Each error code is organized by error group followed by sub code with an associated name.

System errors are reported and stored in the event logs.

**Note:** This information is directly found in the L50 Operation Manual.

Error Group	Sub Code	Name	Description of Problem	Suggested actions
2	1	Terminated by User	The exit button on the PeCOD display was selected	<ul style="list-style-type: none"> <li>• Error indicating the user has terminated the current analysis. No further action required.</li> </ul>
2	2	Sensor Uncalibrated	Error indicating the sensor is not calibrated	<ul style="list-style-type: none"> <li>• Run new sensor routine or run calibration.</li> </ul>
3	1	COD out of Range	Sample concentration is too high.	<ul style="list-style-type: none"> <li>• Dilute original sample with COD free water and re-mix with electrolyte (remember to multiply this dilution factor to obtain the final COD value).</li> <li>• Alternatively, switch to using a different range electrolyte and re-prepare your sample. Note: you will need to re-do the calibration also.</li> </ul>
3	2	Reference < Blank	Reference (calibrant) solution charge obtained is less than zero solution.	<ul style="list-style-type: none"> <li>• Check that calibrant solution is correctly mixed with electrolyte and re-calibrate.</li> </ul>
3	3	COD Less Than Blank	COD result is less than the blank solution.	<ul style="list-style-type: none"> <li>• Check that sample is mixed with electrolyte in proper ratio and that lines are primed.</li> <li>• Check blank solution for contamination.</li> </ul>

Error Group	Sub Code	Name	Description of Problem	Suggested actions
				<ul style="list-style-type: none"> <li>Sample may be below the operating range. Switch to a lower range (e.g. blue), re-calibrate and then re-run sample</li> </ul>
3	4	Failure Qnet < Zero	Resultant charge is too low (i.e. not enough signal detected)	<ul style="list-style-type: none"> <li>Ensure that sample is mixed with electrolyte in proper ratio and lines are primed.</li> <li>Check electrical contacts between the connection pins on analyser board with the electrode block. If necessary, very gently clean, using isopropanol and a lint free cloth.</li> <li>If the above do not rectify the problem, the sensor or electrode block may need to be replaced.</li> </ul>
4	1	Calibration failure	Calibration failed	<ul style="list-style-type: none"> <li>Redo calibration</li> </ul>
7	1	Pump failure	Pump error	<ul style="list-style-type: none"> <li>Prime lines, and check sufficient solution is being expelled from the analyser. If this does not rectify the problem, please contact MANTECH or your local MANTECH authorised representative.</li> </ul>
7	2	Pump did not initialize	Pump error	<ul style="list-style-type: none"> <li>Prime lines, and check sufficient solution is being expelled from the analyser. If this does not rectify the problem, please contact MANTECH or your local MANTECH authorised representative.</li> </ul>
8	4	Sol'n not Presented	User did not press enter upon system prompt.	<ul style="list-style-type: none"> <li>Restart calibration and ensure to press enter within 6 minutes after prompt to avoid timeout.</li> </ul>

Error Group	Sub Code	Name	Description of Problem	Suggested actions
11	2	Analyser Lid Open	Lid is open or not securely latched.	<ul style="list-style-type: none"> <li>• Make sure analyser lid is closed and correctly secured via the front latch.</li> </ul>
11	3	Sensor absent	Sensor absent or not detected	<ul style="list-style-type: none"> <li>• Ensure sensor is present and correctly seated on the electrode block analyser</li> </ul>
11	4	Vaux out of range	Auxiliary voltage is over range	<ul style="list-style-type: none"> <li>• Make sure there are no bubbles present in the line; prime lines, and then re-run analysis.</li> <li>• The current and voltage applied may be too high, try decreasing the set baseline and recalibrate.</li> <li>• Check electrical contacts between the connection pins on analyser board with the electrode block. If necessary, very gently clean using isopropanol and a lint free cloth.</li> <li>• If the above do not rectify the problem, the sensor or electrode block may need to be replaced.</li> </ul>
11	6	I <sub>work</sub> out of range	Current is overrange	<ul style="list-style-type: none"> <li>• Make sure there are no bubbles present in the line; prime lines, and then re-run analysis.</li> <li>• The current and voltage applied may be too high, try decreasing the set baseline and recalibrate.</li> <li>• Check electrical contacts between the connection pins on analyser board with the electrode block. If necessary, very gently clean using isopropanol and a lint free cloth.</li> </ul>

Error Group	Sub Code	Name	Description of Problem	Suggested actions
				<ul style="list-style-type: none"> <li>If the above do not rectify the problem, the sensor or electrode block may need to be replaced.</li> </ul>
11	9	LED Over Current	Occurs during normalization step of calibration. Too much current was applied to LED to obtain desired baseline.	<ul style="list-style-type: none"> <li>Make sure there are no bubbles present in the line; prime lines, and then re-run analysis.</li> <li>Ensure that the solutions are mixed with electrolyte in appropriate ratios and the PeCOD is set to the correct operating range. If in doubt, remake solutions.</li> <li>The current and voltage applied may be too high, try decreasing the set baseline and recalibrate.</li> <li>Check electrical contacts between the connection pins on analyser board with the electrode block. If necessary, very gently clean using isopropanol and a lint free cloth.</li> <li>If the above do not rectify the problem, the sensor or electrode block may need to be replaced.</li> </ul>
11	10	FIFO Overrun	Too much processor activity	<ul style="list-style-type: none"> <li>Erase logs and try to re-run sample.</li> </ul>
11	14	COD Out of Range	Sensor calibration did not achieve reproducibility target	<ul style="list-style-type: none"> <li>Make sure there are no bubbles present in the line; prime lines, and then re-calibrate.</li> </ul>
11	15	Incomplete oxidation	The sample concentration may be too high (sample oxidation did not complete)	<ul style="list-style-type: none"> <li>Dilute original sample with COD free water and re-mix with electrolyte (remember to multiply this dilution factor to the final COD value).</li> <li>Alternatively, switch to using a higher range electrolyte and re-prepare your sample. Note:</li> </ul>

Error Group	Sub Code	Name	Description of Problem	Suggested actions
				you will need to re-do the calibration also.
14	1	Burn-in Failed	System failed to stabilize.	<ul style="list-style-type: none"> <li>• Try to re-run sample.</li> <li>• Increase set baseline and re-calibrate.</li> <li>• If the problem persists, a new sensor may be required.</li> </ul>

**Additional Error Codes** may appear when an internal communication error occurs. These errors will typically prompt the user to “Refer to Manual”. Most often the error can be cleared by attempting to re-run the sample. Erasing all logs may also be necessary. Internal communication error codes may include (but are not limited to):

0.1, 2.27, 8.2, 8.3, 9.1, 9.2, 9.3, 10.1, 10.2, 11.1, 13.1, 13.2, 102.2, 203.1, 203.2, 204.1, 205.1, 205.2, 205.3, 205.4, 211.7, 215.1.

To access the event log:

- 1) Press **MENU**, select **Data** and press **ENTER**.
- 2) In the Data menu, select **Event Log** and press **ENTER**.

The most recent event log will be displayed. Each log will contain the event number, an error code, a brief description corresponding to that error code, date and time. Use the Up and Down arrow touch keys to scroll through each log, and the Left and Right arrow touch keys to move from one log to another.

The PeCOD® L50 may shut down or lose partial display functionality if subjected to electrostatic discharge. In the event that this occurs, the user can restore normal operation by restarting the unit.

If these error codes cannot be rectified, or for further details, please contact the MANTECH technical team at [support@mantech-inc.com](mailto:support@mantech-inc.com).