EasyWarePro Message Numbers

Important note: this application note is only valid beginning from EOPC V1.9.0.18 and EOP / Lab V1.9.0.19. Compared to the previous released version of this document “AppNote MessageNo V03R” only texts have been modified, the message numbers remained the same.

For all types of tests EasyWarePro contains a parameter called “Message No”. This parameter contains information about errors and warnings associated with a trial.

The parameter Message No. contains a maximum of three error or warning codes using the following format: xxyy.zz. The numbers xx, yy and zz each contain a two digit warning or error code.

- Example: 0200.00 → Warning 02, 00 and 00 (00 always indicates ‘no error’)
- Example: 1000.00 → Warning 10, 00 and 00
- Example: 1112.34 → Warning 11, 12 and 34

The following table contains a list of all error and warning codes with a short description of the reason for this particular warning or error and a possible resolution.

The column ‘Action’ contains the following symbols:
- Everything is OK, no action required
- The problem can be resolved by patient
- The problem can be resolved by checking the EasyOne Pro device.

<table>
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<tr>
<th>Nr.</th>
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<th>Test Type</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>0</td>
<td>✔️</td>
<td>All</td>
<td>No error or warning, test is OK</td>
</tr>
</tbody>
</table>
| 1   | 🕹️     | FVC, FVL  | Abrupt end of test detected  
Problem: Patient may not have exhaled completely. Detailed criteria: Expiration time was less than 2 seconds; or volume during last 2 seconds >30 ml (expiration time between 2 and 7 sec) or >45 ml (expiration time >7 sec).  
Solution: The patient must exhale longer and force as much air as possible out of his or her lungs. |
| 2   | 🕹️     | FVC, FVL  | Patient hesitation detected  
Problem: Patient hesitation detected. Detailed criteria: Back-extrapolated volume greater than 150 ml. OR 5% of FVC whichever is greater (for age <=6: 80 ml or 12.5% of FVC whichever is greater).  
Solution: The patient must blast out as quickly and as hard as possible. |
| 3   | 🕹️     | FVC, FVL  | Please, blow out faster  
Problem: Peak flow is delayed. Detailed criteria: Time until peak flow greater than 160 ms.  
Solution: The patient must blast out as quickly and as hard as possible. |
| 4   | 🕹️     | FVC, FVL  | Please, blow out longer  
Problem: Patient may not have exhaled completely. Detailed criteria: Expiration time less than 2 seconds. OR volume in the last 0.5 seconds of the expiration more than 100 ml.  
Solution: The patient must exhale longer and force as much air as possible out of his or her lungs. |
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| 5   | 🩹     | FVC, FVL  | Unable to detect forced maneuver  
**Problem:** Software was unable to detect a forced maneuver.  
**Solution:** Please retry maneuver and follow the instructions that are shown during the maneuver. |
| 6   | 🩹     | SVC       | Unable to detect steady tidal breathing  
**Problem:** The software was unable to detect steady tidal breathing. Detailed criteria: All end-inspiratory volumes of 3 breaths are not within 200 ml. AND/OR the difference in VT of 3 breaths is larger than 200 ml.  
**Solution:** Please instruct the patient to breathe steadily during tidal breathing phase. |
| 7   | 🩹     | SVC       | Incomplete maneuver, unable to calculate IRV  
**Problem:** Unable to detect complete maneuver and to calculate IRV.  
**Solution:** Please retry maneuver and follow the instructions that are shown during the maneuver. Complete in- and expiration are required. |
| 8   | 🩹     | SVC       | Incomplete maneuver, unable to calculate ERV  
**Problem:** Unable to detect complete maneuver and to calculate ERV.  
**Solution:** Please retry maneuver and follow the instructions that are shown during the maneuver. Complete in- and expiration are required. |
| 9   | 🩹     | FVC, FVL  | Test started too early  
**Problem:** Early test start detected. Detailed criteria: The time to peak flow (PEFT) is less than 30 ms. OR flow detected before test was started.  
**Solution:** Please instruct the patient to wait until the baseline setting is finished and until the software signals to start the test. |
| 10  | 🩹     | FVC, FVL  | Cough detected  
**Problem:** A cough has been detected.  
**Solution:** Please instruct the patient to avoid coughing during the measurement. |
| 11  | 🩹     | DLCO      | Gas inspiration time too long  
**Problem:** Long inspiration time detected. Detailed criteria: Inspiration time is out of range (0.1-4.0 seconds).  
**Solution:** Please instruct the patient to inhale test gas faster. |
| 12  | 🩹     | DLCO      | Breath hold time out of range  
**Problem:** Breath hold time is out of range. Detailed criteria: Breath-hold time is out of range (8-12 seconds).  
**Solution:** Please instruct the patient to exhale immediately when the corresponding message shows and when the valve opens. |
| 14  | 🧠     | CalCheck  | Calibration result out of range – Check setup  
**Problem:** Calibration result is out of range. Detailed criteria: The measured volume is out of ±3.5% of the target value.  
**Solution:** Please check the test setup and repeat the test. If error reappears please contact service. |
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| 15  |        | CalCheck  | Try again - Flow criteria not met!  
**Problem:** Cal-syringe flow rate too fast or too slow  
**Solution:** Please perform the calibration check with the appropriate flow speed. |
| 16  |        | CalCheck  | Inspiratory or expiratory maneuver not detected  
**Problem:** Only an inspiratory or expiratory maneuver detected.  
**Solution:** Please perform complete inspiratory and expiratory maneuvers and follow the given instructions. |
| 17  |        | DLCO      | Check complete gas connection and valve assembly  
**Problem:** Significant difference between calibration and inspiratory CO concentration detected.  
**Solution:** Please check complete gas connection and valve assembly and that test is performed correctly. |
| 18  |        | DLCO      | Low inspiratory volume detected  
**Problem:** The Inspiratory volume of the DLCO test is <85% of the target value.  
**Solution:** Please encourage the patient to inhale at least up to the dotted volume line, which indicates 85% of VCmax. |
| 19  |        | DLCO      | Check complete gas connection and valve assembly  
**Problem:** Significant difference between calibration and inspiratory CO concentration detected.  
**Solution:** Please check complete gas connection and valve assembly and that test is performed correctly. |
| 20  |        | DLCO      | Warning: Parameter out of Range (2)  
Check patient technique, gas supply and valve assembly  
**Problem:** The alveolar helium concentration measured is out of range.  
**Solution:** Please check complete gas connection and valve assembly, and that test is performed correctly. |
| 21  |        | DLCO      | Check patient technique, gas supply and valve assembly  
**Problem:** The expiratory CO concentration measured is out of range.  
**Solution:** Please check complete gas connection and valve assembly, and that test is performed correctly. |
| 22  |        | DLCO      | Check patient technique, gas supply and valve assembly  
**Problem:** The alveolar CO concentration measured is out of range.  
**Solution:** Please check complete gas connection and valve assembly, and that test is performed correctly. |
| 23  |        | DLCO      | Check patient technique, gas supply and valve assembly  
**Problem:** The alveolar volume (VA) is out of range.  
**Solution:** Please check complete gas connection and valve assembly, and that test is performed correctly. |
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<td>24</td>
<td>[ ]</td>
<td>DLCO</td>
<td>Check patient technique, gas supply and valve assembly. <strong>Problem:</strong> The measured DLCO value is out of range. <strong>Solution:</strong> Please check complete gas connection and valve assembly, and that test is performed correctly.</td>
</tr>
<tr>
<td>25</td>
<td>[ ]</td>
<td>FRC</td>
<td>Unable to calculate FRC extrapol – Please check for leaks. <strong>Problem:</strong> The extrapolated MBW volume (i.e., the volume that would be washed out after the washout has been stopped) cannot be determined. <strong>Solution:</strong> Do not stop the washout too early and/or check for leaks.</td>
</tr>
<tr>
<td>26</td>
<td>[ ]</td>
<td>FRC</td>
<td>FRC extrapol too high - Do not stop the washout too early. <strong>Problem:</strong> The extrapolated MBW volume (i.e., the volume that would be washed out after the washout has been stopped) is greater than 1 liter. <strong>Solution:</strong> Do not stop the washout too early and/or check for leaks.</td>
</tr>
<tr>
<td>27</td>
<td>[ ]</td>
<td>FRC</td>
<td>Inspiratory gas leak detected. <strong>Problem:</strong> Inspiratory gas leak detected. Detailed criteria: The end-inspiratory molar mass deviates from the tracer gas molar mass. This indicates that ambient air is inspired during the maneuver. <strong>Solution:</strong> Please check valves and that FRC barriette and spirette are properly inserted. Check that nose clip is properly positioned and that patient is breathing normally.</td>
</tr>
<tr>
<td>28</td>
<td>[ ]</td>
<td>FRC</td>
<td>High inspiratory or expiratory pressure detected. <strong>Problem:</strong> High inspiratory or expiratory pressure detected. Detailed criteria: Peak pressure at the flow sensor exceeds +/-5 mb. <strong>Solution:</strong> Please check that O2 inlet pressure is set to 3-5 bar or 44-68 psi. Only minimal pressure variations are allowed during the test. Ensure that patient's breathing is not too deep or too fast, and is within the limits of ±1.5 l/s.</td>
</tr>
<tr>
<td>29</td>
<td>[ ]</td>
<td>FRC</td>
<td>Check complete gas connection and valve assembly. <strong>Problem:</strong> Side-stream flow is out of range (&lt;6 ml/s or &gt; 12 ml/s). <strong>Solution:</strong> Please check complete gas connection and if patient tube (Maintenance kit) needs to be replaced. Contact support if error persists.</td>
</tr>
<tr>
<td>30</td>
<td>[ ]</td>
<td>DLCO</td>
<td>Allow device to warm up. <strong>Problem:</strong> CO sensor drift detected. <strong>Solution:</strong> Please let the instrument warm up and repeat the test. If the error reappears, please contact service.</td>
</tr>
<tr>
<td>31</td>
<td>[ ]</td>
<td>FRC</td>
<td>N2 concentration at end of test too high – Longer washout required. <strong>Problem:</strong> Tracer concentration at end of test too high. Detailed criteria: tracer concentration at end of test is &gt;2% N2. <strong>Solution:</strong> Repeat the test, encouraging the patient to continue breathing until at least 3 breaths with concentrations below 2% N2 are achieved.</td>
</tr>
<tr>
<td>32</td>
<td>[ ]</td>
<td>FRC</td>
<td>The automatic calibration of the CO2 sensor failed. <strong>Problem:</strong> The automatic calibration of the CO2 sensor failed. <strong>Solution:</strong> Repeat the test. If the error reappears, contact service.</td>
</tr>
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<tr>
<td>33</td>
<td></td>
<td>DLCO</td>
<td><strong>Problem:</strong> CO level during tidal breathing too high. <strong>Solution:</strong> Wait at least four minutes between DLCO tests. Please also check the DLCO valve unit. If the error occurs repeatedly, contact service.</td>
</tr>
<tr>
<td>34</td>
<td></td>
<td>FRC</td>
<td>Tidal breathing volume too low. <strong>Problem:</strong> Tidal breathing volume too low. Detailed criteria: Tidal volume outside 4 to 30 mL/kg body weight. OR outside 0.25 to 0.3 L if the body weight is not stated. <strong>Solution:</strong> Ask patient to breathe regularly, calmly and within the suggested range.</td>
</tr>
<tr>
<td>35</td>
<td></td>
<td>FRC</td>
<td>Check patient technique, gas supply and check for leaks. <strong>Problem:</strong> Volume drift during washout test detected. The volume drift correction could not be performed and/or the parameters IRV and/or ERV are smaller than zero. <strong>Solution:</strong> Check for correct test performance and/or for leaks. If the error occurs repeatedly, contact service.</td>
</tr>
<tr>
<td>46</td>
<td>All</td>
<td></td>
<td>Timeout identified. <strong>Problem:</strong> A timeout has occurred during the maneuver. <strong>Solution:</strong> Please follow all test instructions.</td>
</tr>
<tr>
<td>47</td>
<td>All</td>
<td></td>
<td>Device error. <strong>Problem:</strong> An unexpected device error occurred. <strong>Solution:</strong> Please check if sensor is connected correctly and repeat trial.</td>
</tr>
<tr>
<td>48</td>
<td>All</td>
<td></td>
<td>Invalid trial, please repeat trial. <strong>Problem:</strong> Trial did not meet acceptability criteria. <strong>Solution:</strong> Please repeat trial.</td>
</tr>
<tr>
<td>50</td>
<td>All</td>
<td></td>
<td>No error or warning, test is OK.</td>
</tr>
<tr>
<td>51</td>
<td>All</td>
<td></td>
<td>Error (51): Test started too early. <strong>Problem:</strong> Early-Start detected. <strong>Solution:</strong> Wait until the instrument signals to start the test.</td>
</tr>
<tr>
<td>52</td>
<td>FVC, FVL</td>
<td></td>
<td>Error (52): Unable to detect maneuver. <strong>Problem:</strong> Unable to detect maneuver. <strong>Solution:</strong> Please retry maneuver and follow the instructions that are shown during the maneuver.</td>
</tr>
<tr>
<td>54</td>
<td>DLCO</td>
<td></td>
<td>Error (54): Unable to get sampling volume – Please blow out longer. <strong>Problem:</strong> Unable to get sampling volume. <strong>Solution:</strong> Ask patient to exhale enough volume after the breath hold.</td>
</tr>
<tr>
<td>55</td>
<td>DLCO</td>
<td></td>
<td>Error (55): Incorrect test procedure. <strong>Problem:</strong> Incorrect test procedure. <strong>Solution:</strong> Please retry maneuver and follow the instructions that are shown during the maneuver.</td>
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| 56  | 1      | DLCO      | Error (56): Incorrect test procedure  
**Problem:** Incorrect test procedure.  
**Solution:** Please retry maneuver and follow the instructions that are shown during the maneuver. |
| 57  | 1      | DLCO      | Error (57): Unable to detect DLCO inspiration – Please follow test instructions  
**Problem:** Unable to detect DLCO inspiration and to determine starting point of breath-hold time (Jones & Mead).  
**Solution:** Please retry maneuver and follow the instructions that are shown during the maneuver. |
| 59  | 1      | DLCO      | Error (59): Check valve assembly and check for leaks  
**Problem:** Unstable CO concentration during breath hold. Detailed criteria: CO not within +50...-800 ppm.  
**Solution:** Please check for leaks (valves, patient mouth) and follow the instructions that are shown during the maneuver. |
| 60  | 1      | DLCO      | Error (60): Check gas supply and check for leaks  
**Problem:** Side-stream time-delay incorrectly determined.  
**Solution:** Please check complete gas connection and valve assembly, and that test is performed correctly. |
| 61  | 1      | DLCO      | Error (61): Check gas supply and check for leaks  
**Problem:** CO sensor calibration failed.  
**Solution:** Please check complete gas connection and valve assembly, and check for leaks. |
| 62  | 1      | DLCO      | Error (62): Check gas supply and check for leaks  
**Problem:** CO sensor is out of range (clipping).  
**Solution:** Please check complete gas connection and valve assembly, and check for leaks. |
| 63  | 1      | DLCO      | Error (63): Check gas supply and check for leaks  
**Problem:** CO sensor 3-point calibration error (S-Factor range).  
**Solution:** Please check complete gas connection and valve assembly, and check for leaks. |
| 64  | 1      | DLCO      | Error (64): Check gas supply and check for leaks  
**Problem:** CO sensor 3-point calibration error (3-point level is not within 750 to 1900 ppm).  
**Solution:** Please check complete gas connection and valve assembly, and check for leaks. |
| 65  | 1      | DLCO      | Error (65): Check gas supply and check for leaks  
**Problem:** CO sensor 3-point cal error (sd of 3-point level out of range).  
**Solution:** Please check complete gas connection and valve assembly, and check for leaks. |
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| 66  |        | FRC       | Error (66): No start of washout detected  
**Problem:** No start of washout detected.  
**Solution:** Please follow the instructions that are shown during the maneuver. |
| 67  |        | FRC       | Error (67): Check gas supply and breathe regularly  
**Problem:** Side-stream time-delay incorrectly determined.  
**Solution:** Please check complete gas connection and valve assembly, and that test is performed correctly (breathe regularly). |
| 68  |        | FRC       | Error (68): Not enough breaths for washout analysis  
**Problem:** Not enough breaths for washout analysis detected.  
Repeat the test without stopping it early.  
**Solution:** Perform test correctly |
| 69  |        | FRC       | Error (69): Check gas supply and check for leaks  
**Problem:** Leak or wrong test gas detected.  
**Solution:** Check test gas, gas supply and check for leaks. |
| 70  |        | FRC       | Error (70): Check gas supply, check for leaks and breathe regularly  
**Problem:** Unable to evaluate Multi-Breath-Washout.  
**Solution:** Please breathe regularly. Check complete gas supply and check for leaks. |
| 71  |        | DLCO      | Error (71): Allow device to warm up  
**Problem:** CO sensor drift detected.  
**Solution:** Allow the CO sensor to warm up. If error reappears, contact service. |
| 99  |        | All       | Error: Invalid trial |