VALENCIA COLLEGE

Chemistry

# Lab Technique 19: Using the LabQuest Data Collector with Conductivity Probe

Version 2

| **Setup:** | |
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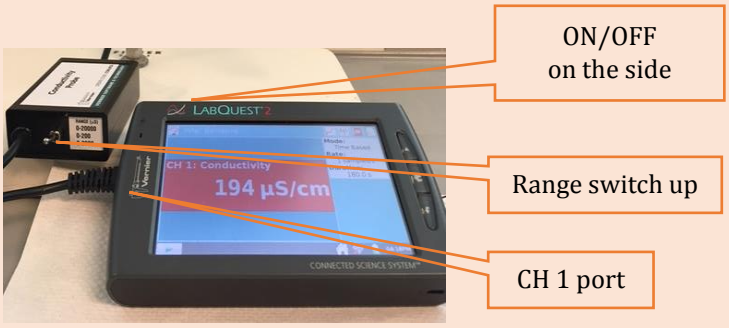
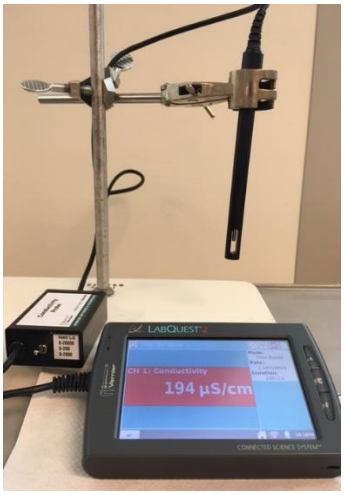
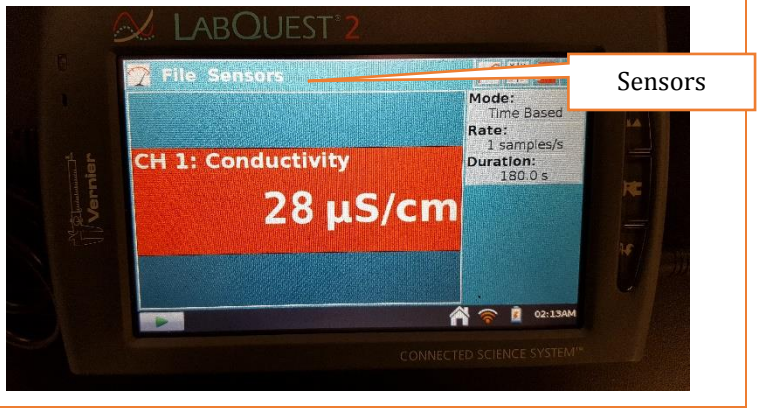
| Connect the conductivity probe into CH 1 port.<br><br>Set the range switch on the amplifier box to the 0-20000 µS setting (the up position).<br><br>Turn on the LabQuest Data Collector. Once it boots up it should automatically display CH 1: Conductivity (though the actual conductivity value will probably be different from 194 µS/cm). |  |
| While it boots up, suspend the conductivity probe from the stand using a utility clamp.<br><br>Rinse the probe with deionized water (collect the rinse in the Waste beaker). Dry it well with a KimWipe, even inside of the elongated opening at the bottom (dispose of these in the regular garbage can).<br><br>Once the conductivity probe is dry, leave it suspended on the clamp, in the air. |  |
| **Calibrate the Conductivity Probe[1]:** | |
| Using the stylus connected to the LabQuest Data Collector, select Sensors from the tool bar on the top. |  |

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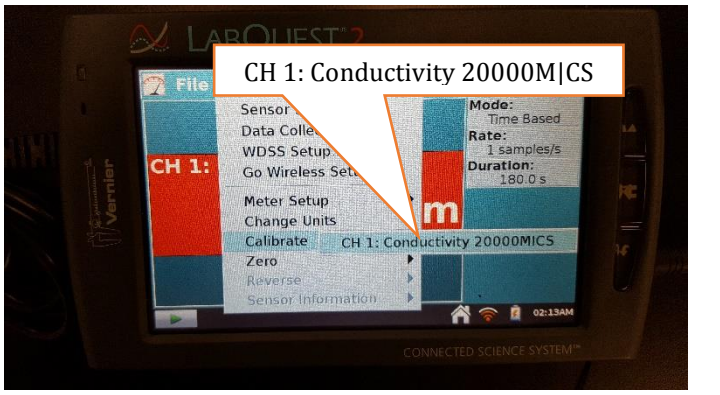
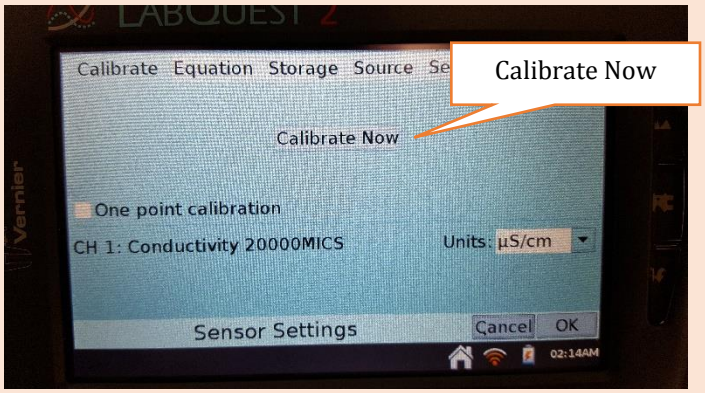
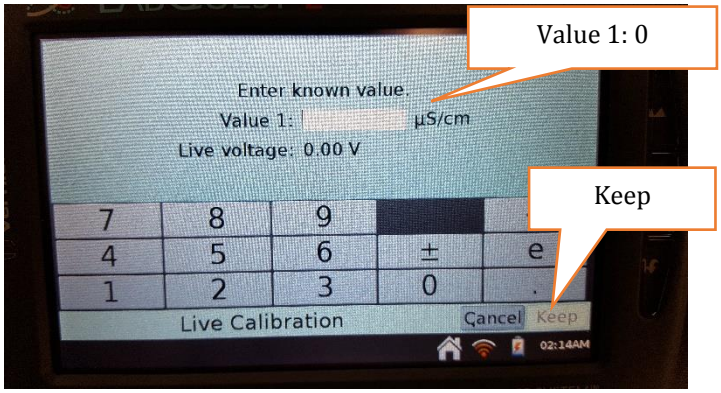
| Select Calibrate from the drop-down menu. |  |
| Click on CH 1: Conductivity 20000M\|CS. |  |
| Click on Calibrate Now. |  |
| A new screen with a number pad on the lower portion will appear. Observe the reading displayed in the **Live Voltage** field. If the value is fluctuating, wait 10-15 seconds until it stabilizes.<br><br>With the <u>dry conductivity</u> probe suspended <u>in the air</u>, enter 0 in the box next to **Value 1** and Click the **Keep** box. |  |

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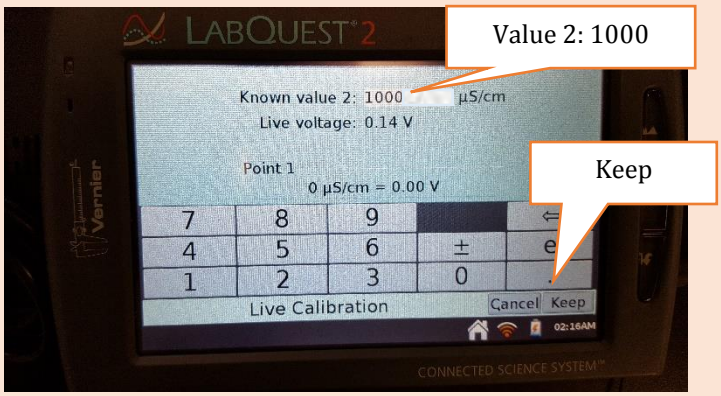
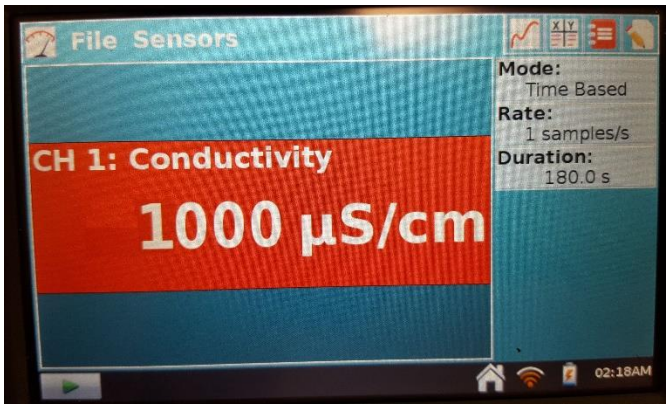
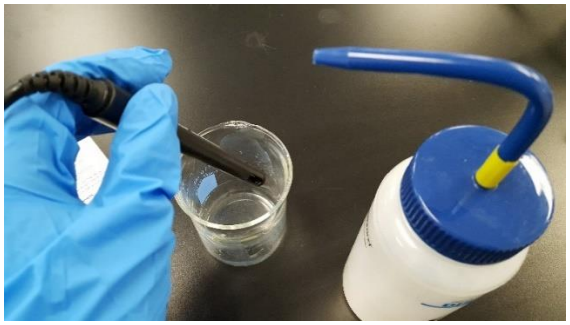
| Lower the conductivity probe in the 1,000 µS NaCl(aq) standard solution. (Leave this solution in the bottle provided and do NOT pour it into a beaker). Make sure that the probe's opening is submerged in the solution and swirl the bottle to remove any trapped air bubbles.<br><br>Once the voltage stabilizes, enter 1,000 in the box next to Known **Value 2** and click on the Keep box.<br><br>Click **OK**. |  |
| The original screen should now be displayed. The conductivity value should be fluctuating around 1,000 µS/cm. (If not, something is wrong. Try re-calibrating it or get help.) |  |
| Remove the probe from the bottle and place the cap back on the bottle. | |
| Rinse and dry the probe as before. |  |

| **To Use:** |
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| Rinse the sensor with DI water and dry it well with a KimWipe. |
| Place sensor inside of the aqueous sample. |
| Make sure the opening on the bottom of the sensor is submerged in the solution. Stir it slightly to remove air bubbles. |
| Allow it to stabilize. If it doesn't quite stabilize, after 30 seconds, record the average reading. |
| When done with all readings, turn off, rinse and dry the sensor. |

Reference:

1. Nord, R.S. *Conductivity and Chemical Reactions* [Online]. https://www.emich.edu/chemistry/genchemlab/documents/5-conductivity.pdf (accessed March 3, 2017).