Orion Star A329 Conductivity Calibration Check and Field Measurement

Reagents and Equipment:
The master sampler kits contain conductivity calibrating solutions (2 x conductivity standard solutions and 2 x calibration check standard solutions). Note that these bottles have expiration dates which are monitored during kit maintenance by the volunteer monitoring coordinator.

SAFETY:
The conductivity calibrating solutions may cause eye, skin, and respiratory tract irritation. The toxicological properties have not been fully investigated. Please wear the goggles and gloves provided in your master sampler kit when working with the solutions. Please save all used and unused solutions for the volunteer coordinator to dispose of properly in accordance with local, regional, and national hazardous waste regulations.

FIELD CALIBRATION CHECK

1. Rinse the probe with deionized (DI) water then blot it dry with the soft Kim wipes provided in the sampling kit.

2. Open the Field Calibration Check Standard (CCS) solution for Conductivity. Place the Conductivity probe into the bottle. Make sure the probe is properly submerged. Stir the probe gently to dislodge air bubbles, if any.
   -OR-
   Keep conductivity solution and pH calibration check solutions together (rubber-banded or otherwise) to maintain consistent temperatures. Put each probe in its respective solution and the calibration checks can be done simultaneously.

NOTE: Make sure you are using fresh Calibration Check Standard (CCS) for each sampling date.
3. Press the (power/light) key to turn the Orion A329 meter on. This will automatically bring you to the measurement screen:

- Note: Press f3 (Channel) to toggle screen options. The Conductivity field calibration check can be done as long as the display screen displays Conductivity as one of the options and the correct unit of measure is showing. All field checks can be done simultaneously when the screen has all three parameters displayed.

4. Press the measure key. Wait for the reading to stabilize. Stabilizing.... Ready AR will begin flashing on the screen. When the reading has stabilized, Ready AR will stop flashing.

5. Record the conductivity measurement and temperature in the appropriate fields on the Field datasheet (Form VM2000M). Press measure and repeat for a minimum of three (3) readings

- NOTE: If the calibration measurement is found to be outside of the acceptance range (given on CCS label), agitate the probe to see if the reading changes and falls within the range. If it is still not within acceptance range, record the reading, make a note in the comments section on the Field data sheet and report the problem to the Volunteer Monitoring Coordinator.
CONDUCTIVITY SAMPLE MEASUREMENT

1. Rinse the probe thoroughly with deionized water. Blot dry and put the probe into the collected water sample. Gently swirl the probe for about 20 seconds to ensure that no air bubbles are trapped on the probe.

2. If the meter is off, turn power on by pressing the (power/light) key. If you don’t see Conductivity on the screen, press the f3 (Channel) key to toggle to a screen with the Conductivity measurement display.
   - Note: since you have more than one (1) recording to take (Conductivity μS/cm, Total Dissolved Solids mg/L, and Salinity ppt as applicable), it is easiest to toggle within the measurement screen shown below. Once in that screen, press mode to toggle between recordings for Conductivity, TDS, and Salt (ignore Res).

Measurement mode

3. Press measure key. Allow the reading to stabilize as indicated by the Ready AR that will display above the measurement. Record the conductivity reading, indicating the conductivity units as either μS/cm or mS/cm.* Also, record the temperature.

4. Press the mode key to get the corresponding Total Dissolved Solids (TDS) reading and record the value. Make sure to indicate the TDS units as either mg/L (ppt) or g/L.
   
   *NOTE: If the conductivity is greater than 5000 μS/cm, press the mode key until Salt is shown on the screen to get the salinity of the sample and record that value as well.

5. Press the mode key to get back to the Conductivity reading mode. A minimum of additional two readings are required for each of the parameters. Press the measure key again, let it stabilize, and record the locked reading on the Field datasheet. Each time make sure you read and record temperature and Total Dissolved Solids (TDS) as described above.

6. Turn the meter off by pressing the power key. Remove the probe from the sample, rinse it with DI water, blot it with a Kim wipe and safely store it with the meter.

Make sure the Conductivity / Salinity section of the Field Data sheet is completely filled in. If you have had any problems, note those in the Comments section. You have now completed all Conductivity and Total Dissolved Solids readings.
## REVISION HISTORY

<table>
<thead>
<tr>
<th>SOP Revision #</th>
<th>Revision Date</th>
<th>Section Modified</th>
<th>Modification</th>
<th>Reason Changed</th>
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<tbody>
<tr>
<td>1</td>
<td>9/7/16</td>
<td>All</td>
<td>Added header/footer to include program name, SOP number, revision date/number, issue date, and page numbering. Added approval sign offs and revision history sections.</td>
<td>Updating for better document control.</td>
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<tr>
<td></td>
<td></td>
<td>All</td>
<td>Proofreading edits by Christine Ellis</td>
<td>To improve clarity and fix typos.</td>
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