Arizona Water Watch

Aqua Troll 400: Standard Operating Procedure

Equipment Overview:

Aqua Troll 400 Probe

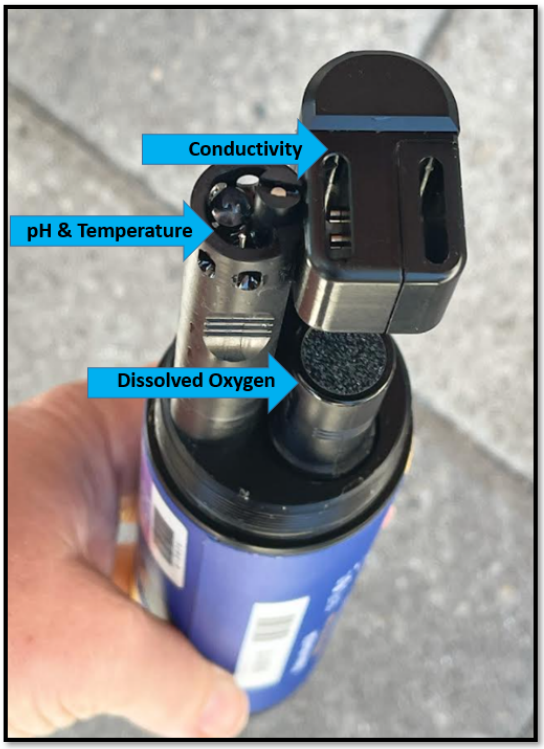
- pH
- Temperature (Water and Air)
- Dissolved Oxygen (RDO)
- Conductivity

Wireless Troll Com

- Sends Aqua Troll readings to iPod via Bluetooth

iPod

- VuSitu App shows field measurement readings
- **Password=6027**



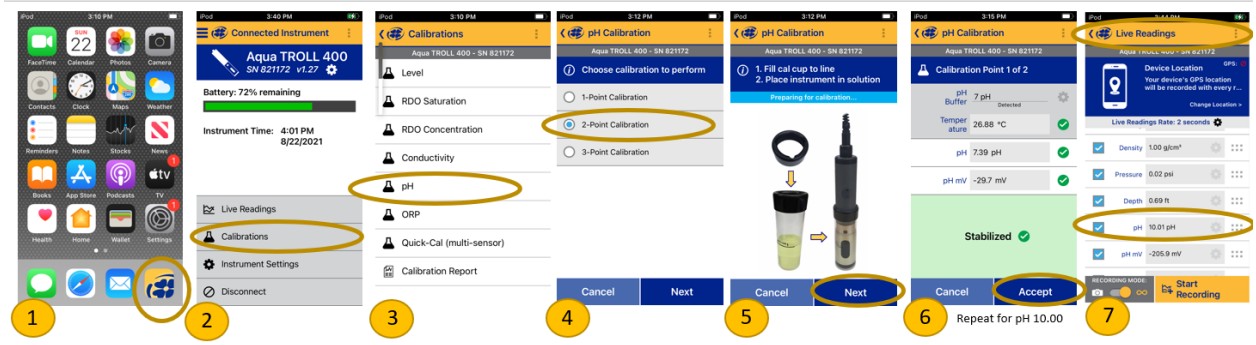
Prior to sampling:

1. **Charge Equipment**
    1. The iPod
    2. The Wireless Troll Com

2. **Pre-Calibrate**

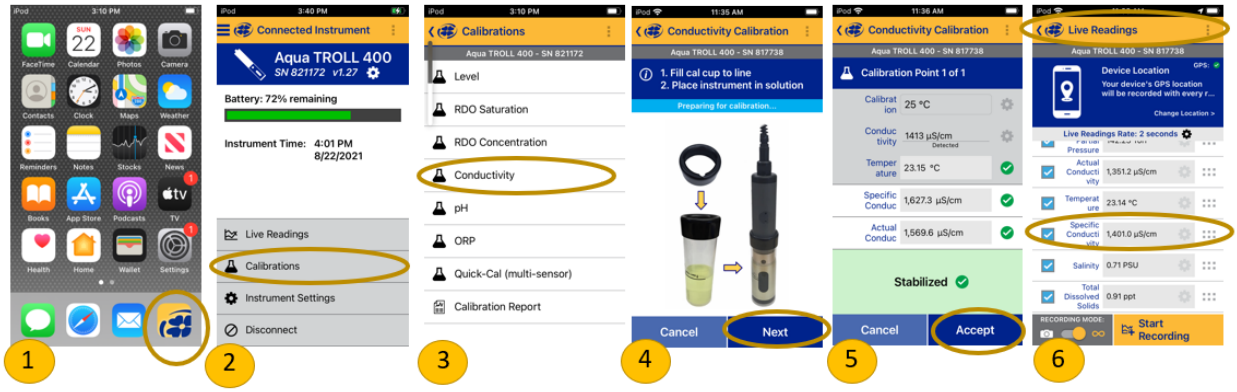
   After the iPod and wireless Troll Com are charged, you will be ready to pre-calibrate the equipment using lab certified buffers. This will ensure the accuracy of your probe when you collect measurements in the field. We will pre-calibrate for pH, Specific Conductivity (EC), and Dissolved Oxygen (RDO) prior to field work. Take note that occasionally for pH and Conductivity buffer solutions may need to be manually entered since when the standard detection is off.

    1. pH 2-point Calibration Procedures
        - Connect the cable to the wireless troll com and Aqua Troll 400
        - Open the VuSitu App (step 1 in the visual)
        - Select “Calibrations” (step 2 in the visual)
        - Select “pH” (step 3 in the visual)
        - Select “2-Point Calibration” (step 4 in the visual)
        - Add pH 7 to the calibration cup. Add just enough buffer to go over the top of the sensor (do not fill to the calibration line, this wastes buffer). Select “Next” and wait for the probe to stabilize. Once the screen says stabilized and turns green, select “ Accept” (step 5 and 6 in the visual)
        - The probe will ask for the next buffer. Tip the 7.00 buffer down the drain. Add pH 10 and select “Next.” Once the screen says stabilized and turns green, select “ Accept” (step 5 and 6 in the visual)
        - A calibration report will appear. Select “Close”. There is no need to save these reports
        - This will take you back to the calibrations home page. From here, tap the top yellow bar that says “Calibrations” and then select “**Live Readings**” (step 2 and 7 in the visual)
        - Write down the pH pre-calibration value on your data form. It should read close to 10.00 to reflect the current lab buffer you have in your calibration cup (step 5 and 6 in the visual)
        - Tip the 10.00 buffer down the drain with some running water
        - Go to the next calibration step



2. Specific Conductivity (EC) Calibration Procedures:

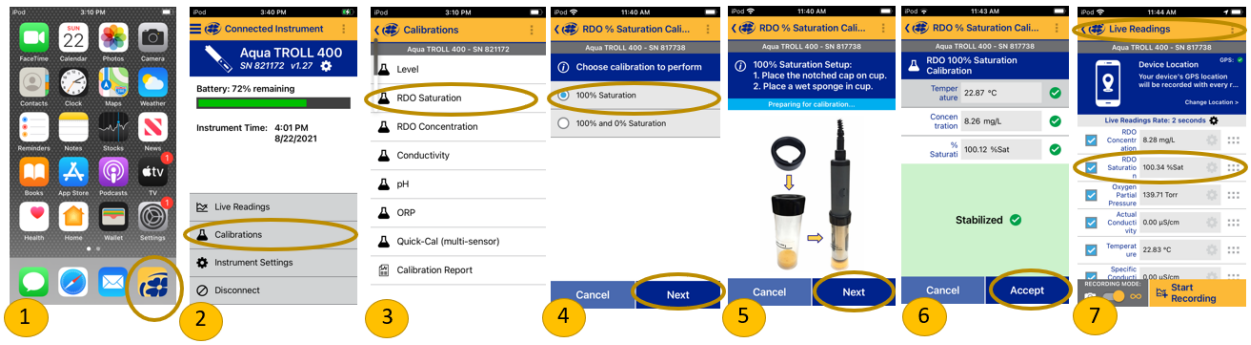
- Select “Calibrations”
- Select “Conductivity”
- Add EC 1408.8 buffer to the calibration cup. Add just enough buffer to go over the top of the sensor (do not fill to the calibration line, this wastes buffer). Select “Next” and wait for the probe to stabilize. Once the screen says stabilized and turns green, select “ Accept.”
- A calibration report will appear. Select “Close.” There is no need to save these reports
- This will take you back to the calibrations home page. From here, tap the top yellow bar that says “Calibrations” and then select “**Live Readings**”
- Write down the EC pre-calibration value on your data form. It should read close to 1408.8 ug/cm to reflect the current lab buffer you have in your calibration cup.
- Tip the EC buffer down the drain with some running water



3. Dissolved Oxygen (RDO) Calibration Procedures:

- Add a damp sponge to the calibration cup
- Select “Calibrations”
- Select “RDO Saturation”
- Select “100% Saturation”

- Select “Next” and wait for the probe to stabilize. Once the screen says stabilized and turns green, select “ Accept.”
- A calibration report will appear. Select “Close.” There is no need to save these reports
- This will take you back to the calibrations home page. From here, tap the top yellow bar that says “Calibrations” and then select “**Live Readings**”
- Write down the RDO% pre-calibration value on your data form. It should read close to 100%.
- You can keep the damp sponge in the calibration cup while you travel to your sample sites.



3. Probe in the Field

Make sure the probe is secure in the pelican case and has a wet sponge when traveling to the field site. Once at the field location, put together the probe and gently place the Aqua Troll facing upstream in a riffle. Take care not to get the iPod or wireless troll com wet!

1. Collect Field Measurements
    - Connect the cable to the wireless troll com and Aqua Troll 400
    - Place the probe (with the metal protective case on) facing upstream in a riffle. Allow the probe a few minutes to adjust to the stream conditions prior to collecting data.
    - Open the VuSitu App
    - Select “Live Readings”
    - Write down the values from the iPod to the datasheet, Numbers will bounce around, commit to a value.
    - Place the calibration cup back on the probe with a wet sponge and travel to your next site

4. Post Sampling Check

After a sampling event, lab buffers are added to the calibration cup to ensure the accuracy of the field data. We post check for Dissolved Oxygen, pH 7, 10, and conductivity (Electrical Conductivity).

1. Dissolved Oxygen Check
    - Add a damp sponge to the calibration cup
    - Connect the cable to the wireless troll com and Aqua Troll 400
    - Open the VuSitu App
    - Select “Live Readings”
    - Write down the RDO value and barometric pressure values on your data form and/or field book.

2. pH 7 and 10
    - Add pH 7.00 buffer to the calibration cup
    - From the “Live Readings” menu, read and record the value for pH 7.00 on your data form and field book
    - Tip the pH 7.00 buffer down the drain and rinse the probe with tap water
    - Add pH 10.00 buffer to the calibration cup
    - From the “Live Readings” menu, read and record the value for pH 10.00 on your data form and field book
    - Tip the pH 10.00 buffer down the drain and rinse the probe with tap water

3. Electrical Conductivity (EC)
    - Add the EC 1408.8 micro siemens/cm lab buffer to the calibration cup
    - From the “Live Readings” menu, read and record the value for EC on your data form and field book
    - Tip the EC buffer down the drain and rinse the probe with tap water

5. Probe Storage

- Add pH 4.00 to a glass container
- Store the probe upright in the pH 4.00 solution until the next field sampling event
- Keep all other probe supplies in the pelican case

AQUA
TROL
Multi-Parameter Water Quality