# My pH sensor is not reading correctly

1. **Basic tests**
   - **Inspect for physical damage** of the glass bulb on the end of the probe. This is not repairable and is not claimable under warranty. This is damage usually caused by rough handling such as using the probe as a stirring rod.
   - **Check condition of storage solution.** If it is depleted or has mould or undissolved KCL salt in it then it is time to add fresh solution. See recipe below.

   ---
   **Storage solution recipe**

   - Prepare a pH 4 buffer
   - Add 10 grams of solid KCl dissolved in 100 mL of pH 4 buffer. Any pH 4 buffer works, but use only KCl for the salt - other salts do not work.
   - Note this solution does not contain mould inhibitor and should only be used until the mould inhibitor version is obtained. **Order code: PH-SS**

   ---

   - When testing a pH Sensor (PH-BTA, FPH-BTA, and 7120B), it is best to place it into a **known fresh buffer solution**. This allows you to see if the sensor is reading correctly (e.g., in a buffer pH 7, is the sensor reading close to pH 7).
   - **Do not place your sensor into distilled water** to check for readings--distilled water can have a pH reading anywhere between 5.5 and 7.0, due to variable amounts of carbon dioxide dissolved from the atmosphere. Furthermore, due to a lack of ions, the pH values reported with the sensor in distilled water will be erratic.

2. **Need for calibration**
   - If your pH Sensor is reading slightly off of the known buffer pH (e.g., reads 6.7 in a buffer 7), you may simply need to calibrate the sensor.
   - You can **calibrate the sensor** in two buffer solutions for two calibration points. (**Order code: PHB**) If you do not remember or know how to perform a calibration, refer to the booklet that came with the pH Sensor. Or download the new version: [Specifications and User Guide](#) for the pH Sensor, PH-BTA. See panel below for a summary of the steps.

3. **Shocking the sensor**
   If your readings are off by several pH values, or the pH readings do not change when moved from one buffer solution to another different buffer, or the sensors response seems extremely slow, the problem may be more serious.
   Sometimes a method called "shocking" is used to revive pH electrodes. See panel below for this procedure.

**To perform the shocking procedure**
1. Let the pH Electrode soak for 4-8 hours in an HCl solution between 0.1 and 1.0 M.
2. After the HCl soak, rinse off the probe and place it in 50-75 mL of fresh storage solution. See recipe above.
3. Soak the probe tip in this storage solution for 1-3 hours.
4. Rinse the electrode and give it another try.

We have found that many old electrodes can be revived in this manner. Generally, storing them in a storage solution (buffer pH 4 + KCl) will keep them in good condition.

**To perform a standard two-point calibration**
1. Choose **Calibrate** from the Experiment menu (Sensors menu on LabQuest) and select pH Sensor.
2. Click **Calibrate Now** to begin the calibration process.
3. Place the pH sensor in the first buffer solution.
4. When the voltage reading displayed stabilises, enter the known pH value in the Reading 1 box and click **Keep** to record the value.
5. Remove the pH Sensor from the buffer solution and rinse the tip of the pH Sensor with distilled water.
6. Place the pH Sensor in the second buffer solution.
7. When the voltage reading displayed stabilises, enter the known pH value in the Reading 2 box and click **Keep** to record the value.
8. **Do NOT press OK** or **Done** yet as a new calibration has been created, but not saved. This new calibration becomes the current calibration for the sensor.
9. **Important! Saving Custom Calibration to the pH Sensor's internal memory**
   - In **Logger *Pro***:
     1. Click the Calibration Storage tab.
     2. Click Set Sensor Calibration.
     3. Click set to confirm the settings
     4. Click **Done** to complete the process.
   - In **LabQuest**:
     1. Tap on the Storage tab
     2. Tap Save Calibration to Sensor.
     3. Tap OK to confirm the settings
     4. Tap **OK** to complete the process.
   - The sensor will now load this calibration each time it is used on any device.

4. **If you have tried all of these tests and suggestions** without resolving the issue please contact us at support@scientrific.com.au for further assistance.