

# Care and Use of Bluelab Soil pH Probes



*"Thank you for choosing a Bluelab soil pH probe."*

The information below will ensure this product will perform to its best. Please read the instructions and keep them in a safe place to refer back to when required.

Glass bulb pH probes are **FRAGILE**. Treated with care they will give a long service life. Do not exert a sideways force on the electrode as this may break the glass stem. Do not knock the probe against anything as it will damage the glassware. A sudden temperature change can also break the glassware - **do not** plunge a cold pH probe into a hot liquid. **pH Probe Lead Care:** Do not kink the lead or bend sharply. The lead on the probe cannot be lengthened. It is safe for the probe to be submerged in fluid but **DO NOT** submerge the BNC fitting. If it is to measure proteins or suspended solids, the probe must be soaked in 1% Pepsin for 15 minutes after use.

**Preparation for Use:** pH probe glassware is designed to stay wet. To remove the wetting cap, grasp the probe near the wetting cap and gently slide the cap off. The glassware needs to be kept wet for optimal performance. For long term storage, place a small amount of clean water (not distilled water) or pH 4 solution into the wetting cap and place over the probe tip. It is recommended by Bluelab that new probes should be stood upright in a container of fresh water or pH 4 solution for 1 hour before use. pH probes that have been allowed to dry out need to be soaked in water for 24 hours before use (re-hydration). This is necessary to ensure the probe works reliably.

## Cleaning Method for Bluelab Soil pH Probes - Cleaning of the glassware is of critical importance!

1. Rinse soil pH probe tip under fresh running water.
2. Fill a small container with clean water and add a small amount of mild detergent (dishwashing liquid).
3. Place the probe into the container and slowly stir it through the liquid. Ensure that you do not 'knock' the probe on the side of the container as this may cause damage to the probe. Rinse well under fresh running water to remove all traces of detergent.
4. If the probe tip requires removal of heavy contamination (nutrient salt build up or algae), gently brush around the glassware with a few drops of mild detergent (dishwashing liquid) and a soft toothbrush paying attention to the area where the conductive wick comes out beside the glassware. **DO NOT** pull out or touch the wick. Rinse well under fresh running water to remove all traces of detergent.
5. Recalibrate the meter by following the instructions on the back of your Bluelab Meter.

**Please see the troubleshooting guide overleaf.**



## Product Guarantee

Bluelab Corporation Limited guarantees this product for a period of 6 months from the date of sale to the original purchaser (authorised resellers excepted). The product will be repaired or replaced at the discretion of Bluelab (not at the discretion of any agent or reseller), should it be found faulty due to component failure or faulty workmanship and providing that the unit is returned freight paid to Bluelab. The guarantee is null and void should any non user parts be tampered with or altered in any way, or should the unit have been incorrectly operated, or in any way be maltreated. This guarantee does not cover reported faults which are shown to be caused by any or all of the following: Contaminated measuring tip, broken glassware, broken stem, corroded connectors, incorrect connection to a device or the electrode is not suitable for the application. **NO RESPONSIBILITY** will be accepted by Bluelab or any of its agents or resellers should any damage or unfavourable conditions result from the use of this product, should it be faulty or incorrectly operated. To take advantage of this guarantee, your details must be registered with Bluelab within fourteen days of purchase.

Owners Name .....

Address.....City.....Country.....

Product Name.....Serial Number.....Date Purchased.....

Purchased From .....

Address.....City.....Country.....

**Mail to Bluelab Corporation Limited, P O Box 949, Tauranga 3140, New Zealand, fax to +64 (07) 578 0847, email: [support@getbluelab.com](mailto:support@getbluelab.com) or register online at [www.getbluelab.com](http://www.getbluelab.com)**

## Troubleshooting Guide

<p><b>Symptom:</b> Drift – readings slowly varying</p> <p><b>Possible Causes:</b></p> <ol style="list-style-type: none"> <li>1. Glassware not clean             <ul style="list-style-type: none"> <li>- clean glassware</li> </ul> </li> <li>2. Wick contaminated or blocked             <ul style="list-style-type: none"> <li>- replace probe</li> </ul> </li> <li>3. Glassware aged             <ul style="list-style-type: none"> <li>- replace probe</li> </ul> </li> </ol>	<p><b>Symptom:</b> Noisy – readings jumping</p> <p><b>Possible Causes:</b></p> <ol style="list-style-type: none"> <li>1. Bubble in glassware             <ul style="list-style-type: none"> <li>- flick probe downward and allow bubble to rise away from the end of the probe</li> </ul> </li> <li>2. Poor connection to meter             <ul style="list-style-type: none"> <li>- check BNC fitting</li> </ul> </li> <li>3. Contact zone not immersed             <ul style="list-style-type: none"> <li>- lower probe into solution below level of wick</li> </ul> </li> </ol>
<p><b>Symptom:</b> Displays similar pH reading in all buffers no matter what the buffer value is.</p> <p><b>Possible Causes:</b></p> <ol style="list-style-type: none"> <li>1. Glassware or stem cracked             <ul style="list-style-type: none"> <li>- replace probe</li> </ul> </li> </ol>	<p><b>Symptom:</b> Displays pH 7 for all buffers</p> <p><b>Possible Causes:</b></p> <ol style="list-style-type: none"> <li>1. Electrical short             <ul style="list-style-type: none"> <li>- check BNC fitting and cable for damage</li> </ul> </li> <li>2. BNC fitting wet             <ul style="list-style-type: none"> <li>- dry BNC fitting with cloth</li> </ul> </li> <li>3. Broken glassware             <ul style="list-style-type: none"> <li>- replace probe</li> </ul> </li> </ol>
<p><b>Symptom:</b> Unsuccessful calibration (Low Slope &lt;90%)</p> <p><b>Possible Causes:</b></p> <ol style="list-style-type: none"> <li>1. Buffers inaccurate             <ul style="list-style-type: none"> <li>- replace buffers</li> </ul> </li> <li>2. Glassware not clean             <ul style="list-style-type: none"> <li>- clean glassware</li> </ul> </li> <li>3. Glassware aged – (glassware will not clean)             <ul style="list-style-type: none"> <li>- replace probe</li> </ul> </li> <li>4. BNC fitting wet             <ul style="list-style-type: none"> <li>- use cloth to dry (<u>Note:</u> terms of guarantee)</li> </ul> </li> </ol>	<p><b>Symptom:</b> Incorrect sample reading following successful calibration</p> <p><b>Possible Causes:</b></p> <ol style="list-style-type: none"> <li>1. Ground loop (Often occurs in process systems)             <ul style="list-style-type: none"> <li>- Verify by removing the sample from its environment and measuring in a glass beaker. May require electrical circuitry checked in system</li> </ul> </li> <li>2. Wick blocked             <ul style="list-style-type: none"> <li>- replace probe</li> </ul> </li> </ol>

**Extra Information** - Visit [www.getbluelab.com](http://www.getbluelab.com) to see or learn more about Bluelab products

- All electrodes have a serial number on the probe stem which identifies the date of manufacture.
- Normally a probe will have a life of 2 years in ideal samples at room temperature. This will be reduced in chemically aggressive or abrasive samples and elevated temperatures.
- Remember not to discard the wetting cap as this should be replaced over the probe tip when the probe is not being used. If you misplace it, sit the probe upright in fresh water.

# Instructions for measuring pH values of soils and soil solutions



## Measuring soil pH value

Once the meter has been set up and calibrated, using it to measure a pH values involves the probe, the green dibber/auger, a soil/media sample and button functions.

NOTE: The probe tip must not have dried out. If it has dried, soak the probe in tap water for one hour prior to taking a measurement.

1. Remove the top 5 cm / 2 in from the surface of the sample area.
2. Insert the dibber/auger into the sample to a depth of about 20 cm / 8 in and remove.
3. If the soil/media is dry, moisten with a small amount of distilled water.
4. Insert probe to the same depth ensuring it makes proper contact with the soil.
5. Turn the meter on.
6. Wait for the reading displayed on the meter to stabilize. This can take up to four minutes. Record the reading.
7. Remove the probe from the soil/media and wash with probe tip under fresh running water (not distilled) to remove any remaining soil residue.
8. Repeat the procedure in different locations and take the average of the measured data as the pH level is representative of the sample area.
9. Turn Meter off or allow instrument to turn off automatically (after four minutes).  
If the meter turns off while taking a measurement, simply press the ON/OFF button to turn the meter back on and continue with your measurement.
10. **Store Probe between Measurements.** Place wetting cap back on probe tip with a small amount of fresh water or pH 4.0 solution in it or store probe tip in a container of fresh water between uses.

CAUTION: The Soil pH probe is never stored in de-ionized or distilled water as this will permanently damage it.

## Measure soil solution pH value

The greatest source of error in soil analysis comes during sample collection. An effort should be made to ensure each sample properly represents the area being sampled.

Note:

- The readings taken with this method could be higher than those taken by other methods
- Consistency of the method used is important to be able to compare sets of results
- The accuracy of this method cannot be guaranteed because of the variables involved
- The results should be viewed as 'indicative' rather than 'absolute'.

### 1. Collection of Sample

- Sample in a zigzag pattern across the required area.
- Remove 15 mm / ½ in of top soil before sampling at a depth of 150 mm / 6 in.
- Mix all collected samples together thoroughly.
- Allow to dry in air for one hour.
- Weigh out 20 g / 0.7 oz of the collected soil into a 150 ml / 5 fl oz plastic sample jar.

### 2. Sample Preparation

- Add 100 ml / 3½ in of distilled or deionised water, screw lid on tightly.
- Shake continuously for 5 minutes. Leave overnight and shake again the next morning.
- Allow to settle for 15 minutes after shaking and strain sample into clean measuring cup.

### 4. Take pH readings as follows;

- Insert probe into the soil solution sample
- Turn the meter on
- Wait for the reading displayed on the meter to stabilize. This can take up to four minutes. Record the reading.
- Remove the probe from the soil solution and wash with probe tip under fresh running water (not distilled) to remove any possible soil residue.
- Turn Meter off or allow instrument to turn off automatically (after four minutes). If the meter turns off while taking a measurement, simply press the ON/OFF button to turn the meter back on and continue with your measurement.

### 5. Store Probe Between Measurements

- Place wetting cap back on probe tip with a small amount of fresh water or pH 4.0 solution in it or store probe tip in a container of fresh water between uses.