

BlueLAB pH Meter™

Instruction Manual



blueLAB® simple solutions **pH meter™**

www.getbluelab.com

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1.0 Introduction to Bluelab pH Meter

The battery operated pH Meter measures pH levels by using a pH probe connected to the electronic meter. The meter has a liquid crystal display (LCD) digital readout.

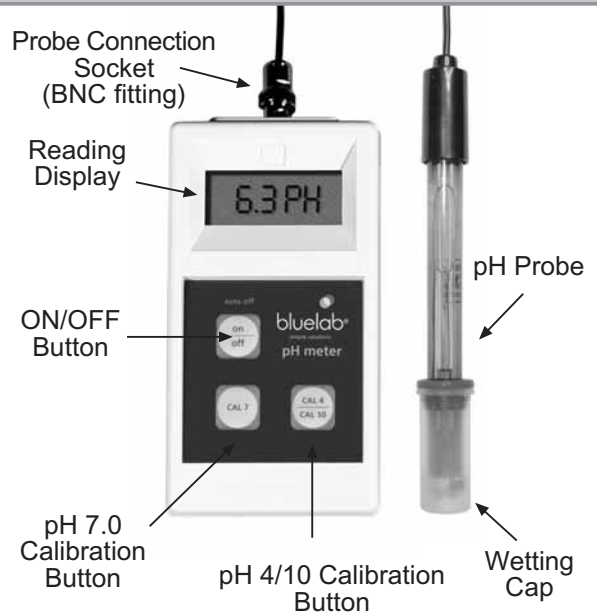
1.1 Basic Operation

- 1 The battery operated pH meter consists of a case and probe. The meter case has a LCD reading display and buttons for ON/OFF, 7.0pH calibration and 4/10pH calibration. There is also a standard BNC fitting for probe connection.

Figure 1. shows the Bluelab pH Meter.

The pH probe has a removable wetting cap. It is important that the probe tip is not allowed to dry out. The wetting cap is placed back onto the probe tip after each use.

The meter automatically turns off after approximately four minutes if no buttons are pressed. If the meter turns off before the reading is taken, a short press of the ON/OFF button will turn the meter on again.



1.2 Meter Calibration

- 1 The Bluelab pH Meter is calibrated before the first use to ensure reading accuracy. Solutions used for calibration are carefully stored and replaced 3 months after opening. pH reading accuracy is dependant on the accuracy of the calibration solutions used and also on age, use and cleanliness of the pH probe.

If measuring a pH below 7.0 is expected, the meter is calibrated using pH7.0 and pH4.0 calibration solutions. If measuring a pH above 7.0 is expected, pH7.0 and pH10.0 solutions are used.

1.3 Storage of Meter

- 1 The meter is kept out of direct sunlight to prevent irreparable damage to the LCD reading display; this includes storing in a cool, dry and clean place when not in use. The meter unit is not waterproof but will withstand occasional water splashes. If the meter does get splashed, wipe dry as soon as possible. Storing the meter without use for longer than two to three weeks requires removal of the pH probe. Place a small amount of pH 4.0 solution or fresh water into the wetting cap, tip out the excess then replace the wetting cap on to the probe tip and store the probe in a secure place. The pH probe is never stored in de-ionized or distilled water as this will permanently damage it.

Batteries are removed if the unit is to be stored for a prolonged period.

2.0 Preparing the pH Meter for Use

Preparing the Bluelab pH Meter for use involves hydrating the pH probe, inserting 2 x AAA batteries, connecting the pH probe and calibrating the pH. These tasks are performed before the meter is used for the first time.

1 Hydrate pH Probe

Carefully remove pH probe wetting cap ensuring the body does not bend. Bending the body of the pH probe can break the glass tube inside. Soak the probe tip in fresh water for at least one hour. Soaking the tip for 24 hours will improve the probe's activity and is recommended if the probe tip has been allowed to dry.

CAUTION: Do not use de-ionized or distilled water. When probe is not in use, place a small amount of pH 4.0 solution or fresh water into the wetting cap, tip out the excess, then replace the cap onto the probe tip and store the probe in a secure place.

2 Insert Batteries

Open battery compartment by sliding back cover down and insert 2 x AAA batteries as shown on the battery holder. Slide cover back on.

NOTE: Alkaline batteries are recommended.

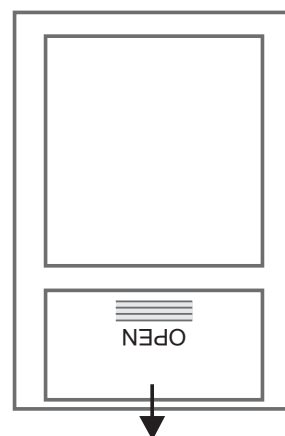


Figure 2. Battery Cover

3 Connect pH Probe

Connect the pH probe to the meter by lining up the meter lugs of the BNC fitting. Fasten securely by pushing probe connector on and twisting one quarter turn.

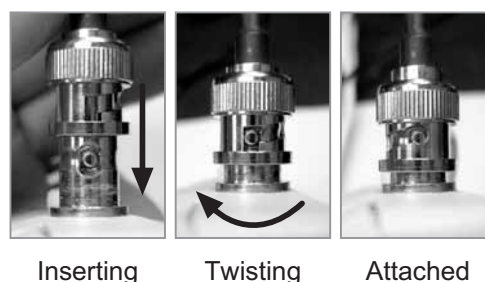


Figure 3. Probe Attachment

4 Calibrate the pH

Calibrate the pH meter by following the instructions in section 3.0. This should be done before the meter is used for the first time.

3.0 Calibrating Meter

For accurate meter readings the pH probe is cleaned and recalibrated when:

- The reading you were expecting is different
- The probe is replaced with a new one
- It has been a month since the last calibration
- Typically more than 30 readings have taken place
- The meter is reset after an error message

The pH calibration involves cleaning the pH probe and then calibrating in **TWO SOLUTIONS**. If a reading below pH7.0 is expected, use pH7.0 and pH4.0 calibration solutions.

If a reading above pH7.0 is expected, use pH7.0 and pH10.0 calibration solutions.

Follow the steps below for pH calibration.

- 1 Clean pH Probe (if required)**
Clean the probe as in Section 5.0.

- 2 pH 7.0 Calibration**
Turn meter on. Rinse probe thoroughly in fresh water, shake off excess water and place probe in a pH7.0 calibration solution for at least one minute for reading to stabilize.

Press and hold the CAL 7.0 button. When the display starts flashing, release the button. If calibration is accepted it will display 7.0pH.

NOTE: If a message appears during the calibration process, such as 'E2:PH', the calibration was unreliable. See section 6.0.



pH 7.0 Calibration Solution
Figure 4. Reading Stabilized

- 3 Rinse Probe**
Rinse completely in fresh water and shake off excess.

- 4 pH 4.0/pH 10.0 Calibration**
Place probe into pH4.0 or a pH10.0 solution and wait for a period of at least one minute for reading to stabilize.

Press and hold the CAL 4/10 button. Once the display starts flashing, release the button. It will display 4.0pH or 10.0pH if calibration is accepted, otherwise refer to error messages on page 7.

The meter is now calibrated and ready for use.

4.0 Measure pH Value

Once the pH meter has been set up and calibrated, using it to measure pH value involves the probe, a solution and button functions.

To decrease time taken to reach solution temperature, place the probe in an area where there is strong movement of the solution or stir the solution with the probe.

For very cold or warm temperatures, it may take four to five minutes for the probe to reach the same temperature as the solution.

1 Turn Meter On

Press the ON/OFF button to turn the meter on.

2 Insert Probe into Solution

Place the probe into the solution to be measured.

Read value shown on LCD display.

NOTE: If taking readings of more than one solution, rinse probe thoroughly in fresh water between solutions to avoid cross contamination.

3 Turn Meter Off

Press ON/OFF button or allow instrument to turn off automatically (after four minutes).

If the meter turns OFF while taking a reading, simply press the ON/OFF button to turn the meter back ON and continue with your measurement.

4 Store Probe Between Measurements

Place the 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 pH probe is never stored in de-ionized or distilled water as this will permanently damage it.

5.0 Cleaning and Maintenance

Cleaning the Bluelab pH Meter probe ensures accurate readings. Cleaning includes using a mild detergent (dishwashing liquid), a small container, a toothbrush and some clean fresh running water. Maintenance also involves the batteries.

5.1 Clean pH Probe

Follow these steps to clean the pH probe.

1 Preparation

Rinse the pH Probe tip under fresh running water. Fill a small container with clean water and add a small amount of mild detergent (dishwashing liquid).

2 Clean Glassware

Place the probe into the container and slowly stir it through the liquid several times. If the probe tip is heavily contaminated, gently brush around the glassware with a few drops of mild detergent (dishwashing liquid) and a soft toothbrush.

3 Rinse Glassware

Rinse well under fresh running water to remove all traces of detergent.

CAUTION: Do not touch probe glassware with fingers. This will contaminate the probe and affect performance. Do not use excessive force on glassware or probe body as they are easily damaged.

5.2 Battery Replacement

- 1 Batteries are replaced in the unit when the message 'LO BAT' appears in top left-hand corner of LCD display. See section 2.2.

NOTE: Batteries should be checked at least once every six months for signs of deterioration, rusting or swelling. If signs of deterioration are found, the battery holder contacts should be cleaned and batteries replaced.

6.0 Error Messages

Error messages will only appear following pH calibration failure. The following describes error messages, the reason and cause for an error message.

To clear an error message, press any button once. The meter will reset to the factory set calibration and will need to be recalibrated successfully before use.

Error display	Indicates	Possible causes
E1: PH	Not enough difference between pH7.0 and pH4.0 readings.	pH4.0 calibration solution contaminated or wrong solution used. Probe contaminated, not properly attached, worn out or damaged.
E2 : PH	Not enough difference between pH7.0 and pH10.0 readings.	pH10.0 calibration solution contaminated or wrong solution used. Probe contaminated, not properly attached, worn out or damaged.
E3 : PH	Not enough difference between the readings.	Calibrate to pH7.0 FIRST, then to pH4.0/10.0.
E4 : PH	pH7.0 calibration unreliable.	pH7.0 calibration solution contaminated or wrong solution used. Probe contaminated, not properly attached, worn out or damaged.

7.0 Troubleshooting Guide

The following table describes problems that can occur with the pH Meter, the possible reasons and explains possible solutions.

Trouble	Possible reason	Possible solution
pH readings inaccurate	Contaminated probe. Incorrect calibration. Broken glass bulb, stem or connector.	Clean pH probe as described in section 5.0. Ensure calibration solutions are accurate - replace if in doubt. Wait longer for readings to stabilize before calibrating. Check pH probe for damage.
Display shows LO BAT in top left hand corner	Insufficient power to take a reliable reading.	Replace the batteries. DO NOT use rechargeable batteries.
Meter will not turn on	Batteries dead or inserted incorrectly.	Check batteries are inserted correctly. Replace if necessary.
Display shows E2 : PH or similar	Problem with pH calibration or the meter is damaged.	See error messages in Section 6.0.
orPH urPH	Over range pH Under range pH	Solution > 14.0pH Solution < 0.0pH Check pH probe connection. pH probe could be faulty. Meter could be wet inside.

8.0 Technical Specifications

	Bluelab pH Meter
Range	0 - 14 pH
Resolution	0.1 pH
Accuracy (at 25°C)	± 0.1 pH
Temperature Compensation	Not applicable
Operating Temperature Range	0 - 45°C 32 - 113°F
Power Source	2 x AAA Alkaline batteries
Calibration	Manual calibration
Other Features	Low battery warning Auto turn off function Over range and under range indicators

Contact Details

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The instrument is only as accurate as the probe is clean!

Bluelab cleaning kits

Probe cleaning is one of the most important parts of owning and operating any Bluelab Trunccheon[®], meter, monitor or controller. If the probe is contaminated (dirty), it affects the accuracy of the reading displayed.

The probe surface is where the instrument takes the reading of the solution. The information is sent back from the probe to the electronic brain of the instrument. A calculation is then done in the instruments brain or micro computer and a reading is then displayed. If the information sent back from the probe is inaccurate due to probe surface contamination then the reading will be inaccurate.

Cleaning the probes is a very easy task and prolongs the life of the probes.

The Bluelab cleaning kits have it all there for you:

pH cleaning and calibration kit:

full colour instructions

calibration solutions

decanter vessels

probe cleaner

toothbrush



conductivity probe cleaning kit

full colour instructions

conductivity standard solution

decanter vessel

Bluelab probe cleaner

Bluelab chamois (probe cleaning instrument)



