

Care and Use Guide.



Probe cable length: 2 metres / 6.6 feet

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5 Limited Written Guarantee

The Bluelab Multimedia pH Meter comes with a free 5 year limited written guarantee. (6 months for Bluelab Leap pH probe). Proof of purchase required.

bluelab.com

Features		
Test more with a faster sensor response and direct measurements from substrates	Multimedia friendly, for measurements across a range of environments	
Toughened glass for a more robust probe	Toughened spear tip for direct root-zone measurements	
Simple two point calibration process with 30 day calibration indicator	Backlit LCD display, low battery indicator, auto off function	



at all times to avoid permanent damage

1.0 Introduction

The Bluelab[®] Multimedia pH Meter has two press buttons; 'calibrate' and power. The power button requires a short press; release in about one second. The 'calibrate' button requires a long press; hold for at least three seconds and release when the display starts flashing.

Turning the Bluelab® Multimedia pH Meter on and off

A short press of the power button will turn the Bluelab[®] Multimedia pH Meter on. The Bluelab[®] Multimedia pH Meter automatically turns off after approximately four minutes if no buttons are pressed.

If the Bluelab[®] Multimedia pH Meter turns off before the reading is taken, short press the power button to turn the meter on again.

2.0 Preparing for use

The following tasks must be performed before the Bluelab[®] Multimedia pH Meter and Bluelab[®] Leap[™] Probe are used for the first time.

IMPORTANT: The Bluelab® Leap[™] pH Probe must be preconditioned to your intended grow media before calibration. The bridge between the glass tip of the probe and the body of the probe may change colour/look dirty (this is especially obvious with soils with higher clay contents). This is normal.

- Insert batteries. See section 7.0.
- Connect Leap™ pH Probe Connect the Leap™ pH Probe to the Bluelab® Multimedia pH Meter via the BNC fittings.
- 3 Remove the storage cap

Remove the pH probe storage cap by gripping the top of the cap and gently twisting the base one rotation clockwise to loosen slightly. Next slowly slide the cap off the pH probe. DO NOT completely remove the base of the cap from the top of the cap.

CAUTION: When the Leap^{TM} pH Probe is not in use, add enough Bluelab[®] pH Probe KCl Storage Solution to the storage cap so the probe tip is covered. Then replace the cap and store in a secure place.

DO NOT use RO (Reverse Osmosis), Distilled or Deionized water. Pure water changes the chemistry in the reference, causing the probe to die.

Insert the probe 3-5 times into the media you are going to be measuring to pre condition, clean following section 8 cleaning instructions.

6 Calibrate the pH

Calibrate the Bluelab[®] Multimedia pH Meter by following the instructions in section 3.0 of this manual.

This must be done before the Bluelab[®] Multimedia pH Meter is used for the first time.



Attaching the Bluelab[®] Leap™ pH Probe to the Meter





Removing Leap™ pH Probe storage

Ensure probe tip is covered by the KCI storage solution in cap



Leap[™] pH Probe bridge before and stained after preconditioning in soil. This is normal.

See section 3.0 for calibration steps

3.0 Calibration

pH calibration is required before first use and then at least monthly to ensure readings are accurate. Bluelab[®] recommend more frequent calibration with high use.

The Bluelab[®] Leap[™] pH Probe should be cleaned and recalibrated when:

- The reading is different to what you were expecting.
- The batteries have been removed or changed.
- The Bluelab[®] Leap[™] pH Probe is replaced with a new one or is disconnected from the Bluelab[®] Multimedia pH Meter.
- The pH calibration indicators have disappeared.

When calibrating the pH after first use the Bluelab[®] Leap[™] pH Probe needs to be cleaned. See Leap[™] pH Probe cleaning in section 8.0. The Bluelab[®] Leap[™] pH Probe does not need to be cleaned for initial calibration unless you have pre-conditioned the probe in media.

When to calibrate	Light user (Up to 50 insertions a week)	Heavy user (More than 50 insertions a week)
Solution	Calibrate at least	
Low Abrasive Media (eg Rockwool, CocoCoir)	once a month	Calibrate at least
Highly Abrasive Media (eg Soil, potting mix)		once a week

For best pH calibration

pH reading accuracy is dependant on the accuracy and age of the calibration solutions used, and use and cleanliness of the Bluelab[®] Leap[™] pH Probe tip.

- Ensure the Bluelab[®] Leap[™] pH Probe has been cleaned and rinse the Leap[™] pH Probe tip with clean water between calibration solutions to reduce contamination of the pH solutions.
- Only fresh uncontaminated solutions should be used.
- Calibrate the pH at the same temperature as the solution to be measured.
- ALWAYS calibrate the Bluelab[®] Leap[™] pH Probe with pH 7.0 then pH 4.0 or pH 10.0.
- If you are changing media (including using new media) you should pre-condition the probe by inserting it in the media 3-5 times and cleaning before calibrating

The pH calibration involves cleaning the Bluelab[®] Leap[™] pH Probe tip and then calibrating in TWO SOLUTIONS.

If a reading below pH 7.0 is expected, use pH 7.0 and pH 4.0 calibration solutions. If a reading above pH 7.0 is expected, use pH 7.0 and pH 10.0 calibration solutions. Follow the steps below for Multimedia pH Meter calibration.

Storage and use of calibration solutions

- Always place the lid back onto the bottle after use or evaporation will occur rendering the solution useless.
- DO NOT measure directly into the bottle. Tip a small amount into a clean container and discard after use.
- Store in a cool place.
- Never add water to solutions.

3.0 Calibration cont.

To calibrate the pH

Clean pH probe tip.

See section 8.0 (the Bluelab[®] Leap[™] pH Probe does not require cleaning before the first use, unless it has been preconditioned).

PH 7.0 calibration

- a) Press any button to turn the Bluelab[®] Multimedia pH Meter ON.
- b) Loosen and remove cap from probe.
- c) Rinse probe tip in fresh water, then place in pH 7 solution.
- d) Press the CAL button until CAL appears on the screen and release.
- e) A series of flashing '[]'s will appear. Once calibration is complete, PH7 will be displayed.
- f) If Err appears during the calibration process see Section 11.0.
- g) The Multimedia pH Meter must be calibrated to two points. If after an hour the meter has not been calibrated with a second calibration point the calibration indicators disappear and the Multimedia pH Meter reverts to an uncalibrated state. Calibration is required.

B pH 4.0 / 10.0 calibration

- a) Rinse pH probe tip in fresh water, then place in either pH 4 or pH 10 solution.
- d) Press the CAL button until CAL appears on the screen and release.
- e) A series of flashing '[]'s will appear. Once calibration is complete, pH 4 or pH 10 will be displayed.
- f) Rinse pH probe tip in fresh water.
- c) The Multimedia pH Meter is now calibrated and ready for use.
- d) The successful calibration indicator $({}_{\mu\mu}7)4$ or $({}_{\mu\mu}7)10$ will appear on screen.
- d) Probes require cleaning and calibrating at least every 30 days, more frequent with high use.

④ Store the Leap™ pH Probe

Add enough Bluelab pH Probe KCl Storage Solution into the probe storage cap to fully submerge the Leap™ pH Probe tip. Place storage cap on probe.





Successful pH 7 and pH 4 calibration



Ensure probe tip is covered by the KCI storage solution in cap

4.0 Information about measuring the pH of soil/media

pH is the measurement of the hydrogen ion concentration (H+) - acidity and its opposite, alkalinity. Neutral pH is 7.0 pH. Acidity measures below seven pH (7.0 pH) with alkalinity measuring above it (7.0 pH). See chart below.

In soil or growing media, pH strongly influences the availability of nutrients to the plant and the presence of microorganisms in the soil.

Certain plants require a particular pH range to enable the required nutrients to be consistently available to the plant. If the solution is too acidic or too alkaline it can cause "lock up" – a situation which restricts certain elements essential for growth from being absorbed by the root structure. This in turn reduces plant health and performance. Deficiencies in the required elements become apparent in plant growth and can lead to crop failure.

Low soil pH causes aluminium and manganese toxicity in plants and reduces the availability of soil phosphorus. High soil pH also reduces soil phosphorus availability and reduces micro nutrients such as zinc and boron to plants.

The chart below shows how nutrient pH levels influence the uptake of certain elements.



Recommended pH range for plants grown in:

4.0 Information about measuring the pH of soil/media cont.

Taking pH measurements of soil with an electronic meter is indicative rather than absolute.

The following factors are outside the control of any Multimedia pH Meter, so to minimise their effect on the accuracy of the pH measurement you should consider the following precautions:

Moisture level/raw water

If the sample you are wishing to measure is dry, add RO water or distilled water to moisten. Ideally wait 24 hours before you take a measurement. **NOTE:** If you add tap water, you will influence the soil pH reading based on the pH of the tap water.

Calibration of the Multimedia pH Meter and cleanliness and age of the probe

Calibrating the Multimedia pH Meter at least monthly will help ensure accurate readings. Cleaning the soil residue from the probe tip and storing in a clean moist state will help provide reliable readings as well as prolonging the probes life.

Sample selection

For open field testing, remove the top 5 - 10 cm / 2 - 4" of the top of the soil. Samples are taken approximately 15 - 20 cm / 6 - 8" down into the soil and from various areas in the field, then an average of the readings is used.

For container grown plants, it is recommended to check the pH level of the grow media prior to planting.

Factors affecting pH in the soil or media:

Soil type

Soils formed under high rainfall conditions (e.g. Eastern USA) are more acidic than those formed under dry conditions (e.g. Western USA).

Growth stage of the plant

Uptake and requirements of particular elements change as the plant progresses through it's growing cycle. Recording pH level data to create a history is valuable.

Applications and types of fertilizers

Applications and types of fertilizers can alter the pH level significantly. The time at which you take the reading is important. Evaluate the brand of fertilizer to see if it is altering the pH in the wrong direction.

Applications of sprays

As sprays can soak into the soil/media, it can change the pH levels.

Soil/media temperature

High temperature soils may have a high concentration of CO₂. The higher the concentration of carbon dioxide, the more carbonic acid there is which lowers pH.

pH range for soil crops

The recommended pH range for soil crops is 6.2 - 7.2, but this is plant specific.

5.0 Measuring the pH value

Once the Bluelab[®] Multimedia pH Meter has been set up and calibrated, using it to measure a pH value involves using the Bluelab[®] Leap[™] pH Probe, the dibber/auger for coarse soil and button functions. NOTE: The pH probe tip must not have dried out. If it has dried, soak the Bluelab[®] Leap[™] pH Probe in KCl for at least one hour prior to taking a measurement.

- If measuring outside of solution, rockwool or small/shallow pots, remove the top 5cm / 2in. from the surface of the sample area.
- 2 If the soil/media is dry, moisten with a small amount of distilled water.
- 3 Turn the Multimedia pH Meter on.
- I Remove the storage cap and insert the Leap[™] pH Probe in grow media, if using dibber ensure probe in in contact with soil
- Wait for the reading displayed on the Multimedia pH Meter to stablize to a constant value. This can take up to four minutes. Record the reading.
- 6 Remove the Leap[™] pH Probe from the soil/media and wash the Leap[™] pH Probe tip under fresh running water (not distilled) to remove any remaining soil residue.
- Repeat the procedure in different locations and take the average of the measured data as the pH level is representative of the sample area.
- If the Multimedia pH Meter turns off while taking a measurement, simply press the power button to turn the Multimedia pH Meter back on and continue with your measurement.
- Store the Leap[™] pH Probe between measurements. See section 10.0.

6.0 Measuring 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.

- · 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'

Collection of sample

- Sample in a zig-zag pattern across the required area.
- 2 Remove 15 mm / 5/8 in. of top soil before sampling at a depth of 150 mm / 6 in.
- 3 Mix all collected samples together thoroughly.
- Allow to dry in the air or in an oven at 40 °C / 104 °F.

 \bigcirc Weigh out 20 g / 0.7 oz of the collected soil into a 150 ml / 5 fl oz plastic sample jar.

Sample preparation

- Add 100 ml / 3 fl oz of distilled or deionized water, screw lid on tightly.
- 2 Shake continuously for 5 minutes. Leave overnight and shake again the next morning.
- 3 Allow to settle for 15 minutes after shaking and strain sample into clean measuring cup.

Take pH readings as follows:

- I Remove the storage cap and insert the Leap™ pH Probe tip into the soil solution sample.
- 2 Turn the Multimedia pH Meter on.
- Wait for the reading displayed on the Multimedia pH Meter to stablize to a constant value. This can take up to four minutes. Record the reading.
- ② Remove the Leap[™] pH Probe from the soil solution and wash the Leap[™] pH Probe tip under fresh running water (not distilled) to remove any possible soil residue.
- If the Multimedia pH Meter turns off while taking a measurement, simply press the power button to turn the Multimedia pH Meter back on and continue with your measurement.

Store Leap™ pH Probe between measurements

See section 10.0.

7.0 Battery replacement

Batteries are replaced in the Bluelab[®] Multimedia pH Meter when the low battery indicator appears on screen. The low battery indicator remains on and the Bluelab[®] Multimedia pH Meter continues to operate until the batteries die or are replaced.

- Open battery compartment by sliding the back cover down and insert 2 x AAA batteries as shown on the battery holder. Slide cover back on. NOTE: Alkaline batteries are recommended.
- IMPORTANT: Check the batteries at least once every six months for signs of deterioration, rusting or swelling. If signs of deterioration are found, clean battery holder contacts and replace batteries.



8.0 Cleaning the Bluelab[®] Leap™ pH Probe

To ensure accurate readings the Bluelab[®] Leap^{IM} pH Probe needs to be rinsed in water after each use and cleaned prior to calibration using the following instructions.

The storage cap must always be put back on after cleaning. Always ensure it contains enough Bluelab[®] pH Probe KCI Storage Solution to cover the probe tip.



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9.0 Hydrating the Leap™ pH Probe



10.0 Storing the Bluelab® Multimedia pH Meter

- Store the Bluelab[®] Multimedia pH Meter in a cool, dry and clean place when not in use.
- 2 Keep out of direct sunlight. Keep Bluelab[®] Multimedia pH Meter out of direct sunlight to prevent irreparable damage to the LCD reading display.
- The Bluelab[®] Multimedia pH Meter is not waterproof but will withstand occasional water splashes.

If the meter is splashed, wipe dry as soon as possible.

- A Remove batteries if the meter is to be stored for a prolonged period.
- Remove pH probe if storing the pH Meter without use for longer than two to three weeks and check regularly that the pH probe tip has not dried out.

When storing the Bluelab[®] Leap™ pH Probe, the probe tip must be kept submerged in KCI solution in the storage cap.

DO NOT use RO (Reverse Osmosis), Distilled or Deionized water. Pure water changes the chemistry in the reference, causing the probe to die.

11.0 Error messages

An error message will only appear following pH calibration failure.

'Err' will be displayed for a few seconds then the display will show the previous reading. Successful pH calibration indicators will disappear. The Bluelab Multimedia pH Meter is in an uncalibrated state, therefore recalibration is required. See causes of Error messages below.

Possible causes for an 'Err' message:

- Calibration solutions contaminated
- Wrong solutions used
- pH probe contaminated
- pH probe not properly attached
- pH probe worn out or damaged
- Calibrate to pH 7.0 FIRST then to pH 4.0/10.0

12.0 Technical specifications		
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Measurement range	0.0 - 14.0 pH	
Resolution	0.1 pH	
Accuracy at 25 °C/77 °F	±0.1 pH	
Calibration	Two point pH 7.0 and pH 4.0 or pH 10.0	
Operating environment	0 - 50 °C 32 - 122 °F	
Power source	2 x AAA alkaline batteries	

Trouble	Reason	Correction	
pH reading inaccurate	Contaminated Bluelab [®] Leap™ pH Probe / glassware not clean.	Clean probe (see section 8.0); then calibrate.	
	Bridge contaminated, blocked or dry.	Hydrate probe in KCl storage solution for 24 hours, see section 9.0. Do not measure proteins or oils with this unit. Replace unit.	
	Incorrect pH calibration.	Ensure calibration solutions are accurate. Replace if in doubt. Wait longer for readings to stabilize before calibrating to a constant value.	
	pH calibration unreliable.	Re -calibrate Bluelab [®] Leap™ pH Probe (see section 3.0).	
	Bluelab [®] Leap™ pH Probe damaged or old.	Replace Bluelab [®] Leap™ pH Probe.	
pH reading does not change from solution to solution	Broken glass bulb, tube or connector.	Check Leap™ pH Probe for damage. Replace probe.	
Displays low battery indicator	Insufficient power to take a reliable reading.	Replace the batteries. DO NOT use rechargeable batteries.	
No display	Batteries dead or inserted incorrectly.	Check batteries are inserted correctly. Replace if necessary.	
Display shows 'Err'	Problem with pH calibration.	See error message descriptions i section 11.0 of this document.	

Bluelab[®] Leap™ pH Probe replacement

Direct multimedia pH measurement for nutrient

Reliably measure the pH level across a wide range of media.

The Bluelab[®] Leap^{™™} pH Probe can be used by everybody from the home enthusiast through to more robust commercial applications. Team with Bluelab[®] Solutions.



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

Probe cleaning is one of the most important parts of owning and operating any Bluelab meter, monitor or controller.

If the probe is contaminated (dirty) it affects the accuracy of the reading displayed.

Bluelab Probe Care Kit - pH contains:

- Probe care instructions
- 3 x plastic cups
- 20ml single-use Bluelab Solution
 Sachets, 2 each of: pH 7.0 & pH 4.0, KCI
- Bluelab pH Probe Cleaner
- Toothbrush (pH probe cleaning instrument)

Bluelab pH Probe KCI Storage Solution

The perfect solution to store and hydrate your Bluelab pH products.

Bluelab pH Probe KCI Storage Solution is designed to increase response time and maximize the life of Bluelab pH pens and pH probes.

For best results, use the KCl solution to store the pH pen/ probe after use and hydrate monthly.

Instructions are on the label of the bottle.

Use Bluelab pH Probe KCI Storage Solution with:

- > Bluelab pH Pen
- > Bluelab Soil pH Pen

- Bluelab pH Probes
- > Bluelab Leap™ pH Probes



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5) Bluelab[®] Limited Warranty

Bluelab[®] Corporation Limited (Bluelab[®]) provides a warranty on its products (Bluelab[®] Multimedia pH Meter) under the following terms and conditions:

How Long Does Coverage Last?

Bluelab® warrants the Bluelab® Multimedia pH Meter (Product) for a period of 60-months from date of purchase by original purchaser or consumer. Proof of purchase, to Bluelab's sole satisfaction, is required for the warranty to be effective (store sales receipt for Product showing model number, payment and date of purchase). This warranty is non-transferable and terminates if the original purchaser/consumer sells or transfers the Product a third party.

What is Covered?

Bluelab[®] warrants the Product against defects in material and workmanship when used in a normal manner, in accordance with Bluelab[®] instruction manuals. If Bluelab[®] is provided with valid proof of purchase (as defined above) and determines the Product is defective, Bluelab[®] may, in its sole discretion either (a) repair the Product with new or refurbished parts, or (b) replace the Product with a new or refurbished Product.

Any part or Product that is replaced by Bluelab[®] shall become its property. Further, if a replacement part or Product is no longer available or is no longer being manufactured, Bluelab[®] may at its sole discretion replace it with a functionally-equivalent replacement part or product, as an accommodation in full satisfaction of the warranty.

What is NOT covered?

This warranty does not apply to equipment, component or part that was not manufactured or sold by Bluelab[®], and shall be void if any such item is installed on a Product. Further, this warranty does not apply to replacement of items subject to normal use, wear and tear and expressly excludes:

- · Cosmetic damage such as stains, scratches and dents
- Damage due to accident, improper use, negligence, neglect and careless operation or handling of Product not in accordance with Bluelab[®] instruction manuals, or failure to maintain or care for Product as recommended by Bluelab[®]
- · Damage caused by use of parts not assembled/installed as per Bluelab® instructions
- Damage caused by use of parts or accessories not produced or recommended by Bluelab[®]
- · Damage due to transportation or shipment of Product
- · Product repaired or altered by parties other than Bluelab® or its authorised agents
- · Product with defaced, missing or illegible serial numbers
- Products not purchased from Bluelab® or a Bluelab®-authorised distributor or reseller.

How Do You Get Service?

To begin a warranty claim you must return the Product to the point of purchase with valid proof of purchase (as defined above). In California, you can also return the Product to any Bluelab-authorised distributor or reseller, with valid proof of purchase.

Limitation of Liability & Acknowledgments

TO THE MAXIMUM EXTENT PERMITTED BY LAW, THIS WARRANTY AND THE REMEDIES SET OUT ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, GUARANTEES AND REMEDIES (ORAL OR WRITTEN, EXPRESS OR IMPLIED).

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SOME JURISDICTIONS (STATES OR COUNTRIES) DO NOT ALLOW EXCLUSION OR LIMITATION FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR LIMITATION ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT BE APPLICABLE. IF ANY PROVISION OF THIS WARRANTY IS JUDGED TO BE ILLEGAL, INVALID OR UNENFORCEABLE, THE REMAINING PROVISIONS OF THE WARRANTY SHALL REMAIN IN FULL FORCE AND EFFECT.

Governing Law; Authority

This warranty is governed by the laws of the state of country where Product is purchased, without regard to its choice of law principles. Except as allowed by law, Bluelab[®] does not limit or exclude other rights a consumer may have with regard to the Product. No Bluelab[®] distributor, employee or agent is authorised to modify, extend or otherwise change the terms of this warranty.

Register your guarantee online at bluelab.com





Let's Talk

If you need assistance or advice, we're here to help.

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- facebook.com/getbluelab



Limited Written Guarantee

The Bluelab[®] Multimedia pH Meter comes with a 5 year limited written guarantee, 6 months for the Bluelab[®] Leap[™] pH Probe. Proof of purchase required.



Post

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