

# BlueLAB pH Monitor™

## Instruction Manual



blueLAB™ **monitors**  
simple solutions

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## 5.0 Troubleshooting Guide

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

Problem	Possible Reason	Possible Solution
<b>No Display Reading</b>	Batteries dead or inserted incorrectly.	Check battery direction/replace batteries. Rechargeable batteries are never to be used.
	Screen damaged.	Return for repair or replace unit.
<b>LED Alarm Flashing</b>	Calibration required.	See instructions on page 3.
	Solution outside alarm range.	Adjust solution pH and check any existing dosing system connections.
<b>pH Readings Inaccurate</b>	Probe contaminated/not calibrated correctly.	See instructions on cleaning and calibration. Ensure cable has not been lengthened and is not under water.
	Calibration solution too cold.	Keep solution above 15°C (60°F) to ensure calibration is accurate.
	Mains interference.	Keep away from mains devices or cables.

## 4.0 Cleaning and Maintenance

Cleaning and maintenance for the pH Monitor involves the probe and replacing batteries.

### 4.1 Clean pH Monitor Probe

Cleaning the pH Monitor probe involves cleaning followed by recalibrating.

#### 1 Wash Probe

Rinse thoroughly under fresh running water.

#### 2 Clean Probe

Place one to two drops of unscented liquid scourer on the probe glassware and using a soft toothbrush, **gently** scrub the probe glassware all the way down to the base. Figure 4 shows the probe glassware.

#### 3 Rinse Probe

Wash probe glassware thoroughly under running water to remove all traces of cleaner.

#### 4 Recalibrate Probe

Follow the steps in section 3.1 of this document.

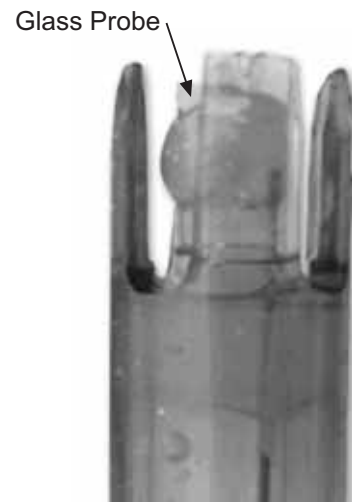


Figure 4. Probe Glassware

### 4.2 Battery Replacement

Replace the batteries if any dimming of the LCD display or red LED is noticed. Battery life with ordinary AA batteries should be one to two years. With alkaline AA batteries, battery life can be two years or more. See section 2.1 for replacing batteries.

Calibrate pH after each battery change.

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

## 1.0 Introduction to Bluelab pH Monitor

The battery operated pH Monitor consists of a monitor and a probe. The monitor has a liquid crystal display (LCD) reading display.

The pH probe is attached to the monitor and the probe tip (2-3cm) placed in solution to be measured for pH. The three function buttons on the case are SET, CAL7 and CAL4. The probe cable and probe top are not submersible.

For reliable operation keep the monitor and probe cable at least one metre or three feet away from mains power cables and mains powered devices.

The monitor is mounted in a dry, clean location out of direct sunlight using screws taped to the inside of the back cover for that purpose.

### 1.1 Basic Operation

- 1 The pH probe is placed in solution where the pH level of the nutrient is measured.

The CAL7 and CAL4 buttons are used for calibrating the monitor, a task done at least once a week to ensure accuracy of the monitor. Calibration is also done after battery replacement.

If the monitor is not recalibrated, the alarm LED starts flickering a warning of five flickers every two seconds, two-four weeks after last calibration or immediately after the batteries are changed.



Figure 1. The pH Monitor

### 1.2 Storage of Monitor

- 1 If the monitor is stored, it must be kept out of direct sunlight to prevent irreparable damage to the LCD screen; this includes storing in a cool, dry and clean place when not in use.

## 2.0 Initial Set Up

Initial set up of the pH Monitor involves inserting batteries and siting of the monitor. Only standard or alkaline batteries are used in the monitor. Rechargeable batteries are not used as they will cause problems.

### 2.1 Insert Batteries

Follow these steps to insert batteries in the pH Monitor.

#### 1 Open Battery Compartment Cover

Lift off using a small coin or screwdriver. Figure 2. shows the battery cover.

#### 2 Fit Batteries

Insert 3 x AA batteries.

CAUTION: Do not use rechargeable batteries. Remove the two supplied screws taped to the cover.

#### 3 Replace Cover

Place cover back on and snap closed.

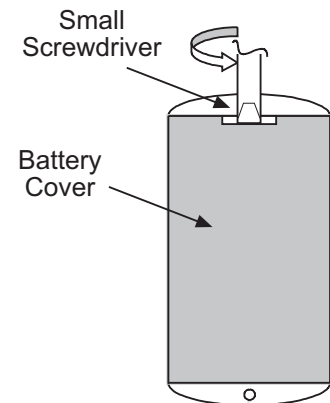


Figure 2. Battery Cover

### 2.2 Hydrate Probe

The pH Monitor probe is hydrated before it is used for measurement purposes. When the probe is not in use, put some fresh water into the protective cap and put it back onto the probe. Follow these steps to hydrate the probe.

#### 1 Remove Probe Cap

Before the first use, remove the protective cap from the probe tip.

#### 2 Soak Probe Tip

Place the probe tip in fresh water for a least one hour and then proceed to calibrate the monitor following the step in section 3.1 of this document. If the probe was dry it will take 24 hours to rehydrate and become fully active.

CAUTION: Do not use de-ionized or distilled water.

### 2.3 Mount pH Monitor and Probe

The monitor is mounted on a flat surface using screws taped inside the back cover. The monitor is to be at a height that enables the probe to easily sit in nutrient solution.

#### 1 Select Location

A surface that is flat, constantly dry and clean and always out of direct sunlight. Choose a height for easy reading and to enable the probe to sit in nutrient solution being measured.

#### 2 Fix Monitor in Position

Insert screws through top and bottom mounting holes and fix in position.

## 3.0 Operating pH Monitor

**Operating the pH monitor includes probe calibration, setting and turning off the alarm. The pH probe must be cleaned before calibration. Follow the steps in section 4.1 for this task.**

### 3.1 Calibrating pH Monitor

Calibrating the pH Monitor involves calibration solutions of pH7 and pH4 solution and fresh water. If calibration solutions are colder than 15°C, the probe needs to be left in each solution for at least two minutes or longer to allow readings to stabilize.

The LED and LCD displays will flash during the calibration process. Follow these steps to calibrate the pH Monitor.

**1 Place Probe into pH7 Solution**

With the pH7 solution and ensuring no excess water is on the probe, insert the cleaned probe into the solution.

**2 Obtain pH 7.0 Reading**

When Monitor LCD display reading is stable after one minute or more, press CAL 7 button once and release. The display flashes **7.0** quickly several times and then stops with **7.0** displayed.

**3 Obtain pH 4.0 Reading**

Rinse the pH probe thoroughly in fresh water. Shake off excess water and place probe in pH4.0 calibration solution.

When Monitor LCD display reading is stable after one minute or more, press and release CAL4 button. The display flashes **4.0** several times and then stops with **4.0** displayed. The monitor is now calibrated.

### 3.2 Set pH Monitor Alarm

When the pH of the nutrient solution reads above or below the desired level by 0.5pH, the red LED will flash every two seconds to indicate alarm state. Follow these steps to set the pH Monitor alarm.

**1 Ensure probe tip (2-3cm) is in the solution**

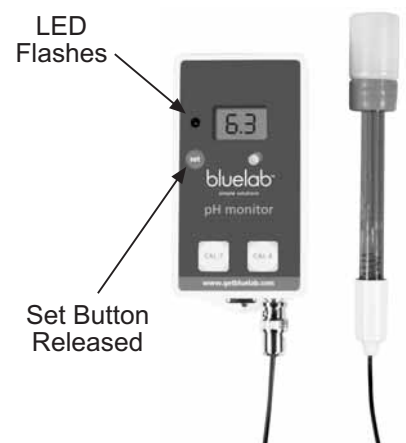
**2 Ensure the pH of the solution is at the desired level of concentration**

Adjust if required.

**3 Set Monitor Alarm to the Actual Reading**

Press and hold SET button until alarm LED flashes (after approximately two seconds) and then release button.

NOTE: If the button is not held for long enough the red LED will flash slowly for approximately four minutes. In this case the alarm is not set.



**Figure 3. Alarm set to pH value**

### 3.3 Turn Off Alarm

**1 Deactivate Alarm**

Press and hold SET button until alarm LED begins to flash after two seconds. Release button and then quickly press and release it within the next two seconds. The alarm is now deactivated.

## 6.0 Technical Specifications

The pH Monitor technical specifications are described in the following table:

	Bluelab pH Monitor
Range	2.0 - 9.9 pH
Resolution	0.1 pH
Accuracy	± 0.1 pH
Temperature Compensation	Not Applicable
Operating Temperature	0 - 50°C, 32 - 122°F
Power Source	3 x AA Batteries
Calibration	Manual Calibration

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