bluelab® EC pen

a handy solution made easy

Care and use guide

Guía de uso y cuidados

Notice d'utilisation et d'entretien

Gebruikershandleiding

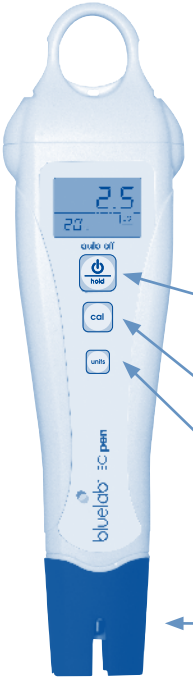
Bedienungs- und Pflegeanleitung

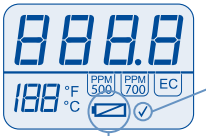
www.getbluelab.com

English

Features	
Backlit LCD display	Calibration optional
Hold reading function	Fully waterproof
Fully guaranteed for 1 year	Auto off function
Low battery warning	Automatic Temperature Compensation (ATC)
Successful calibration indicator	Selectable units for conductivity and temperature

Quick guide





Tick to indicate successful calibration

Low battery warning
Appears when batteries are low.

Power button / hold
Short press to turn on.
Short press to hold reading.
Long press to turn off.

Calibrate button
See calibration section.

Units button
Hold until units flash then short press to change units.
Screen will change back when no buttons. have been pressed for 3 seconds.

Shroud

Attention:

The conductivity probe must be cleaned regularly to remove built up nutrient salts to ensure an accurate reading (See cleaning instructions).

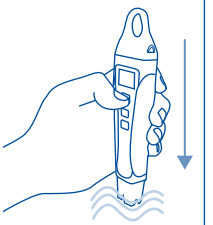
"The instrument is only as accurate as the probe is clean."

1.0 To operate

1 Turn pen on
Press power button.
The last measurement is recalled for 3 seconds.

To turn pen off
Press and hold the power button until OFF is displayed.

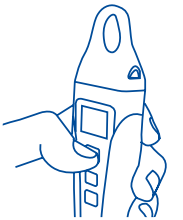
NOTE: The pen will automatically turn off after 4 minutes to conserve battery power.



2 Measure EC
Place probe in solution and wait for reading to stabilize.

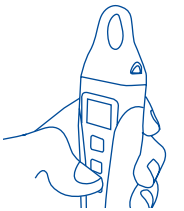
3 To hold a reading
If you want to "hold" the reading on the screen, short press the power button. To exit the hold function press the power button again.

1 second alternating displays



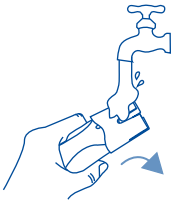
4 To change units
Hold down the units button for 3 seconds until the conductivity and temperature units start flashing. Short press units button again to cycle between unit combinations. To exit this mode don't press anything for 3 seconds.

NOTE: You can change units while in hold mode by holding down the units button.



5 Rinse conductivity probe
To reduce the build-up of nutrient salts, rinse under running water after each use.

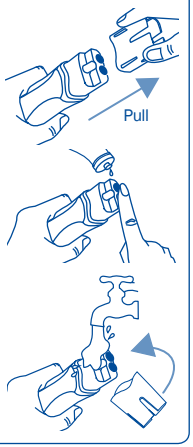
The probe needs to be cleaned once every two weeks to ensure accurate readings. To clean the probe follow the cleaning instructions in section 2.0.



2.0 Cleaning and maintenance

Cleaning the EC pen probe periodically ensures accurate readings. The probe is cleaned using the Bluelab Conductivity Probe Cleaner, or "Jif" a trade name for a liquid scourer cream used in home bathrooms and kitchens. Similar products are called "Liquid Vim", "Soft Scrub", "Cif cream", or "Viss". Never use scented varieties as they contain oils that contaminate the probe. Follow the steps below to clean the probe.

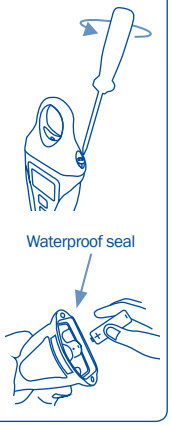
1. **Remove shroud**
   Hold the body and pull the shroud off. Holding your hand around the shroud for a few seconds will help with removal.
2. **Clean probe face**
   Place one or two drops of probe cleaner onto the probe face and rub with your finger or Bluelab Chamois firmly and vigorously, to clean the probe face.
   If a heavy build up occurs around the temperature sensor clean with a soft toothbrush to remove contamination.
3. **Rinse probe**
   Rinse off all traces of cleaner under running water using the same finger or other side of Bluelab Chamois.
   Check that the water forms a film on the probe face with no "beads" of water. If beading is present repeat the cleaning process.
4. **Replace shroud and test in a known solution to ensure the unit has been adequately cleaned.**



3.0 Battery replacement

The EC pen is powered with 1 x AAA alkaline battery. Do not use rechargeable batteries. A low battery warning is indicated by a battery symbol appearing on the screen. Only remove the battery cap when the batteries require changing. Battery life is expected to be 350 hours. Follow these steps to replace the battery.

1. **Remove old battery**
   Undo battery cap fasteners. Remove battery cap and tip out the old battery.
2. **Check for corrosion**
   Flat batteries may leak and cause corrosion. Check battery contacts and the battery for any sign of corrosion. Battery contacts should be cleaned first if corrosion is found before proceeding to step 3.
3. **Fit new battery**
   Insert the new batteries positive (+) end down into the body.
4. **Ensure waterproof battery cap seal is clean**
   Waterproof seal will fail if any dirt is around the seal and body where the cap seals.
5. **Replace battery cap**
   Tighten fasteners on battery cap until there is no space left between the cap and body. This ensures the unit remains 100% waterproof.



4.0 Calibration

Calibration of conductivity is not required for this unit as it is factory calibrated. However; if you wish to calibrate the unit follow the instructions below.

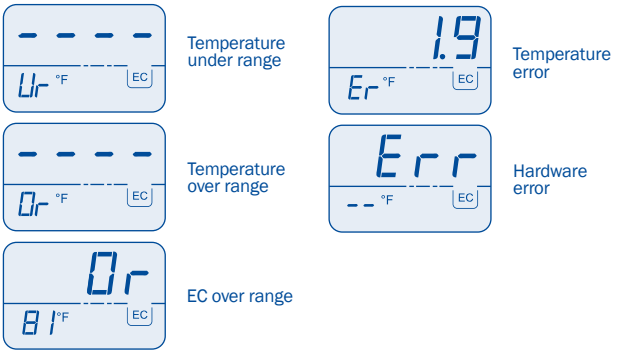
1. **YOU MUST CLEAN THE PROBE BEFORE CALIBRATING.**
   See section 2.0.
2. **Rinse probe in fresh water and place it in a known standard solution. See chart below for the correct solution.**
   Wait for reading to stabilize.
3. **Hold down the cal button for 3 seconds until CAL appears.**
   Release button and CAL P should be displayed. If Err is displayed check the probe is clean and that the calibration solution is fresh and uncontaminated.
4. A tick will appear on the screen to indicate that the calibration was successful. The tick will disappear after 30 days. To reset back to factory default remove/replace battery.

	EC	ppm 500 (TDS)	ppm 700 (EC x 700)
Solution value	2.77	1385	1940
Displayed value	2.8	1390	1940

NOTE: If you need to test or calibrate in a 1500 ppm solution, you MUST set the pen to EC, then multiply your result by 540. If calibrating, multiply 2.8 by 540 (2.8 x 540 = 1512).
This unit DOES NOT measure in the 540 ppm scale.

5.0 Error messages

The following error messages appear for the following reasons.



6.0 Troubleshooting

Trouble	Correction
EC pen gives low readings	Low readings usually mean the probe is contaminated. Clean the probe and retest in a known solution. Ensure unscented cleaner is used eg. Bluelab Conductivity Probe Cleaner, Jif, Liquid Vim, Soft Scrub, Cif cream or Viss.
EC pen gives high readings	Calibrate pen in a known standard solution. Check the table in section 4.0 for what solution to use for your selected conductivity unit.
Screen does not turn on	Replace battery.

7.0 Technical specifications

Range	0.0 - 10.0 EC, 0 - 7000 ppm (700 ppm), 0 - 5000 ppm (500 ppm/TDS) 0 - 50 °C / 32 - 122 °F
Resolution	0.1 EC, 10 ppm (700), 10 ppm (500) 1 °C / 1 °F
Accuracy	± 0.1EC @ 25°C (@2.77EC) ± 50 ppm (ppm 500) @ 25 °C (@ 1385 ppm) ± 70 ppm (ppm 700) @ 25 °C (@ 1940 ppm) ± 1 °C / ± 1 °F / ± 2 °F
Temperature compensation	Automatic
Operating temperature	0 - 50 °C, 32 - 122 °F
Calibration	Factory calibrated / manual calibration optional
Units	EC, 700 ppm, 500 ppm, °C, °F
Power source	1 x AAA alkaline battery

Information about the scales available on the Bluelab EC Pen

EC

Is a measure of electrically charged nutrient ions in a solution and is the only absolute measure of conductivity.

Pure water will not conduct electricity. Water usually conducts electricity because it is full of impurities, in our case, electrically charged nutrient ions. The two black dots on the end of a conductivity probe are called electrodes. When these are placed in a solution, an electrical current passes from one electrode, through the water to the other electrode and counts the number of electrically charged ions present. This represents the units measured - EC.

ppm measures parts per million

There are many different scales used for different industries around the world and for many different reasons! Did you even know there are more than two scales? The most widely used scales in Hydroponics are the 500 scale, 650 scale and the 700 scale.

What's the difference?

The ppm 500 scale is based on measuring the KCl or potassium chloride content of a solution. The ppm 700 is based on measuring the NaCl or sodium chloride content of a solution. Individual nutrient ions have different electrical effects! The true ppm of a solution can only be determined by a chemical analysis. ppm cannot be accurately measured by an EC meter. They are present on Bluelab products as a conversion guide only. The conversion is as follows;

2.4 EC x 500 = 1200 ppm (500 scale) or 1200 ppm / 500 = 2.4 EC
2.4 EC x 700 = 1680 ppm (700 scale) or 1680 ppm / 700 = 2.4 EC

If you are wanting to measure your solution in ppm, you will need to know the following:

- What ppm scale is your meter using?
- Which calibration standard should you use for your meter?
- What ppm scale is my nutrient referring to?

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

Bluelab cleaning kits

Bluelab pH Cleaning and Calibration Kit:

- Full colour instructions
- Calibration solutions
- Decanter vessels
- Bluelab probe cleaner
- Toothbrush

Bluelab Conductivity Probe Cleaning Kit:

- Full colour instructions
- Conductivity standard solution
- Decanter vessel
- Bluelab probe cleaner
- Bluelab chamois (probe cleaning instrument)

Contact details

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Product guarantee

Bluelab EC pen

Bluelab Corporation Limited guarantees this product for a period of **1 year (12 months)** from the date of sale to the original purchaser. The product will be repaired or replaced, should it be found faulty due to component failure, or faulty workmanship. The faulty product should be returned to the point of purchase.

The guarantee is null and void should any internal parts or fixed external 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 (see instruction manual for cleaning instructions), flat or damaged batteries or batteries that have been incorrectly inserted, or damaged battery contacts or connections caused by incorrect battery replacement or ingress of moisture from incorrect positioning of the battery cap and waterproof seal.

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.

Please register your guarantee online at:
www.getbluelab.com

Or fill out the form below and post, email or fax to:

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Phone +64 7 578 0849
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Product details	
Product name	
Serial number	
Date purchased	
Purchaser details	
Purchaser's name	
Address	
City	
Country	
Email (optional)	
Purchased from (Dealers details)	
Purchased from	
Address	
City	
Country	
Phone number (optional)	

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 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 instrument's 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 will prolong 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
- Bluelab probe cleaner
- Toothbrush

Conductivity Probe Cleaning Kit:

- Full colour instructions
- Conductivity standard solution
- Decanter vessel
- Bluelab probe cleaner
- Bluelab chamois (probe cleaning instrument)

bluelab®
success by simplicity

Bluelab EC Pen

guarantee.

The Bluelab product range all come with a free repair or replacement guarantee for your added benefit.

If you need assistance or advice - we're here to help you.
Phone: **+64 7 578 0849** Fax: **+64 7 578 0847**
Email: **support@getbluelab.com**

Looking for specifications or technical advice?
Visit us online @ **www.getbluelab.com**

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Instruction Manual, Version 01: 220811/00775_0711