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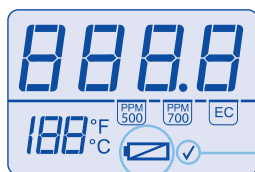
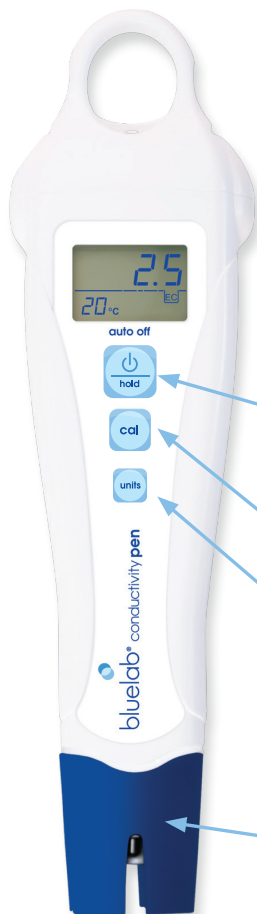
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Features

Measures conductivity and temperature	Hold reading function
Selectable units for conductivity and temperature	Low battery indicator
Backlit LCD display	Fully waterproof
Calibration optional	Auto off function
Successful calibration indicator	Automatic temperature compensation (ATC)

Quick guide



Check mark/
tick to indicate
successful
calibration.

Low battery warning

Appears when
batteries are low.

auto off



cal

units

blueLAB® conductivity pen

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 instrument is only as
accurate as the probe is clean



The conductivity probe must be cleaned regularly to remove built up nutrient salts to ensure an accurate reading (see cleaning instructions in section 2.0).

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.

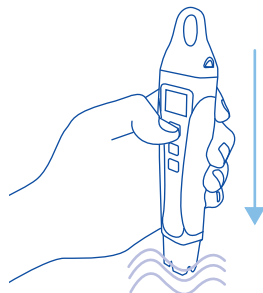
NOTE: The pen will automatically turn off after 4 minutes to conserve battery power.



Power button

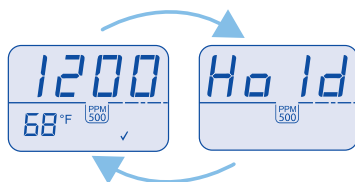
2 Measure conductivity

Place probe in solution and wait for reading to stabilize.

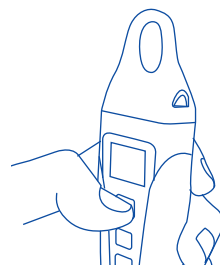


3 To hold reading

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.



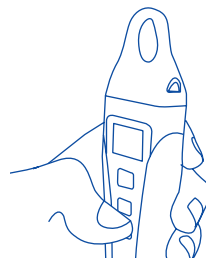
1 second alternating displays



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.

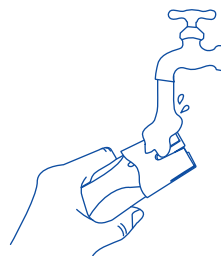
NOTE: You can change units while in hold mode by holding down the units button.



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.

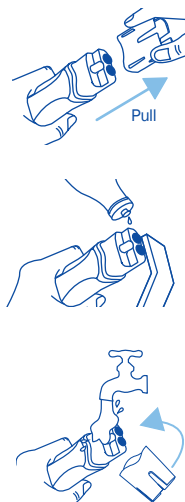




2.0 Cleaning

Cleaning the conductivity 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 conductivity 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.

- 1 To 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**
Seal will fail if any dirt is present.
- 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.

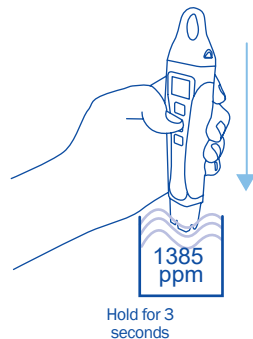
Release button and CAL P should be displayed. If Err is displayed check the probe is clean and that the calibration solution is fresh and uncontaminated.

4 A check mark will appear on the screen to indicate that the calibration was successful. The check mark 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

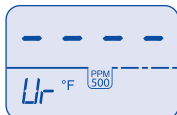
NOTE: If you need to test or calibrate in a 1500 ppm solution, you MUST set the pen to EC, then multiply your result by 540. If calibrating, multiply 2.8 by 540 (2.8 x 540 = 1512).

This unit DOES NOT measure in the 540 ppm scale.

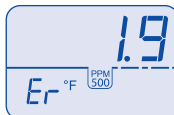


5.0 Error messages

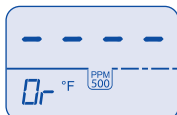
The following error messages appear for the following reasons.



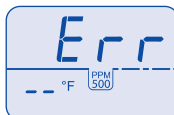
Temperature under range



Temperature error



Temperature over range



Hardware error



ppm over range



6.0 Troubleshooting guide

Trouble	Correction
<i>Conductivity pen gives low readings</i>	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.
<i>Conductivity pen gives high readings</i>	Calibrate pen in a known standard solution. Check the table in section 4.0 for what solution to use for your selected conductivity unit.
<i>Screen does not turn on</i>	Replace unit.

7.0 Technical specifications

Measurement Range	0.0 - 10.0 EC 0 - 5000 ppm (500ppm / TDS) 0 - 7000 ppm (700 ppm) 0 - 50 °C / 32 - 122 °F
Resolution	0.1 EC, 10 ppm (700), 10 ppm (500) 1 °C / 1 °F
Accuracy at 25 °C / 77 °F	± 0.1 EC, ± 50 ppm (500 ppm), ± 70 ppm (700 ppm) ± 1 °C / ± 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



8.0 Information about the scales available on the Bluelab Conductivity 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;

$$2.4 \text{ EC} \times 500 = 1200 \text{ ppm (500 scale) or } 1200 \text{ ppm} / 500 = 2.4 \text{ EC}$$

$$2.4 \text{ EC} \times 700 = 1680 \text{ ppm (700 scale) or } 1680 \text{ ppm} / 700 = 2.4 \text{ EC}$$

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?

Bluelab Probe Care Kits

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 range is available for:

- pH probe care
- pH & conductivity probe care
- Conductivity probe care

All the tools you need are included in each kit.

To re-stock your care kit, choose from the Bluelab Solutions range.



Bluelab Probe Care Kit - Conductivity contents:

- › Probe care instructions
- › 2x 20ml Bluelab 2.77 EC Standard Solution single-use sachets
- › Bluelab Conductivity Probe Cleaner & Chamois
- › Plastic cup



Bluelab Conductivity Pen limited product guarantee

Bluelab Corporation Limited guarantees the Bluelab Conductivity Pen for a period of **1 year (12 months)** from the date of sale to the original purchaser.



Standard Terms and Conditions of the Bluelab Limited Product Guarantee:

How Long Does The Coverage Last? 1) The product guarantee becomes effective from the date of purchase by the first purchaser. Coverage terminates if you sell or otherwise transfer the product; 2) The repair of your product under guarantee will not extend the period of the guarantee.

How Do You Get Service? 1) Products are to be returned to point of purchase; 2) Any parts replaced will become the property of Bluelab Corporation Limited ("Bluelab").

What is covered? Provided you supply proof of purchase via a store-printed receipt, we will repair or replace your product if your product is found, within the guarantee period, to be defective due to defective materials or workmanship existing at the time of purchase. If any part is no longer available or out of manufacture, Bluelab will replace it with a functionally-equivalent replacement part.

What is not covered? Bluelab shall not be liable for costs of repair or replacement of a product incurred as a result of: 1) Normal wear and tear; 2) Accidental damage, faults caused by negligent use or care, neglect, careless operation or handling of the product which is not in accordance with the Bluelab Instruction Manuals; 3) Use of parts not assembled or installed in accordance with the instructions of Bluelab; 4) Use of parts or accessories other than those produced or recommended by Bluelab; 5) External sources such as transit damage or weather; 6) Repairs or alterations carried out by parties other than Bluelab or its authorised agents; 7) Serial numbers defaced or missing.

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Instruction Manual English PENCON_V02_210421

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