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## Features

Fully waterproof	Battery operated
Auto on/off function	No buttons, switches or knobs
No calibration required	Daylight readable blue LED's
Provided with EC, CF, ppm 500 and ppm 700 scales	

## 1.0 To operate

*Using the Bluelab Commercial Truncheon® Nutrient Meter (see Figure 1) to measure nutrient conductivity involves placing the probe sensor head in the solution, followed by measuring and reading conductivity values on the stem scale indicator light.*

**Figure 1. Bluelab Commercial Truncheon® Nutrient Meter**



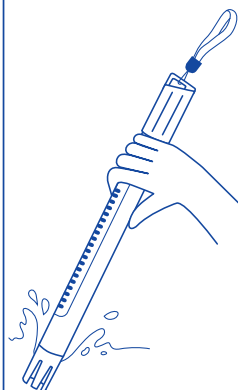
**1 Measure conductivity**

Place probe into nutrient solution and take reading as indicated by the flashing lights.

**Note:** If the lights are dancing between two values, the reading is between those two values. Some example readings are shown in the table below:

Lights flashing between these EC values	Repeating pattern of flashing lights (EC)	Reading EC value
0.8 and 1.0	0.8 - 1.0, 0.8 - 1.0, 0.8 - 1.0	0.9
2.8 and 3.2	2.8 - 2.8 - 3.2, 2.8 - 2.8 - 3.2	2.9
	2.8 - 3.2 - 3.2, 2.8 - 3.2 - 3.2	3.1

**Note:** For very cold or very hot temperatures it will take 1-2 minutes for the probe to reach solution temperature. To help decrease time taken to reach the solution temperature, place the probe in an area where there is a strong movement of solution, or stir solution with the probe.



**2 Obtain another reading**

To take another reading, simply place back in solution.

**3 Clean probe**

We recommend the probe be cleaned once every two weeks according to the Cleaning and Maintenance instructions. This can vary depending on frequency of use.





## 2.0 Cleaning and maintenance

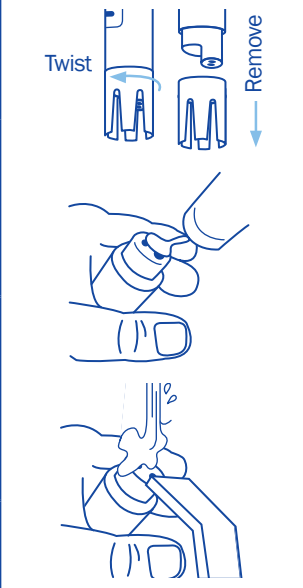
*Cleaning the Commercial Truncheon Meter probe frequently ensures accurate readings. Clean the probe with a liquid scourer cream used in home bathrooms and kitchens such as 'Jif', 'Liquid Vim', 'Soft Scrub', 'Cif', or 'Viss'. Never use scented varieties of cleaner as they affect the probe functions.*

**1 Remove shroud**  
Twist the shroud 90 degrees and then remove the shroud.

**2 Clean probe face**  
Place one or two drops of unscented liquid scourer, such as 'Jif', 'Liquid Vim', 'Soft Scrub', 'Cif', or 'Viss' on the probe face. Rub probe face with your finger or Bluelab Chamois firmly and vigorously to clean.

**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**



## 3.0 Battery replacement

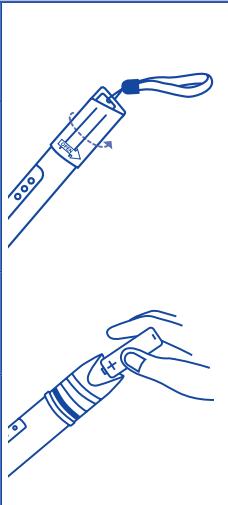
*The Commercial Truncheon Meter is powered with 3 x AA type standard or alkaline batteries. Do not use rechargeable batteries. Do not mix brands of batteries. Do not mix old with new. Do not put upside down. Follow these steps to replace the batteries.*

**1 Remove old batteries**  
Unfasten battery cap and tip out old batteries.

**2 Check for corrosion**  
Batteries that have been inside the unit for a long length of time may corrode. Check battery contacts and batteries for any sign of corrosion. Contacts should be cleaned first if corrosion is found before proceeding to step 3.

**3 Fit new batteries**  
Insert the new batteries positive (+) end down into the body.

**4 Replace battery cap**  
Refasten battery cap. There must be no space left between the cap and body to ensure the unit remains 100% waterproof.





## 4.0 Troubleshooting guide

Trouble	Correction
<i>Truncheon Meter turns off before reading taken.</i>	Take out of solution for 3-5 seconds. Dip in solution again and take reading.
<i>Truncheon Meter not lighting when dipped in solution.</i>	Clean the probe. If this is unsuccessful, replace batteries. Do not use rechargeable batteries.
<i>Truncheon Meter gives low readings.</i>	Clean the probe. Ensure unscented cleaner is used eg. plain 'Jif', 'Soft Scrub', 'Liquid Vim', 'Cif' or 'Viss'.

## 5.0 Technical specifications

Range	0.4 – 6.0 EC 4 – 60 CF	200 – 3000 ppm (EC x 500) 280 – 4200 ppm (EC x 700)
Resolution	0.1 EC, 1 CF, 50 ppm (500), 70 ppm (700)	
Accuracy at 2.77EC and 25 °C / 77 °F	± 0.1 EC, ± 1 CF, ± 50 ppm (1385 ppm at 500 ppm), ± 70 ppm (1939 ppm at 700 ppm)	
Temperature compensation	Automatic	
Operating temperature	0 - 50 °C, 32 - 122 °F	
Calibration	Not required	



## Conductivity and understanding the measuring scales

*Conductivity tells you how much food is in your solution.*

### Getting a grip on the different measuring scales

All these scales measure the concentration of dissolved solids in a solution. They just use different processes and scales to do so.

**EC** is the only absolute measure of conductivity for nutrient solutions. EC is measured in millisiemens  $\text{mS}/\text{cm}^2$ . It's the standard everywhere outside North America. It also gives the most accurate conductivity measure. This is because different tester manufacturers use different standards to convert from EC to ppm - often resulting in inaccurate and confusing ppm readings (use our conversion chart on page 6).

**CF** is closely related to EC. It just doesn't have the decimal point.

**ppm verses TDS.** The ppm 500 scale is the same as TDS. TDS - Total Dissolved Solids - is represented as ppm by some meters. A TDS reading of 50 means that there are 50 milligrams of dissolved solids in each litre of water. 50ppm.

The ppm 700 scale as no relation to TDS, so 70 milligrams of dissolved solids in a litre of water is 70 ppm. However, the actual ppm of a solution can only be measured accurately by chemical analysis.

### Understanding these scales

We saw that EC measures are the most accurate. Most ppm meters measure in EC. They then convert this to a ppm value.

The conversion factor from EC to ppm can vary, but those most widely used for measuring nutrient solutions are the 'EC x 500' scale. It is worth remembering the ppm 500 scale is sometimes called TDS.

### No ifs or buts!

#### Measure conductivity every day.

- If you don't know which ppm scale to use, ask your nutrient manufacturer or use EC
- Avoid over-diluting or over-concentrating your nutrient solution
- Start with a quality nutrient
- Completely change the reservoir solution every 7 days
- Top up the nutrient level between changes - so your plants have the right amount of food.



## Bluelab measurement conversion chart

mS/cm <sup>2</sup> Millisiemen per cm <sup>2</sup>	EC	CF	ppm 500 TDS	ppm 700
0.1	0.1	1	50	70
0.2	0.2	2	100	140
0.3	0.3	3	150	210
0.4	0.4	4	200	280
0.5	0.5	5	250	350
0.6	0.6	6	300	420
0.7	0.7	7	350	490
0.8	0.8	8	400	560
0.9	0.9	9	450	630
1.0	1.0	10	500	700
1.1	1.1	11	550	770
1.2	1.2	12	600	840
1.3	1.3	13	650	910
1.4	1.4	14	700	980
1.5	1.5	15	750	1050
1.6	1.6	16	800	1120
1.7	1.7	17	850	1190
1.8	1.8	18	900	1260
1.9	1.9	19	950	1330
2.0	2.0	20	1000	1400
2.1	2.1	21	1050	1470
2.2	2.2	22	1100	1540
2.3	2.3	23	1150	1610
2.4	2.4	24	1200	1680
2.5	2.5	25	1250	1750
2.6	2.6	26	1300	1820
2.7	2.7	27	1350	1890
2.8	2.8	28	1400	1960
2.9	2.9	29	1450	2030
3.0	3.0	30	1500	2100
3.1	3.1	31	1550	2170
3.2	3.2	32	1600	2240
3.3	3.3	33	1650	2310
3.4	3.4	34	1700	2380
3.5	3.5	35	1750	2450
3.6	3.6	36	1800	2520

# Bluelab® limited warranty

Bluelab® Corporation Limited (Bluelab) provides a warranty on its products (Bluelab® Commercial Truncheon® Nutrient Meter™) under the following terms and conditions:



## How Long Does Coverage Last?

Bluelab® warrants the Bluelab® Commercial Truncheon® Nutrient 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.

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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?

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- 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®-authorized distributor or reseller.

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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-authorized distributor or reseller, with valid proof of purchase.

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## guarantee.

The Bluelab® Commercial Truncheon® Nutrient Meter™ comes with a 5 year limited written guarantee. Proof of purchase required.

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## lets talk.

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

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