INSTRUCTION MANUAL

HI98330

Nutrient Tester

EC/TDS

GroLine®

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Dear Customer,

Thank you for choosing a Hanna Instruments® product.

Please read this instruction manual carefully before using this instrument as it provides the necessary information for correct use of this instrument as well as a precise idea of its versatility.

If you need additional technical information, do not hesitate to e-mail us at tech@hannainst.com.
Visit www.hannainst.com for more information about Hanna Instruments and our products.

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1. PRELIMINARY EXAMINATION

Remove the tester from the packing material and examine it carefully.
For further assistance, please contact your local Hanna Instruments® office or email us at tech@hannainst.com.

Each HI98330 is supplied with quick reference guide with instrument quality certificate.

***Note**: Save all packing material until you are sure that the instrument works correctly. Any damaged or defective item must be returned in its original packing material with the supplied accessories.*

2. GENERAL DESCRIPTION & INTENDED USE

Ideal for hydroponics and agriculture applications, the HI98330 GroLine® Nutrient Tester accurately measures the electrical conductivity (EC) in mS/cm and the total dissolved solids (TDS) conversion in parts per million (ppm) of the nutrients in water.
The tester features an extended range of up to 6.0 mS/cm (EC), 3000 ppm (500 ppm scale), and 4200 ppm (700 ppm scale) and as such is suitable for crops that have higher than normal EC readings during their growing cycle. Additionally, as part of an effective nutrient management strategy, the tester can be used for regular checks to help protect against excessive nutrient build up (or detect deficient nutrient levels) and ensure correct nutrient concentration.
The IP67 waterproof rated and floating casing houses the EC graphite electrodes and temperature sensor, and is suitable for stirring and testing simultaneously.

3. MAIN FEATURES

- IP67 waterproof and floating design
- No user calibration needed
- Rugged and doubles as a stirring stick
- Auto-on when placed in nutrient water / Auto-off set to 30 seconds
- Low-battery warning
- Readings displayed by 24 brightly lit LED lights
- Conductivity scales and operational instructions printed on the tester body
- Easy to clean (detachable crown-shaped cap)

4. SPECIFICATIONS

EC	Range	0.2 to 6.0 mS/cm
	Resolution & Accuracy	0.1 mS/cm (0.2 to 4.0 mS/cm) 0.25 mS/cm (4.0 to 6.0 mS/cm)
TDS	Range	500 ppm scale 100 to 3000 ppm
		700 ppm scale 140 to 4200 ppm
	Resolution & Accuracy	500 ppm scale 50 ppm (100 to 2000 ppm) 125 ppm (2000 to 3000 ppm)
		700 ppm scale 70 ppm (140 to 2800 ppm) 175 ppm (2800 to 4200 ppm)
Calibration	Factory calibrated	
Probe	Graphite electrodes in ABS + PC body	
Temperature compensation	Automatic from 5.0 to 50.0 °C (41.0 to 122.0 °F)	
Battery type	3 × 1.5V AA alkaline	
Battery life	Approx. 3 years (10 measurements/day)	
Measurement display	24 blue LEDs	
Environment	0 to 50 °C (32 to 122 °F)	
Dimensions	444 mm (17.48"); Ø 30 mm (1.18")	
Weight with batteries	265 g (9.3 oz.)	
Casing protection	IP67, floating	

5. OPERATIONAL GUIDELINES

5.1. REMOVE BATTERY FILM

1. Rotate the battery cap counter clockwise to remove the protective film.

2. Tightly screw the battery cap back on.
   LED lights on the side light up along the conductivity scale (and back), and display battery level status:

100 % battery level

10 % battery level

(steady LED)

5.2. EC/TDS MEASUREMENT

Place the tester in nutrient water and stir. LED lights on the side indicate measurement status as per examples here:

3.2 1600 2240 reading not stable (blinking LED)

3.2 1600 2240 reading stable (steady LED)

3.2 1600 2240
3.4 1700 2380 read value 3.3 mS/cm (steady LED)

***Note**: A change in conductivity level resets the auto-off timer.*
To take another reading, simply remove the tester from water then place it back in the water. With tester removed from water, measurement is kept displayed on the conductivity scale for reading.

0.2 100 140 reading under range (blinking LED)

6.0 3000 4200 reading over range (blinking LED)

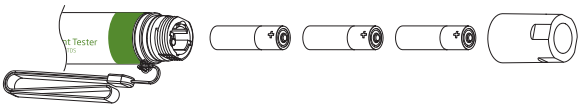
5.3. BATTERY REPLACEMENT

After approximately 3 years of use batteries require replacement. When the tester is placed in nutrient water LED lights light up along the conductivity scale (and back), and display low-battery warning:

0.6 300 420 replace batteries

Users should replace the batteries before they run out as the accuracy of readings may decrease as the batteries run out. Do not mix different brands of batteries or old batteries with new ones. To replace the batteries:

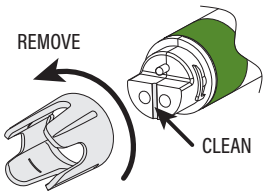
1. Rotate the battery cap counter clockwise to remove.
2. Take out the old batteries.
3. Insert the new batteries (1.5V AA type) with negative end (–) first.
4. Tightly screw the battery cap back on.
5. Battery level is displayed.



6. CLEANING & MAINTENANCE

Through use, debris and dirt can accumulate on the electrodes. To maintain accuracy and reliability the tester requires cleaning. Quickly rinse the tester after use to prevent build up of excess.
Monthly, a more thorough cleaning is recommended. To do so follow these easy care steps:

1. Let the tester sit in water for salt build-up to dissolve.
2. Rotate the crown-shaped cap counter clockwise to remove and clean.
3. Rinse the electrodes under a stream of running tap water.
4. Use a soft material (soft bristle brush) and an abrasive cream cleaner (home use) to thoroughly clean electrodes surface.
5. Rinse thoroughly and shake excess water off. Replace the cap.



7. STORAGE

The tester should be stored dry and clean.

CERTIFICATION

All Hanna® instruments conform to the **CE European Directives** and **UK Standards.**

Disposal of Electrical & Electronic Equipment. The product should not be treated as household waste. Instead, hand it over to the appropriate collection point for the recycling of electrical and electronic equipment, which will conserve natural resources.

Disposal of waste batteries. This product contains battery, do not dispose of it with other household waste. Hand it over to the appropriate collection point for recycling.
Ensuring proper product and battery disposal prevents potential negative consequences for the environment and human health. For more information, contact your city, your local household waste disposal service, or the place of purchase.

RECOMMENDATIONS FOR USERS

Before using Hanna products, make sure that they are entirely suitable for your specific application and for the environment in which they are used. Any variation introduced by the user to the supplied equipment may degrade the instrument's performance. For your and the instrument's safety do not use or store it in hazardous environments.

WARRANTY

HI98330 is warranted for a period of six years against defects in workmanship and materials when used for their intended purpose and maintained according to instructions. This warranty is limited to repair or replacement free of charge. Damage due to accidents, misuse, tampering, or lack of prescribed maintenance is not covered. If service is required, contact your local Hanna Instruments office. If under warranty, report the model number, date of purchase, serial number, and the nature of the problem. If the repair is not covered by the warranty, you will be notified of the charges incurred.
If the instrument is to be returned to Hanna Instruments office, first obtain a Returned Goods Authorization (RGA) number from the Technical Service department and then send it with shipping costs prepaid. When shipping any instrument, make sure it is properly packaged for complete protection.