

## Dear Customer,

Thank you for choosing a Hanna Instruments product. Please read this instruction manual carefully before using the tester. For more information about Hanna Instruments and our products, visit [www.hannainst.com](http://www.hannainst.com) or e-mail us at [sales@hannainst.com](mailto:sales@hannainst.com).

For technical support, contact your local Hanna Instruments Office or e-mail us at [tech@hannainst.com](mailto:tech@hannainst.com).

## Preliminary Examination

Remove the tester and accessories from the packing material and examine it carefully. If you require any further information, please contact Hanna Instruments technical support team at [tech@hannainst.com](mailto:tech@hannainst.com).

Each HI98129 is delivered in a cardboard box and is supplied with:

- HI70004 pH 4.01 buffer solution, 20 mL sachet (1 pc.)
- HI70007 pH 7.01 buffer solution, 20 mL sachet (1 pc.)
- HI70300N Storage solution for pH & ORP electrodes, 20 mL sachet (1 pc.)
- HI70031 1413  $\mu\text{S}/\text{cm}$  conductivity standard, 20 mL sachet (1 pc.)
- HI70032 1382 ppm TDS standard, 20 mL sachet (1 pc.)
- HI700601 pH & ORP electrode cleaning solution, 20 mL sachet (1 pc.)
- HI73127 pH electrode
- HI73128 Electrode removal tool
- 1.5V batteries (4 pcs.)
- Instrument quality certificate
- Instruction manual

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- HI70300N Storage solution for pH & ORP electrodes, 20 mL sachet (1 pc.)
- HI70030 12880  $\mu\text{S}/\text{cm}$  conductivity standard, 20 mL sachet (1 pc.)
- HI70038 6.44 ppt TDS standard, 20 mL sachet (1 pc.)
- HI700601 pH & ORP electrode cleaning solution, 20 mL sachet (1 pc.)
- HI73127 pH electrode
- HI73128 Electrode removal tool
- 1.5V batteries (4 pcs.)
- Instrument quality certificate
- Instruction manual

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

## General Description & Intended Use

HI98129 & HI98130 are compact pH, EC/TDS and temperature testers. They feature a two-buttons operation system and are easy to use. The compact and waterproof casing is designed to float if accidentally dropped in water. The testers measure temperature in both  $^{\circ}\text{C}$  and  $^{\circ}\text{F}$ . All pH and EC/TDS measurements are temperature compensated automatically (ATC). EC/TDS measurements have user-selectable EC/TDS conversion factor (CONV) and temperature

compensation coefficient (B). The testers display a stability tag (⊕) that will disappear once the reading has stabilized.

Battery level and low-battery indicator are clearly displayed on the LCD to alert the user in the event that low battery power could adversely affect readings.

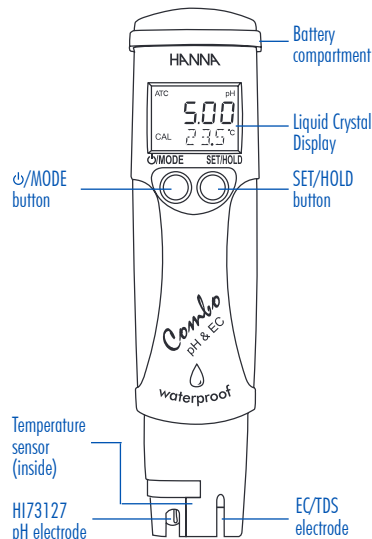
BEPS (Battery Error Prevention System) Testers will automatically shut off if there is not enough power to get an accurate measurement. **pH Probe:** HI98129 & HI98130 are supplied together with HI73127 pH replaceable electrode with a stainless steel round connector and extendable cloth junction. This design has no pins to line up or that can break.

**Temperature Sensor:** The stainless steel temperature sensor facilitates faster and more accurate temperature measurement.

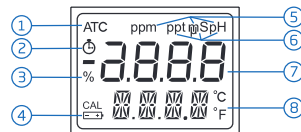
## Specifications

Range	0.0 to 60.0 $^{\circ}\text{C}$ / 32.0 to 140.0 $^{\circ}\text{F}$ 0.00 to 14.00 pH 0 to 3999 $\mu\text{S}/\text{cm}$ (HI98129) 0.00 to 20.00 mS/cm (HI98130) 0 to 2000 ppm (HI98129) 0.00 to 10.00 ppt (HI98130)
Resolution	0.1 $^{\circ}\text{C}$ (0.1 $^{\circ}\text{F}$ ) 0.01 pH 1 $\mu\text{S}/\text{cm}$ ; 1 ppm (HI98129) 0.01 mS/cm; 0.01 ppt (HI98130)
Accuracy (@25 $^{\circ}\text{C}$ / 77 $^{\circ}\text{F}$ )	$\pm 0.5$ $^{\circ}\text{C}$ ( $\pm 1.0$ $^{\circ}\text{F}$ ) $\pm 0.05$ pH $\pm 2\%$ f.s. (EC/TDS)
Temperature compensation	Automatic EC/TDS: $\beta = 0.0$ to 2.4% / $^{\circ}\text{C}$
Environment	0 to 50 $^{\circ}\text{C}$ (32 to 122 $^{\circ}\text{F}$ ) RH 100%
TDS factor	0.45 to 1.00 (CONV)
Calibration	pH: automatic, one or two-point with two sets of standard buffers (pH 4.01 / 7.01 / 10.01 or pH 4.01 / 6.86 / 9.18) EC/TDS: automatic, one-point calibration
EC/TDS Calibration	HI70031 (1413 $\mu\text{S}/\text{cm}$ ) Solutions HI70032 (1382 ppm; CONV=0.50) HI98129 HI70442 (1500 ppm; CONV=0.70) HI98130 HI70030 (12.88 mS/cm) HI70038 (6.44 ppt; CONV=0.50 or 9.02 ppt; CONV=0.70)
Electrode	HI73127 pH electrode (included)
Battery type	1.5V (4 pcs.)
Battery life	Approx. 100 hours
Auto-off	After 8 minutes of non-use
Dimensions	171 x 41 x 26 mm (6.7 x 1.6 x 1.0")
Weight	93 g (3.4 oz.)

## Functional Description



## LCD Display



1. Automatic Temperature Compensation (ATC) indicator
2. Stability tag
3. Battery life percentage indicator
4. Low battery indicator
5. Measurement unit (HI98129)
6. Measurement unit (HI98130)
7. First LCD line
8. Second LCD line

## Operational Guide

### Turning the Tester ON / OFF

Press and hold ⊕/MODE. All LCD segments will be displayed for a few seconds followed by battery life percentage indicator. To turn the tester off, from measurement mode, press ⊕/MODE. "OFF" will be displayed on the second LCD line and then the tester will turn off.

### HOLD Mode

From measurement mode, press and hold SET/HOLD until "HOLD" is displayed. pH, EC/TDS or temperature readings will be frozen on the LCD. Press either buttons to resume measurement mode.

## Setup

Setup mode allows the selection of temperature unit and pH buffer set. To enter the setup mode, select pH mode and press ⊕/MODE until "TEMP" and the current temperature unit are displayed (e.g. "TEMP  $^{\circ}\text{C}$ "). Then:

- Press SET/HOLD to select temperature unit. After the temperature unit has been selected, press ⊕/MODE to select the buffer set. To return to measurement mode, press ⊕/MODE twice.
- After setting the temperature unit, the tester will display the current buffer set: "pH7.01 BUFF" (for pH 4.01/7.01/10.01) or "pH6.86 BUFF" (for NIST pH 4.01/6.86/9.18). Press SET/HOLD to change the buffer set and press ⊕/MODE to resume measurement mode.

## pH Calibration & Measurement

It is recommended to calibrate the tester frequently, especially if high accuracy is required. More frequent calibrations may be required depending on the type of sample being tested. The tester should be recalibrated:

- whenever the pH electrode is replaced
- at least once a month
- after testing aggressive samples

From measurement mode, press and hold ⊕/MODE until "CAL" is displayed. The tester enters calibration mode and displays "pH 7.01 USE" or "pH 6.86 USE", if NIST buffer was selected. Buffer value will be displayed on the first LCD line and "REC" message will be displayed on the second line. If used buffer was not valid, "USE" message will be displayed for 12 seconds and replaced by "WRNG" indicating measured sample is not valid.

- For one-point calibration using pH 4.01, 10.01 or 9.18 buffer solution, once the reading has stabilized, the tester automatically accepts the calibration point. Accepted buffer point and "OK 1" message are displayed and then the tester returns to measurement mode.
  - For one-point calibration using pH 7.01 (or 6.86) buffer solution, press ⊕/MODE after calibration point has been accepted. The tester will display "pH 7.01" (or "pH 6.86") and "OK 1" and then return to measurement mode.
  - For a two-point calibration using pH 7.01 (or pH 6.86) buffer solution, after the first calibration point has been accepted, "pH 4.01 USE" will be displayed for 12 seconds (unless a valid buffer is recognized).
  - If valid buffer solution is recognized (pH 4.01, 10.01 or 9.18), the calibration point is accepted and the accepted value and "OK 2" are displayed. The tester then returns to measurement mode.
  - If no valid buffer solution is recognized, "WRNG" message is displayed.
- Note:** When the calibration procedure is completed, the "CAL" tag is turned on.

### Exiting Calibration & Resetting Default Values

- When in calibration mode, it is possible to exit calibration procedure by pressing ⊕/MODE, before first-point calibration has been accepted. The tester displays "ESC" and returns to measurement mode and last calibrated data.
- When in calibration mode, it is possible to clear a previous calibration and return to default values by pressing SET/HOLD, before the first calibration point has been accepted. The tester displays "CLR" on the second LCD line, "CAL" tag disappears and tester returns to default calibration.

## HI98129 • HI98130 Waterproof pH, EC/TDS & Temperature Testers



### Certification

All Hanna Instruments conform to the CE European Directives.



**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 batteries, do not dispose of them with other household waste. Hand them 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, the place of purchase or go to [www.hannainst.com](http://www.hannainst.com).

### Recommendations for Users

Before using this tester, make sure that it is entirely suitable for your specific application and the environment in which it is used. The glass bulb at the end of the electrode is sensitive to electrostatic discharges. Avoid touching the glass bulb at all times. Any variation introduced by the user to the supplied equipment may degrade the tester's performance. For yours and the tester's safety do not use or store the tester in hazardous environments.

### Warranty


HI98129 and HI98130 are warranted for a period of one year against defects in workmanship and materials when used for their intended purpose and maintained according to instructions. The electrode is warranted for a period of six months. 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.

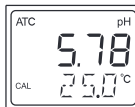
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US DESIGN PATENT  
D462,024

### Measurement


Use SET/HOLD to select pH mode. Place the electrode in the solution to be tested while stirring gently. The measurement should be taken after the stability tag  has disappeared. The pH value is displayed on the first LCD line and the temperature on the second LCD line.



**Note:** Before taking any pH measurement make sure the tester has been calibrated ("CAL" tag is displayed).


### EC/TDS Calibration & Measurement

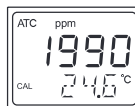
#### Calibration Procedure

- From measurement mode, press and hold  until "CAL" is displayed on the second LCD line.
- Place the probe in calibration solution: HI70031 (1413  $\mu$ S/cm) for HI98129 and HI70030 (12.88 mS/cm) for HI98130.
- The LCD displays "OK" for 1 second and the tester returns to measurement mode.

**Note:** The "CAL" tag on the LCD indicates that the tester is calibrated.





#### Measurement

Use SET/HOLD to select either EC or TDS mode. Place the electrode in the solution to be tested while stirring gently. Use plastic beakers to minimize any electromagnetic interferences. The measurement should be taken after the stability tag  has disappeared. The EC/TDS value is displayed on the first LCD line and the temperature on the second LCD line.



**Note:** Before taking any measurement make sure the tester has been calibrated ("CAL" tag is displayed).

### Changing EC/TDS Conversion Factor (CONV) & Temperature Compensation Coefficient B (BETA)

- From measurement mode, press and hold  until "TEMP" and the current temperature unit are displayed on the second LCD line (e.g. "TEMP °C").
- Press  again to show the current conversion factor (e.g. "0.50 CONV") and SET/HOLD to change the conversion factor.
- Press  to show the current temperature compensation coefficient B (e.g. "% 2.1 BETA") and SET/HOLD to change the temperature compensation coefficient B.
- Press  to return to measurement mode.

### Maintenance

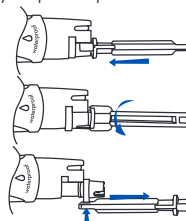
Please read the information below to ensure the highest possible accuracy.

- Fresh buffer solution should be used for each calibration.
- For improved accuracy a two-point calibration is recommended.
- If measurements are taken successively, rinse the probe thoroughly in distilled or deionized water to eliminate cross-contamination.
- Clean the electrode monthly using pH and EC cleaning solution. Keep the electrode in HI7061 - General purpose cleaning solution for 30 minutes and rinse the probe thoroughly with water.
- When not in use, add a few drops of HI70300 Storage solution to the protective cap. Never store the probe in distilled or deionized water.

### Electrode Replacement

Use supplied removal tool (HI73128) to replace the pH electrode.


Insert the tool into the probe cavity.



Rotate the tool counterclockwise.

Pull the electrode out by using the other side of the tool. Insert a new pH electrode following the above instructions in reverse order.

### Battery Replacement

Battery life percentage indicator is displayed at power on. If the battery level drops below 5%, the  symbol lights up indicating that the batteries should be replaced soon. If the battery level is not adequate to guarantee an accurate reading, the tester automatically turns off. To replace the batteries, follow the next steps:

- Turn OFF the tester.
- Remove the four screws on the top of the tester to open the battery compartment (figure 1).
- Remove the old batteries.
- Insert four new 1.5V AA batteries in the battery compartment while paying attention to the correct polarity (figure 2).
- Close the battery compartment using the four screws.



**Note:** Only use the battery type specified in the manual. Old batteries should be disposed in accordance with local regulations.

### Accessories

Electrode	
HI73127	Replaceable pH electrode
HI73128	Electrode removal tool
Solutions	
HI70004P	pH 4.01 solution, 20 mL sachet (25 pcs.)
HI70006P	pH 6.86 solution, 20 mL sachet (25 pcs.)
HI70007P	pH 7.01 solution, 20 mL sachet (25 pcs.)
HI70009P	pH 9.18 solution, 20 mL sachet (25 pcs.)
HI70010P	pH 10.01 solution, 20 mL sachet (25 pcs.)
HI770710P	pH 10.01 & 7.01 solution, 20 mL sachet (10 pcs., 5 each)
HI77400P	pH 4.01 & 7.01 solutions, 20 mL sachet (10 pcs., 5 each)
HI70030P	12.88 mS/cm solution, 20 mL sachet (25 pcs.)
HI70031P	1413 $\mu$ S/cm solution, 20 mL sachet (25 pcs.)
HI70032P	1382 ppm solution, 20 mL sachet (25 pcs.)
HI70038P	6.44 ppt solution, 20 mL sachet (25 pcs.)
HI70442P	1500 ppm solution, 20 mL sachet (25 pcs.)