

HI99300 • HI99301

Waterproof EC, TDS and  
Temperature Meter with  
Advanced Features



# INSTRUCTION MANUAL

**Dear  
Customer,**

Thank you for choosing a Hanna Instruments product. Please read this instruction manual carefully before using these meters.

This manual will provide you with the necessary information for correct use of these meters, as well as a precise idea of their versatility.

If you need additional technical information, do not hesitate to e-mail us at [tech@hannainst.com](mailto:tech@hannainst.com) or view our worldwide contact list at [www.hannainst.com](http://www.hannainst.com).

*All rights are reserved. Reproduction in whole or in part is prohibited without the written consent of the copyright owner, Hanna Instruments Inc., Woonsocket, Rhode Island, 02895, USA.*

Table of Contents.....	3
Preliminary Examination .....	4
General Description and Intended Use.....	5
Main Features .....	6
Specifications .....	7
Display Description .....	8
Operational Guide .....	9
Meter Setup .....	13
Battery Replacement.....	14
Accessories.....	15
Probe Maintenance.....	17
Certification.....	18
Recommendations for Users .....	19
Warranty .....	19

Remove the meter from the packing material and examine it to make sure that no damage has occurred during shipping. If there is any damage, contact your local Hanna Instruments Office.

Each meter is supplied complete with:

- **HI763063** pH/EC/TDS probe with built-in temperature sensor, DIN connector and 1m (3.3') cable
- **HI70031** 1413  $\mu\text{S}/\text{cm}$  and **HI70032** 1382 ppm  
1 sachet each for **HI99300**
- **HI70030** 12880  $\mu\text{S}/\text{cm}$  and **HI70038** 6.44 ppt  
1 sachet each for **HI99301**
- 100 mL beaker (1 pcs.)
- Alkaline batteries: 1.5V AAA (3 pcs.)
- Rugged carrying case
- Calibration certificate of meter
- Calibration certificate of probe
- Instruction manual

*Note: Save all packing material until you are sure that the meter functions correctly. All defective items must be returned in the original packing with the supplied accessories.*

HI99300 and HI99301 are conductivity, total dissolved solids and temperature measurement encountered in manufacturing and environmental testing protocols.

To increase precision, two models are available, with different conductivity ranges, for applications from purified to brackish waters.

All operations, settings and temperature scale selections, are made through only 2 buttons.

The housing is waterproof and rated for IP67 conditions.

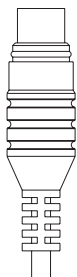
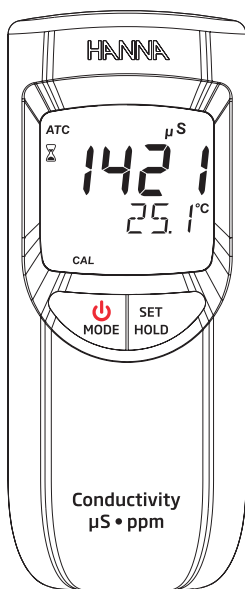
The supplied multi-parameter probe, HI763063, includes EC/TDS and temperature in one convenient, rugged probe.

Other user selectable features include different TDS factors from 0.45 to 1.00, and a range of temperature coefficients ( $\beta$ ) from 0.0 to 2.4% for better solution temperature compensation.

## MAIN FEATURES

### Main features:

- Simultaneous EC/TDS and temperature measurements on a large LCD display;
- Selectable temperature unit.
- **HI763063** dedicated EC/TDS/temperature probe
- Probe quick connect system
- Battery life indication and low battery detection
- Auto-off function
- Keystroke confirmation tone
- Waterproof casing IP67



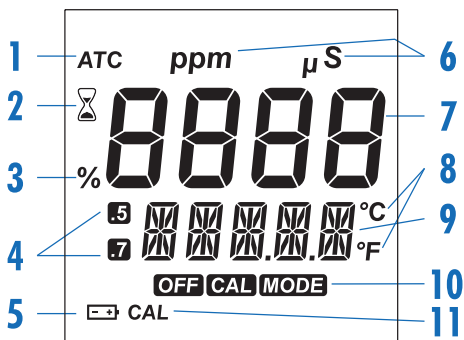
	HI99300	HI99301
Range	EC	0 to 3999 $\mu\text{S}/\text{cm}^*$ 0.00 to 20.00 $\text{mS}/\text{cm}^*$
	TDS	0 to 2000 ppm    0.00 to 10.00 ppt
	Temp.	-5.0 to 105.0 °C / 23.0 to 221.0 °F
Resolu- tion	EC	1 $\mu\text{S}/\text{cm}$ 0.01 $\text{mS}/\text{cm}$
	TDS	1 ppm (mg/L)    0.01 ppt (g/L)
	Temp.	0.1 °C / 0.1 °F
Accuracy @ 20°C/68°F	$\pm 2\%$ F.S. (EC/TDS) $\pm 0.5$ °C / $\pm 1.0$ °F Temperature	
Temperature Compensation	Automatic, with $\beta$ selectable from 0.0 to 2.4 %/°C with 0.1 increments	
EC/TDS Calibration	Automatic, one-point at	
	1413 $\mu\text{S}/\text{cm}$ 12.88 $\text{mS}/\text{cm}$	
	or 1382 ppm (CONV=0.5)	or 6.44 ppt (CONV=0.5)
	or 1500 ppm (CONV=0.7)	or 9.02 ppt (CONV=0.7)
TDS conversion factor	Selectable from 0.45 to 1.00 with 0.01 increments	
Probe (included)	HI763063 EC/TDS/temperature sensor, DIN connector and 1 m (3.3') cable	
Battery type / life	1.5V AAA (3 pcs.) approx. 500 hours of continuous use	
Auto-Off	user selectable: after 8 min, 60 min or disabled	
Environment	0 to 50 °C (32 to 122 °F) RH max. 100%	
Meter Dimensions	154 x 63 x 30 mm (6.1 x 2.5 x 1.2")	
Meter Mass (with batteries)	196 g (6.91 oz.)	
Casing Ingress Protection Rating	IP67	

\* displays  $\mu\text{S}$  for  $\mu\text{S}/\text{cm}$ .

\* displays  $\text{mS}$  for  $\text{mS}/\text{cm}$ .

# DISPLAY DESCRIPTION

- 1 Automatic Temperature Compensation indicator
- 2 Stability indicator
- 3 Battery percentage
- 4 TDS conversion factor
- 5 Low battery indicator
- 6 Measurement unit
- 7 Primary LCD
- 8 Temperature unit
- 9 Secondary LCD
- 10 Meter modes indicator
- 11 EC calibration tag






Each meter is supplied with batteries. Before using the meter for the first time, open the battery compartment and insert batteries, observing the polarity (see “Battery Replacement”).



### TO CONNECT THE ELECTRODE

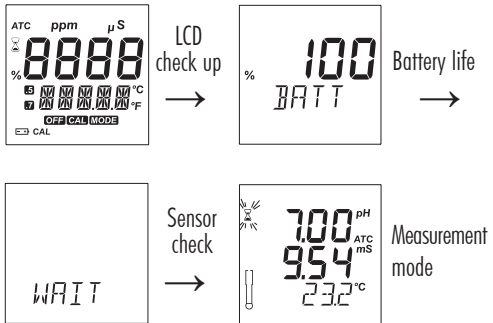
With the meter turned off, connect the **HI763063** probe to the DIN socket on the bottom of the meter by aligning the pins and pushing in the plug firmly. Remove the protective cap from the probe before taking any measurements.

### TO TURN THE METER ON

To turn the meter ON, press the  button on the front of the meter. If it does not turn on, make sure that the batteries are properly installed in their place.

The meter is provided with an active acoustic signal when a key is pressed.

At start-up the meter displays all LCD segments for a few seconds, followed by the percentage indication of the remaining battery life, displaying “**WAIT**” until electrode check is in process then the meter enters the normal measurement mode.



*Note: The meter detects the presence and the type of the probe at its input.*

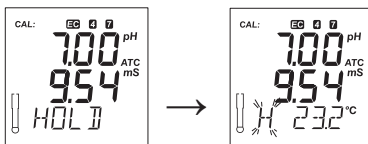
- If the probe is not connected the message "NO" "PROBE" appears alternatively on the secondary LCD.
- If the probe is not compatible "WRONG" "PROBE" message appears alternatively on the secondary LCD line with "---" blinking on the first LCD line.
- If the readings are out of range, the nearest range limits are displayed blinking (E.g. 3999 μS -5.0 °C).

## TO SELECT THE MEASUREMENT RANGE

While in measurement mode, press the **SET** button to select EC or TDS measurement on the LCD.

## TO FREEZE THE MEASUREMENT VALUES

While in measurement mode, press and hold the **SET** button until "HOLD" appears on the second LCD line for 1 second. The reading of EC and temperature will be frozen on the LCD with "H" blinking.




Press any button to resume active measurements.


### TO ENTER CALIBRATION MODE

Press and hold the  button until "POWER" and **OFF** tag is replaced by "STD", **CAL** tag if standard calibration is selected from setup menu. Release the button.

### TO ENTER SETUP MODE

Press and hold  button until "STD" and **CAL** tag is replaced by "SETUP" and **MODE** tag. Release the button.


### TO TURN THE METER OFF

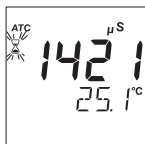
While in measurement mode, press the  button. "POWER" and **OFF** tag will appear. Release the button.

## EC MEASUREMENT AND CALIBRATION

Place the probe in the sample to be tested.

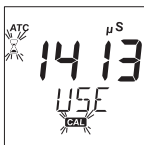
Use plastic beakers or containers to minimize any electromagnetic interference. Tap the probe lightly on the bottom of the container to remove

air bubbles that may be trapped inside the tip. Wait for a few minutes for the temperature sensor to reach thermal equilibrium, when the  tag disappears. The LCD displays the EC or TDS value (automatically compensated for temperature) on the primary LCD, while the secondary LCD displays the sample temperature.



### EC calibration

Before calibration, rinse the sensor tip with a heavy stream of purified water then shake excess water from the probe.





Select calibration "STD" **CAL**. The meter enters the calibration mode and " $\mu\text{S}$  1.41 USE" (HI99300) or "mS 12.88 USE" (HI99301) is displayed with **CAL** tag blinking. Immerse the probe in calibration solution. If the standard value is recognized "REC" is displayed then "WAIT" until the calibration is accepted. The LCD will display "SAVE" for 1 second and return to normal measurement mode. If the standard is not recognized or the slope is out of accepted range "--- **WRONG**" is display. Change the calibration solution, clean the electrode or press any key to exit calibration. When the calibration procedure is completed, the "CAL" tag is turned on.

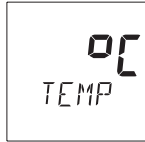
*Note: - Beta should be set to 1.9 during calibration.*


*- Since there is a known relationship between the EC and TDS reading, it is not necessary to calibrate the meter in TDS. If the conversion factor is either 0.5 or 0.7, the meter will allow a direct calibration in TDS by using the Hanna calibration solutions.*

## SETUP MODE


Setup mode allows the selection of the Temperature unit, Auto-off, Beep, temperature compensation factor for EC and TDS conversion factor. To enter Setup mode press and hold  button until "STD" and **CAL** tag is replaced by "SETUP" and **MODE** tag. Release the button.

- "TEMP" is displayed on the secondary LCD line with the current temperature unit (E.g. "TEMP °C"), for °C/°F selection, use the **SET** button. After the temperature unit has been selected, press  to confirm and to enter the "A-OFF" selection.




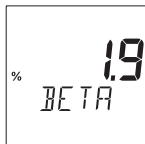
- Use the **SET** button, to cycle through the auto-off choices: 8 minutes ("8", default value), 60 minutes ("60") or disabled ("---"). Press  to confirm and to enter the "BEEP" selection.




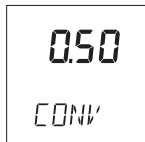
- To switch ON or OFF the beep tone, press the **SET** button; press  to confirm and to enter the calibration buffer selection "BETA".



- "BETA" is displayed on the secondary LCD line with the current temperature compensation factor (E.g. "1.9"), use **SET** button to modify the value. Press  to confirm and to enter TDS conversion factor "CONV".

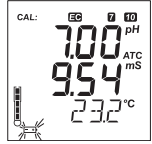


- "CONV" is displayed on the secondary LCD line with the current TDS factor (E.g. "0.50"), for selecting other value use the **SET** button. Press  to confirm and to return to normal mode.



## BATTERY REPLACEMENT

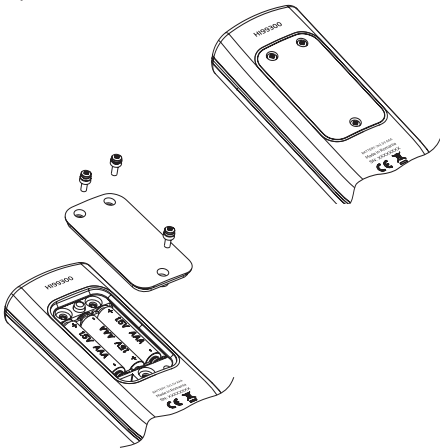
When the remaining battery life is less than 10% the battery tag blinks on the display to warn the user.



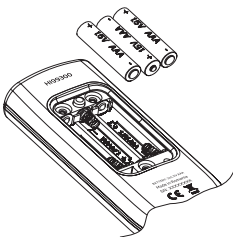
### Battery Error Prevention System (BEPS)

If the battery is too weak ("0%") the display shows "bAtt", "DEAD" for few seconds then the meter power off. Immediately replace the batteries with new ones.

The batteries are accessed by opening the battery cover on the back of the instrument. Remove protective boot if present.



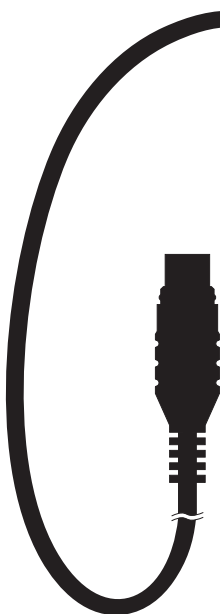
Replace the three 1.5V AAA alkaline batteries located in the battery compartment, observing the indicated polarity.



Replace the battery cover making sure that the gasket is in place.


<b>HI763063</b>	Conductivity probe/total dissolved solids with built-in temperature sensor, DIN connector and 1 m (3.3') cable
<b>HI7030M</b>	12880 $\mu\text{S}/\text{cm}$ solution, 230 mL bottle
<b>HI7031M</b>	1413 $\mu\text{S}/\text{cm}$ solution, 230 mL bottle
<b>HI7032M</b>	1382 ppm (mg/L) solution, 230 mL bottle
<b>HI70038M</b>	6.44 ppt (g/L) solution, 230 mL
<b>HI70442M</b>	1500 ppm (mg/L) solution, 230 mL
<b>HI710028</b>	Silicon rubber boot orange color
<b>HI76405</b>	Electrode holder

## ACCESSORIES



Quick connector with  
Rubber protection, and  
1 meter cable



 Code and serial  
number on the  
other side

 Temperature sensor  
EC/TDS sensor



## **PREPARATION**

- Remove the protective cap. Rinse with water.

## **STORAGE**

- Replace the protective cap.

**Note:** NEVER STORE THE ELECTRODE IN DISTILLED WATER.

## **CLEANING PROCEDURE**

- Soak in Hanna [HI7061](#) general cleaning solution or for approximately 20 minutes. Rinse well and calibrate before using.
- The two pins can be cleaned by rubbing with abrasive paper.

All Hanna Instruments conform to the **CE European Directives**.



RoHS  
compliant

**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 product, make sure it is entirely suitable for your specific application and for the environment in which it is used. Any variation introduced by the user to the supplied equipment may degrade the meters' performance. For yours and the meter's safety do not use or store the meter in hazardous environments.

## Warranty

**HI99300** and **HI99301** are warranted for two 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 (see engraved in the back of the meter) 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 meter is to be returned to Hanna Instruments, first obtain a Returned Goods Authorization number from the Technical Service department and then send it with shipping costs prepaid. When shipping any meter, make sure it is properly packed for complete protection.

Hanna Instruments reserves the right to modify the design, construction or appearance of its products without advance notice.

## World Headquarters

Hanna Instruments Inc.  
Highland Industrial Park  
584 Park East Drive  
Woonsocket, RI 02895 USA  
[www.hannainst.com](http://www.hannainst.com)

## Local Office

Hanna Instruments Inc.  
270 George Washington Highway  
Smithfield, RI 02917  
Phone: 800.426.6287  
Fax: 401.765.7575  
e-mail: [tech@hannainst.com](mailto:tech@hannainst.com)