To exit calibration and reset default values

- After entering the calibration mode and before the point is accepted, it is possible to quit the procedure and return to the last calibration data by pressing the ⏻/MODE button. The LCD displays "---- ESC" for 1 second and the meter returns to measurement mode.

pH Measurement and Calibration

- Make sure the meter has been calibrated before use.
- If the electrode is dry, soak it in HI70300 storage solution for 30 minutes to reactivate it.
- Submerge the probe in the sample to be tested while stirring it gently. Wait until the "Stability" tag on the LCD disappears.
- The LCD displays the pH value (automatically compensated for temperature) on the primary LCD, while the secondary LCD displays the sample temperature.
- If measurements are taken in different samples successively, rinse the probe tip thoroughly to eliminate cross-contamination. After cleaning, rinse the probe tip with some deionized water and some of the sample to be measured.

pH calibration

Select calibration type "CAL STD" from meter setup.

- Enter calibration mode while in pH measurement mode.
- Place the sensor into the first calibration buffer. If performing a two-point calibration, use pH 7.01 buffer first.
- The meter will enter the calibration mode, displaying "pH 7.01 USE."

Follow directions for single and two-point calibration below:

Single-point calibration

1. Place the probe in any buffer from the selected buffer set. The meter will automatically recognize the buffer value.
2. If the buffer is not recognized or the calibration offset is out of the accepted range"---- WRNG" is displayed.
3. If the buffer is recognized "REC" is displayed until the reading is stable and the calibration is accepted.

- If using pH 7.01, after acceptance of the buffer press any key to exit. "OK 1" message is displayed and meter returns to pH measurement mode.
- If using pH 4.01 or 10.01 buffer the "OK 1" message is displayed and meter returns to pH measurement mode.

Two-point calibration

Proceed with steps 1 through 3 under single-point calibration using pH 7.01 pH buffer first. Then follow steps below:

- The "pH 4.01 USE" message is then displayed.
- Place the probe in the second calibration buffer (pH 4.01 or 10.01). When the second buffer is accepted, the LCD will display "OK 2" for 1 second and the meter will return to the normal measurement mode.
- If the buffer is not recognized or the slope is out of accepted range "---- WRNG" is displayed. Change the buffer, clean the electrode or press any key to exit calibration.

Note: When the calibration procedure is completed, the "CAL" tag is turned on.

It is always recommended to carry out a two-point calibration for better accuracy.

EC Measurement and Calibration

- Place the electrode 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 "Stability" 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

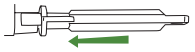
Select calibration type "CAL STD" from meter setup.

- Enter calibration mode while in EC measurement mode.
- The meter enters the calibration mode and "mS 1.41 USE" is displayed. Immerse the probe in 1.41 mS/cm or 5.00 mS/cm calibration solution.
- If the standard value is recognized "REC" is displayed until the reading is stable and calibration is accepted.
- The LCD will display "OK" for 1 second and return to normal measurement mode.
- If the standard is not recognized or the slope is out of accepted range"---- WRNG" 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.

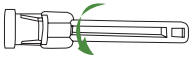
pH Electrode Maintenance

- When not in use, rinse the electrode with water to minimize contamination and store it with a few drops of storage (HI70300) solution in the protective cap after use.

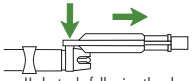
  DO NOT USE DISTILLED OR DEIONIZED WATER FOR STORAGE PURPOSES.
- If the electrode has been left dry, soak in storage solution for at least one hour to reactivate it.
- To prolong the life of the pH electrode, it is recommended to clean it monthly by immersing it in the HI7061 cleaning solution for half an hour. Afterwards, rinse it thoroughly with tap water and recalibrate the meter.
- The pH electrode can be easily replaced by using the supplied tool (HI73128). Insert the tool into the electrode cavity as shown below.



- Rotate the electrode counterclockwise.



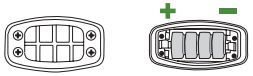
- Pull the electrode out by using the other side of the tool.



- Insert a new pH electrode following the above instructions in revers order.

Battery Replacement

The meter displays the remaining battery percentage every time it is switched on. When the battery level is below 5%, the ▭ symbol on the bottom left of the LCD lights up to indicate a low battery condition. The batteries should be replaced soon. If the battery level is low enough to cause erroneous readings, the meter shows "% 0 BATT" and the Battery Error Prevention System (BEPS) will automatically turn the meter off.



To change the batteries, remove the 4 screws located on the top of the meter. Once the top has been removed, carefully replace the 4 batteries located in the compartment while paying attention to their polarity.
Replace the top, making sure that the gasket is properly seated in place, and tighten the screws to ensure a watertight seal.

Accessories

Code	Description
HI5036-023	Quick Cal pH and EC one-point calibration solution, 230 mL bottle
HI50036P	Quick Cal pH and EC one-point calibration solution, 20 mL sachets (25 pcs.)
HI73127	Replaceable pH electrode
HI73128	Electrode removal tool
HI70004P	pH 4.01 buffer solution, 20 mL sachet (25 pcs.)
HI70007P	pH 7.01 buffer solution, 20 mL sachet (25 pcs.)
HI70010P	pH 10.01 buffer solution, 20 mL sachet (25 pcs.)
HI77400P	pH 4.01 & 7.01 buffer solutions, 20 mL sachet (25 pcs.)
HI7004M	pH 4.01 buffer solution, 230 mL bottle
HI7007M	pH 7.01 buffer solution, 230 mL bottle
HI7010M	pH 10.01 buffer solution, 230 mL bottle
HI70031P	1413 µS/cm solution, 20 mL sachet (25 pcs.)
HI70039P	5000 µS/cm calibration solution, 20 mL sachet (25 pcs.)
HI7061M	Electrode cleaning solution, 230 mL bottle
HI70300M	Electrode storage solution, 230 mL bottle
HI740026P	Replacement 1.5V batteries (12 pcs.)

Warranty

This meter is 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, 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.

IST98131 09/16

INSTRUCTION MANUAL

GroLine

HI98131
Waterproof pH/EC/TDS Combo Tester



HANNA® instruments

Thank You

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

For more information about Hanna Instruments and our products, visit www.hannainst.com or e-mail us at sales@hannainst.com.

For technical support, contact your local Hanna Instruments Office or e-mail us at tech@hannainst.com.

Find your local Hanna Instruments Office on www.hannainst.com.

Preliminary Examination

Remove the instrument from the packing material and examine it carefully to make sure that no damage has occured during shipment. If noticeable damage is evident, contact your local Hanna Instruments Office.
Each meter is supplied with:

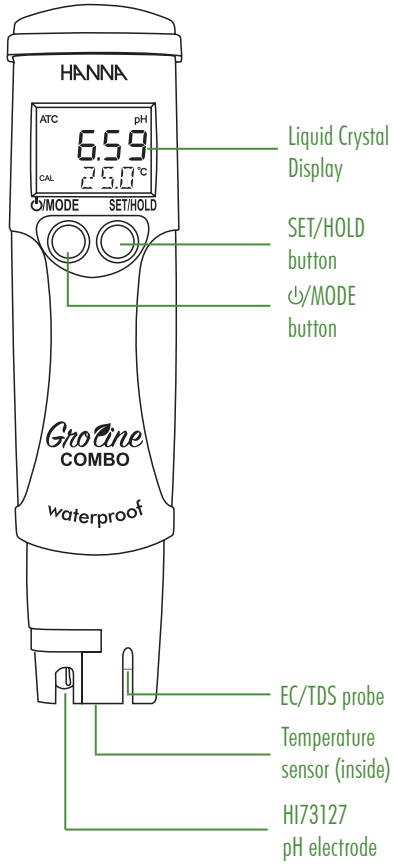
- 1.5V battery (4 pcs.)
- Instruction manual
- Quality Certificate
- HI73127 pH Electrode
- HI73128 Electrode removal tool
- Electrode Cleaning Solution sachet (1 pc.)
- Quick Cal pH and EC one-point calibration solution sachet (4 pcs.)

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

General Description

HI98131 is waterproof pH/EC/TDS/temperature meter. The housing has been completely sealed against humidity and designed to float. All pH and EC/TDS readings are automatically temperature compensated (ATC), and temperature values can be displayed in °C or °F units.
The meters can be calibrated at one or two points for pH and one point for EC (with auto-recognition buffer/standard solution). Quick calibration feature easy calibration of pH and EC in one point, at the same time, by using HI50036 quick calibration solution.
These meters are also provided with battery level indication at start-up, and with a low battery symbol which warns the user when the batteries need to be replaced. In addition the Battery Error Prevention System (BEPS) avoids erroneous reading caused by low voltage level by turning the meter off. The HI73127 pH electrode, supplied with the meter, is interchangeable and can be easily replaced by the user. The stainless steel encapsulated temperature sensor facilitates faster and more accurate temperature measurement and compensation.

Operation



Recommendations for Users

Before using Hanna Instruments products, make sure that they are entirely suitable for your specific application and for the environment in which they are used. Operation of these instruments may cause unacceptable interferences to other electronic equipment. Take all necessary steps to correct such interferences. Avoid touching the electrode area. Any variation introduced by the user to the supplied equipment may degrade the instrument's EMC performance. Do not put the instrument in a microwave oven. Do not use or store the instrument in hazardous environments.

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

Specifications

pH	Range	0.00 to 14.00 pH
	Resolution	0.01 pH
	Accuracy	±0.10 pH
	Calibration	automatic, one or two-point calibration (using pH 4.01, 7.01, 10.01 buffers); one point calibration using HI50036 Quick Cal pH and EC one-point calibration solution
	Temperature Compensation	automatic
EC	Range	0.00 to 6.00 mS/cm
	Resolution	0.01 mS/cm
	Accuracy	±2% F.S.
	Calibration	automatic, one-point at 1.41 mS/cm or 5.00 mS/cm; one point calibration using Quick Cal pH and EC one-point calibration solution
	Temperature Compensation	automatic, with β= 1.9%/°C
TDS	Range	0 to 3000 ppm (0.5 CF); 0 to 3999 ppm (0.7 CF)
	Resolution	10 ppm (mg/L)
	Accuracy	±2% F.S.
	Conversion Factor (CF)*	0.5 (500 ppm) or 0.7 (700 ppm)
Temperature	Range	0.0 to 60.0 °C (32.0 to 140.0 °F)
	Resolution	0.1 °C (0.1 °F)
	Accuracy	±0.5 °C (±1.0 °F)
Additional Specifications	Battery Type	1.5V (4 pcs.)
	Battery Life	approximately 100 hours of continuous use
	Auto-Off	after 8 minutes, 60 minutes or disabled
	Environment	0 to 50 °C (32 to 122 °F); RH max. 100%
	Dimensions	163 x 40 x 26 mm (6.4 x 1.6 x 1.0")
	Weight	95 g (3.4 oz)

**1000 µS/cm = 500 ppm with 0.5 CF*

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Operational Guide

To turn the meter on and to check battery status

Press and hold the ⏻/MODE button for 2-3 seconds. All the used segments on the LCD will be visible for a few seconds, followed by a percent indication of the remaining battery life (Eg. "% 100 BATT").

To freeze the display

Press the SET/HOLD button for 2-3 seconds until "HOLD" appears on the secondary display. Press any button to return to normal mode.

To turn the meter off

Press the ⏻/MODE button while in normal measurement mode. "OFF" will appear on the secondary display. Release the button.

Note: Before taking any measurement make sure the meter has been calibrated.

To clear a previous calibration, press the SET/HOLD button after entering the calibration mode. The secondary LCD will display "CLR" for 1 second and the meter will return to normal measurement mode. The "CAL" symbol on the LCD will disappear. The meter will be reset to the default calibration.

Meter Setup

While in measurement mode, press and hold the ⏻/MODE button until "UNIT" appears on the secondary display. Pressing the ⏻/MODE button will now cycle through the various units and features below which can then be modified with the SET/HOLD button.

To select EC or TDS

To select TDS measurement with 0.5 TDS factor press SET/HOLD button until "ppm 500 UNIT" is displayed. To select TDS measurement with 0.7 TDS factor press SET/HOLD button until "ppm 700 UNIT" is displayed. By pressing SET/HOLD button again "mS EC UNIT" unit is selected.

To select calibration type

Press the ⏻/MODE until "CAL" appears on primary display. Press the SET/HOLD button to choose from "CAL STD" (standard calibration) or "CAL QUIK" (one-point quick calibration).

To select the temperature unit (°C/°F)

Press ⏻/MODE button until "TEMP" and the selected temperature unit "°C" or "°F" is displayed. Press SET/HOLD button to select temperature unit.

To select the Auto-Off time

Press ⏻/MODE button until "AOFF" appears on the secondary display and selected time "8", "60" or "----" (disabled) is displayed on the primary display. Press SET/HOLD button to select Auto-Off interval.

To return to measurement mode

Press ⏻/MODE button.

Quick Calibration

Select calibration type "CAL QUIK" from meter setup.

- Enter calibration mode.
- Immerse the probe in the HI50036 calibration solution.
- When the standard value is recognized and stability is reached the meter automatically accepts the calibration.
- The LCD will display "OK" for 1 second and return to normal measurement mode.
- If the standard is not recognized or the slope is out of accepted range "---- WRNG" is displayed. 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.