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You can read the recommendations in the user guide, the technical guide or the installation guide for HANNA INSTRUMENTS HI 87314. You'll find the answers to all your questions on the HANNA INSTRUMENTS HI 87314 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

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Instruction Manual

HI 87314 EC/Resistivity Meter



WARRANTY

All Hanna Instruments meters are warranted for two years against defects in workmanship and materials when used for their intended purpose and maintained according to instructions. Electrodes and probes are warranted for a period of six months.

This warranty is limited to repair or replacement free of charge. Damages due to accident, misuse, tampering or lack of prescribed maintenance are not covered.

If service is required, contact the dealer from whom you purchased the instrument. If under warranty, report the model number, date of purchase, serial number and the nature of the failure. 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 Number from the Customer Service department and then send it with shipment costs prepaid. When shipping any instrument, make sure it is properly packaged for complete protection.

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

Dear Customer,

Thank you for choosing a Hanna product. This manual will provide you with the necessary information for the correct operation of the meter. Please read it carefully before using the meter. If you need additional technical information, do not hesitate to e-mail us at tech@hannainst.com. This instrument is in compliance with the CE directives.

PRELIMINARY EXAMINATION

Remove the instrument from the packing material and examine it carefully to make sure that no damage has occurred during shipment. If there is any damage, notify your Dealer. The meter is supplied complete with:

- HI 76302W 4-ring conductivity probe
- HI 3316D resistivity probe
- 9 V battery (not rechargeable)
- calibration screwdriver and instructions.

Note: Conserve all packing material until the instrument has been observed to function correctly. Any defective item must be returned in its original packing.

GENERAL DESCRIPTION

HI 87314 is a combination portable meter that can read conductivity in 4 different ranges, and resistivity.

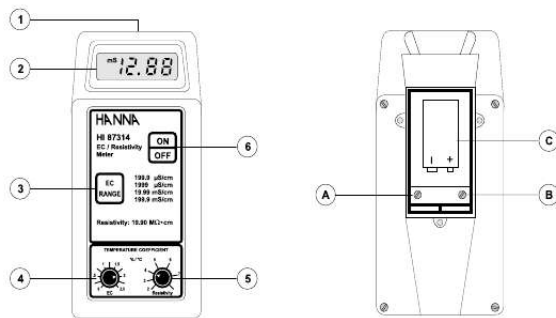
For conductivity measurements, the calibration is a simple 1 point procedure through a trimmer located in the battery compartment, and the supplied probe does not require recalibration when switching from one range to another. The 4-stainless-steel-ring probe has a built-in temperature sensor that automatically compensates for temperature changes, and the temperature coefficient can be adjusted from 0 to 2.5% through a knob on the front panel.

For resistivity measurements, the meter is factory calibrated and, if necessary, calibration can be adjusted by acting on the proper trimmer located in the battery compartment. The HI 3316D resistivity probe is easy to clean and requires little maintenance. It also features a built-in temperature sensor to automatically compensate for temperature variations, with an user-selectable (from 2 to 7%) coefficient.

Both probes use the same DIN plug on the top of the instrument, and the meter automatically recognizes which probe is connected.

The instrument can also be powered by a 9V rechargeable battery, thanks to its inductive system for battery recharge, with no external contact, to ensure a watertight seal. The battery can be recharged using the HI 710040 battery charger (optional), without needing to open the meter or remove the battery.

FUNCTIONAL DESCRIPTION



- 1) DIN connector for EC and resistivity probe
- 2) Liquid Crystal Display
- 3) EC RANGE key, to select the conductivity range
- 4) Conductivity temperature coefficient knob
- 5) Resistivity temperature coefficient knob
- 6) ON/OFF key, to turn the meter ON and OFF

- A) Resistivity calibration trimmer
- B) Conductivity calibration trimmer
- C) 9 V battery (can also be rechargeable)

Recommendations for Users

Before using these products, make sure that they are entirely suitable for the environment in which they are used. Operation of these instruments in residential areas could cause unacceptable interference to radio and TV equipment, requiring the operator to take all necessary steps to correct interferences. Any variation introduced by the user to the supplied equipment may degrade the instruments' EMC performance. To avoid damages or burns, do not perform any reconnection to increase power.

SPECIFICATIONS

Range	199.9 $\mu\text{S}/\text{cm}$ / 1999 $\mu\text{S}/\text{cm}$ 19.99 mS/cm / 199.9 mS/cm 0 to 19.90 $\text{M}\Omega\cdot\text{cm}$
Resolution	0.1 $\mu\text{S}/\text{cm}$ / 1 $\mu\text{S}/\text{cm}$ / 0.01 mS/cm / 0.1 mS/cm 0.10 $\text{M}\Omega\cdot\text{cm}$
Accuracy (@20°C/68°F)	$\pm 1\%$ FS for EC $\pm 2\%$ FS for resistivity
Calibration	Manual, 1 point, for both EC and resistivity
Temperature Compensation	Automatic from 0 to 50°C with 8 selectable from 0 to 2.5%/°C for EC and from 2 to 7%/°C for resistivity
Probes (included)	HI 76302W for conductivity HI 3316D for resistivity
Battery Type	1 x 9V (also rechargeable)
Battery Life	Approx. 100 hours of use
Environment	0 to 50°C (32 to 122°F); RH max. 100%
Dimensions	164 x 76 x 45 mm (6.5 x 3.0 x 1.8")
Weight	250 g (8.8 oz.)



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Manual abstract:

This manual will provide you with the necessary information for the correct operation of the meter. Please read it carefully before using the meter. If you need additional technical information, do not hesitate to e-mail us at tech@hannainst.com or tech@hannainst.com. If there is any damage, notify your Dealer.

Any defective item must be returned in its original packing. www.hannainst.com WARRANTY All Hanna Instruments meters are warranted for two years against defects in workmanship and materials when used for their intended purpose and maintained according to instructions.

Electrodes and probes are warranted for a period of six months. This warranty is limited to repair or replacement free of charge. Damages due to accident, misuse, tampering or lack of prescribed maintenance are not covered. If service is required, contact the dealer from whom you purchased the instrument. If under warranty, report the model number, date of purchase, serial number and the nature of the failure.

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 Number from the Customer Service department and then send it with shipment costs prepaid. When shipping any instrument, make sure it is properly packaged for complete protection. GENERAL DESCRIPTION HI 87314 is a combination portable meter that can read conductivity in 4 different ranges, and resistivity. For conductivity measurements, the calibration is a simple 1 point procedure through a trimmer located in the battery compartment, and the supplied probe does not require recalibration when switching from one range to another.

The 4-stainless-steel-ring probe has a built-in temperature sensor that automatically compensates for temperature changes, and the temperature coefficient can be adjusted from 0 to 2.5% through a knob on the front panel. For resistivity measurements, the meter is factory calibrated and, if necessary, calibration can be adjusted by acting on the proper trimmer located in the battery compartment. The HI 3316D resistivity probe is easy to clean and requires little maintenance. It also features a built-in temperature sensor to automatically compensate for temperature variations, with an user-selectable (from 2 to 7%) coefficient. The instrument will automatically recognize which probe is connected.

Adjust the conductivity TC knob to 2%/°C. Note: If the display shows "1", the reading is over-range. Select the next higher range. Allow a few minutes for the reading to stabilize and adjust the conductivity calibration trimmer located in the battery compartment, to read the calibration solution value @25°C (77°F).

All subsequent measurements will be referenced to 25°C. If you need to reference the measurements to 20°C, adjust the calibration knob to read the calibration solution value @20°C (68°F). See conductivity vs. temperature chart on the calibration solution sachet or bottle label. Calibration is now complete and the instrument is ready for use. RESISTIVITY CALIBRATION The meter is factory calibrated for resistivity range, and usually needs recalibration only after a resistivity probe replacement. In this case, follow the below instructions. Immerse the probe in a solution of known resistivity value, and wait for the reading to stabilize. Adjust the resistivity calibration trimmer located in the battery compartment, until the resistivity value of the reference solution is displayed. BATTERY REPLACEMENT When the battery becomes weak, the meter displays a blinking additional decimal point on the left side of the LCD.

When the low battery indicator appears only a few hours of battery life is remaining. A low battery level may also result in unreliable measurements. It is recommended to replace the battery immediately. Unscrew the 3 screws on the back of the meter, remove the battery cover and replace the battery while paying attention to its polarity. TAKING CONDUCTIVITY MEASUREMENTS Immerse the HI 76302W probe in the solution, while making sure that the holes of the sleeve are completely submerged.

Tap the probe lightly on the bottom of the beaker to remove any air bubbles trapped inside. Adjust the conductivity TC knob to the temperature coefficient value of the solution. Select the appropriate conductivity range, by pressing EC RANGE key. Note: If the display shows "1", the reading is over-range. Select the next higher range.

Allow a few minutes for the reading to stabilize, and the LCD will display the temperature compensated conductivity reading. ACCESSORIES HI 76302W 4-ring conductivity probe with built-in temperature sensor, DIN connector and 1 m (3.3') cable HI 3316D Resistivity probe with built-in temperature sensor, DIN connector and 1 m (3.3') cable HI 7030M 12880 µS/cm, 230 mL bottle HI 7031M 1413 µS/cm, 230 mL bottle HI 7033M 84 µS/cm, 230 mL bottle HI 7034M 80000 µS/cm, 230 mL bottle HI 7035M 111800 µS/cm, 230 mL bottle HI 7039M 5000 µS/cm, 230 mL bottle HI 7061M General cleaning solution, 230 mL bottle HI 710040 No-contact, inductive battery charger HI 731326 Calibration screwdriver (20 pcs) HI 76405 Electrode holder TAKING RESISTIVITY MEASUREMENTS Immerse the HI 3316D probe in the solution, while making sure that the hole on the probe body is completely submerged. Wait for a few seconds to allow the reading to stabilize. The resistivity value of the solution will be displayed on the LCD. Note: If the display shows "1", the reading is over-range. Plug the recharger and the green LED will turn on, then put the meter on the recharger and the LED will turn to orange, to indicate that the battery is charging. It will take approx. 14 hours to completely charge the battery.

A 9V Ni-MH rechargeable battery can last for about 5 years. Note: NEVER USE THE HI 710040 CHARGER WITH NONRECHARGEABLE BATTERY. Note: Dispose of the Ni-MH battery according to local regulations. IST87314 11/05.



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